

Bushfire Assessment Report

Proposed: **Alterations & Additions**

At:
**24 The Serpentine,
Bilgola Beach NSW**

Reference Number: 201372

Prepared For:
Marian Welsh
C/- Fluid Building

7th May 2020



Prepared By:
**Building Code & Bushfire
Hazard Solutions Pty Limited**

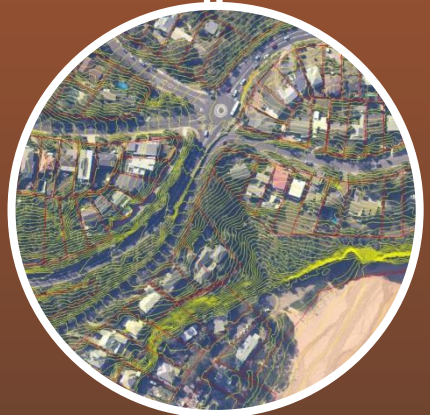
Tel: (02) 9457 6530
Fax: (02) 9457 6532

PO Box 124
Berowra NSW 2081
ABN 19 057 337 774

www.bushfirehazardsolutions.com.au



**SILVER
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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.

Where any discrepancy between this document and the development approval or the NSW Rural Fire Service requirements is found, the conditions of consent always take precedence until such time as an application to review, amend or vary these conditions is approved.

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Version Control				
Version	Date	Author	Reviewed by	Details
1	7/05/2020	Duncan Armour	Stuart McMonnies BPAD Accreditation No. 9400	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>
ESD	Ecologically Sustainable Development
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 alterations and additions within an existing residential allotment located at 24 The Serpentine, Bilgola Beach (Lot 114 DP 16393).

The subject property is a residential allotment which has street frontage to The Serpentine to the north, abuts private allotments to the east and west and Marine Park to the west. The vegetation identified as being the hazard is within road reserves and vegetated allotments along Barrenjoey Road to the west of the subject property.

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 Planning for Bush Fire Protection - 2019 (PBP) must apply in this instance.

2.0 Purpose of Report

The purpose of this Bushfire Assessment Report is to provide the owners, The Rural Fire Service and Council with an independent bushfire hazard determination 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 hazard 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.

Where Council considers a bushfire risk is associated with surrounding private lands or lands owned by an authority, Council could seek to issue notice under Section 66 of the Rural Fires Act on any or all surrounding properties for the purposes of reducing and maintaining safe levels of vegetation and thus reducing the possibility of bushfire impact to the subject property and any adjoining properties.

4.0 Referenced Documents and Persons

Comments provided are based on the requirements of the NSW Environmental Planning and Assessment Act - 1979 (EP&A Act), the RFS document known as 'Planning for Bush Fire Protection - 2019' for the purposes of bushfire hazard determination and Australian Standard 3959 - 2018 titled 'Construction of buildings in bushfire-prone areas' as amended for building/structural provisions.

A company representative has undertaken a site inspection of the subject property and the surrounding area.

The site plan prepared by Ian Sercombe Architect, Project No. 20616, Dated 7/5/2020 has been referenced in the preparation of this report.

5.0 Compliance Tables & Notes

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

	North	East	South	West
Vegetation Structure	Maintained curtilages	Maintained curtilages	Maintained curtilages	Remnant
Slope	N/A	N/A	N/A	0 degrees & up
Asset Protection Zone	N/A	N/A	N/A	>50 metres
Significant Environmental Features	The Serpentine	Neighbouring private residential allotments	Stairs to beach through Low threat vegetation	Neighbouring private residential allotments
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 12.5
Required Construction Level	BAL 12.5	BAL 12.5	BAL 12.5	BAL 12.5

Compliance Summary of Bushfire Protection Measures Assessed			
Bushfire Protection Measure	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	☒	☐	7.05
Construction Standard	☒	☐	8.05
Access	☒	☐	7.06
Water Supply	☒	☐	7.07
Gas and Electrical Supplies	☒	☐	5.0

Asset Protection Zones Compliance

The available Asset Protection Zone (APZ) was measured to be >50 metres from the hazard interface to the west. The APZ consist of grounds within the subject property and land equivalent to an APZ within neighbouring residential allotments, The Serpentine and Barrenjoey Road.

Construction Level Compliance

The highest Bushfire Attack Level to the proposed works was determined from Table A1.12.5 of PBP – 2019 to be 'BAL 12.5'. The proposed works are therefore required to comply with BAL 12.5 under section 3 and 5 of AS 3959 – 2018 and the additional construction requirements under section 7.5 of PBP 2019.

Access and Services

Guideline Ref.	Proposed Development Determinations
Property Access (Driveway)	The most distant external point of the subject dwelling will be within 70 metres of a public road supporting a hydrant network and therefore the Property Access requirements detailed in Table 7.4a of PBP are not applicable.
Water Supply	The most distant external point of the building footprint will be within 70 metres from a public road supporting a hydrant network and therefore a Static Water Supply is <u>not</u> required.
Evacuation	Evacuation is possible by utilising existing road infrastructure. It is encouraged that the occupants complete a Bush Fire Survival Plan addressing "Prepare, Act Survive" as advocated by the NSW RFS http://www.rfs.nsw.gov.au/ under publications / bushfire safety.
Electrical Supply	Existing supply provided.
Gas Supply	Gas supply can comply

6.0 Aerial view of the subject allotment



Image 01: Aerial view of the subject area C/- Nearmap

7.0 Bushfire Hazard Assessment

7.01 Preface

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). Set back distances for the purpose of creating Asset Protection Zones (APZ's) must be applied and any buildings must then conform to corresponding regulations detailed in Australian Standard 3959 – 2018 'Construction of buildings in bushfire prone areas' or the NASH Standard for steel framed housing in bushfire prone areas 2014.

Planning for Bush Fire Protection 2019, (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.

The thrust of the document is to ensure that developers of new properties or sub-divisions include the constraints associated with the construction of buildings in bushfire prone areas within their proposed development sites. PBP is applicable to proposed development inside determined Category 1 or 2 areas and also inside a buffer zone radius of 100m from a Category 1 bushfire area or 30m from a Category 2 bushfire area.

The document also acknowledges 'infill' developments associated with re-development of existing properties and allows some higher levels of building safety where the increased 'set backs' (APZ's) may not be achievable.

The subject development relates to the alterations and additions of a sole occupancy dwelling within an existing residential allotment. To accord with PBP the development is classified as infill development and assessed as a s4.14 application under the Environmental Planning and Assessment Act 1979.

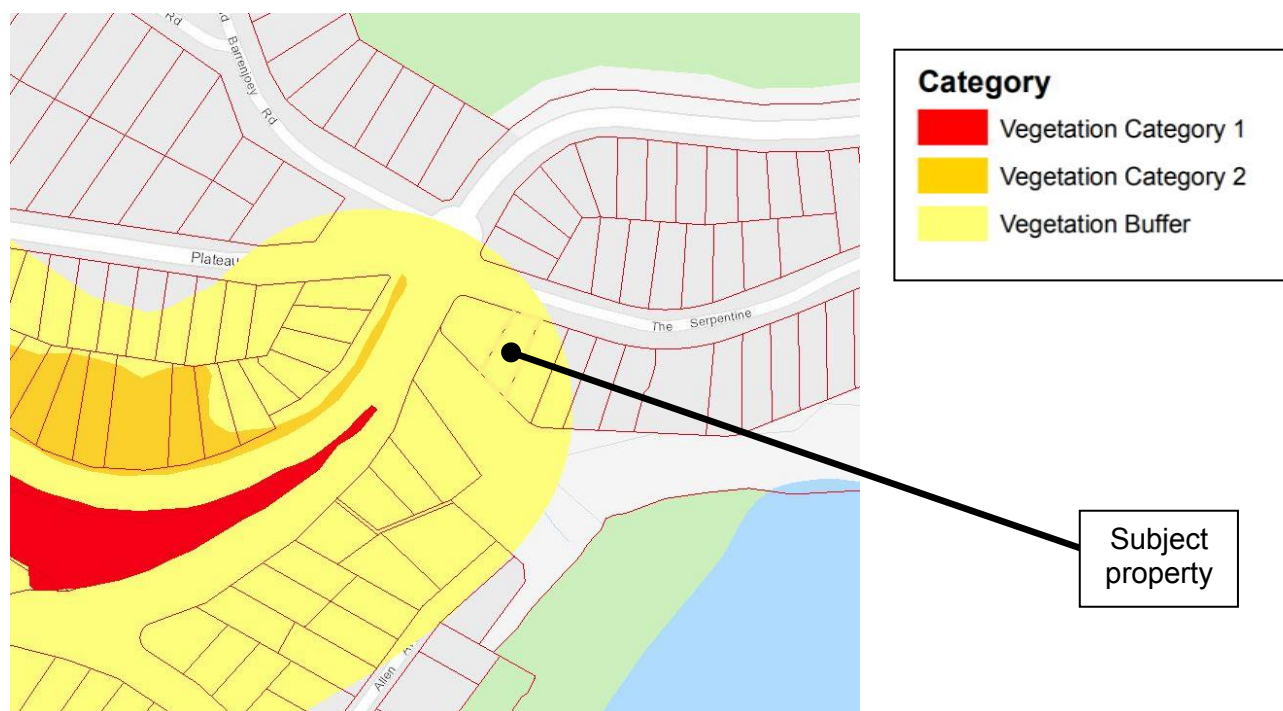


Image 02: Extract from Northern Beaches Council's Bushfire Prone Land Map

7.02 Location

The subject property is known as 24 The Serpentine, Bilgola Beach and is a residential allotment located within Northern Beaches Councils Local Government Area. The subject property has street frontage to The Serpentine to the north, abuts private allotments to the east and west and Marine Park to the west.

The vegetation identified as being the hazard is within road reserves and vegetated allotments along Barrenjoey Road to the west of the subject property.



Photograph 01: View southeast from The Serpentine toward the subject property



Image 03: Extract from street-directory.com.au

7.03 Vegetation

The vegetation identified as being the hazard is within road reserves and vegetated allotments along Barrenjoey Road to the west of the subject property. The vegetation posing a hazard to the west was found to consist of trees 5 - 20 metres in height with 30 - 70% foliage cover, the understorey consisted of exotics, low trees and ferns.

The vegetation was measured and found to provide a less than 50 metre fire run toward the subject works, therefore for the purposes of assessment under Appendix 1 (A1.11) of Planning for Bush Fire Protection the vegetation posing a hazard to the west has been determined to be Remnant.

The vegetation within Marine Park to the south and west of the subject property was found to consist of areas lantana, figs, weeds and grasses and is broken into small areas by paths, stairs and mown areas.

Section A1.10 of PBP – Low Threat Vegetation states:

The following exclusions of AS 3959 apply, and are not required to be considered for the purposes of PBP, as detailed below:

Multiple areas of vegetation less than 0.25 hectares in area and not within 20m of the site, or each other or of other areas of vegetation being classified vegetation.

Therefore the vegetation in Marine Park has not been considered a hazard, this is reflected in the Bushfire Prone Land Map and vegetation mapping which classes the vegetation as 'Weeds and Exotics'.



Image 04: Extract from Sydney Metro Mapping showing vegetation classification



Weeds &
exotics

Photograph 02: View of the vegetation within Marine Park west of the subject property



Weeds &
exotics

Photograph 03: View of the vegetation within Marine Park south of the subject property

7.04 Slope and Topography

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

- 0 degrees and up slope within the hazard to the west



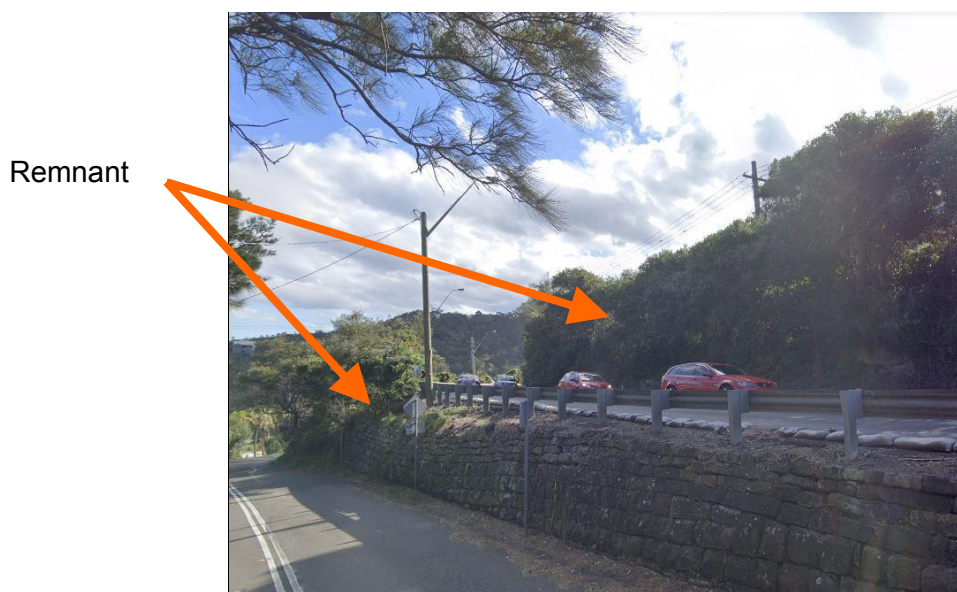
Image 04: Extract from ELVIS – Geoscience Australia (1m Contours)

7.05 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 road reserves and vegetated allotments along Barrenjoey Road to the west of the subject property.

The available Asset Protection Zone (APZ) was measured to be >50 metres from the hazard interface to the west. The APZ consist of grounds within the subject property and land equivalent to an APZ within neighbouring residential allotments, The Serpentine and Barrenjoey Road.

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



Photograph 04: View west along The Serpentine and Barrenjoey Rd toward the Remnant hazards

7.06 Property Access – Fire Services & Evacuation

The subject property has street frontage to The Serpentine to the north. Persons seeking to egress from the subject property are able to do so via the existing access drive and public roads.

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 therefore the Property Access requirements detailed in Table 7.4a of PBP 2019 are not applicable.

Access to the hazard is available via The Serpentine and Barrenjoey Road for hazard reduction for fire suppression activities. The existing access is considered adequate as part of this development

7.07 Fire Fighting Water Supply

Hydrants are available throughout The Serpentine and Barrenjoey Road for the replenishment of fire service vehicles. The most distant external point of the subject dwelling is within 70 metres of a public road that supporting a hydrant network and therefore a Static Water Supply is not required.

The existing water supply is considered adequate and is not being altered as part of this development.

8.0 Site & Bushfire Hazard Determination

8.01 Planning for Bush Fire Protection - 2019

Planning for Bush Fire Protection – 2019 (PBP) is applicable to those lands determined as being within a 'bushfire prone area' in accordance with a local Bushfire Prone Land Map as provided by the Rural Fire Service and Council.

The most appropriate method of determining site bushfire hazard under the terms of PBP is to consider the site in a singular form.

Bushfire prone areas are defined as those areas;

- *within or within 100m of high or medium bushfire hazards; or*
- *within or within 30m of low bushfire hazards.*

In this instance the subject property has been identified as being bushfire prone land therefore it is appropriate to apply PBP as follows:

Western Aspect:

- a) Vegetation Structure Remnant
- b) Slope 0 degrees & up
- c) A >50 metre Asset Protection Zones is available
- d) The Bushfire Attack Level was determined to be 'BAL 12.5'

8.02 Australian Standard AS 3959 – 2018 'Construction of buildings in bushfire –prone areas'

Australian Standard 3959 – 2018 '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 Bush Fire Protection – 2019 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 - 2018.

8.03 Correlation between bushfire impact and AS3959

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

8.04 Site Specific Bushfire Hazard Determination

All property development must be assessed on an individual basis as broad-brush approaches of documents such as PBP may not be applicable in every instance. The proposed development located at 24 The Serpentine, Bilgola Beach was assessed against the requirements of Planning for Bush Fire Protection 2019 noting the following:

- a) Water supplies for firefighting purposes are adequate.
- b) Access to the subject property is available from The Serpentine.
- c) Fire services can access the hazard via The Serpentine and Barrenjoey Road.
- d) Recommendations to maintain the Asset Protection Zones with in the subject property will be included.

8.05 Viable Construction Method

The objectives of Planning for Bush Fire Protection – 2019 are for the protection of life including fire fighters. Provided these objectives can be met the construction of buildings is feasible and both the Rural Fire Service and Council should be in a position to consider such applications.

The highest Bushfire Attack Level to the proposed works was determined from Table A1.12.5 of PBP - 2019 to be to be 'BAL 12.5'. The new works are therefore required to comply with BAL 12.5 under AS3959 – 2018 and section 7.15 of PBP 2019.

9.0 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 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 the proposed works shall comply with BAL 12.5 under Australian Standard A53959-2018 "Construction of buildings in bush fire-prone areas" Section 5 and section 7.5 of "Planning for Bush Fire Protection" 2019.

Landscaping

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

10.0 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 road reserves and vegetated allotments along Barrenjoey Road to the west of the subject property. The vegetation posing a hazard was determined to be Remnant. The proposed works will provide a >50 metre Asset Protection Zone (APZ).

The highest Bushfire Attack Level to the proposed works was determined from Table A1.12.5 of PBP - 2019 to be to be 'BAL 12.5'. The new works are therefore required to comply with BAL 12.5 under AS3959 – 2018 and section 7.5 of PBP 2019.

The existing water supply and access provisions are considered adequate and will not be altered 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

Reviewed and endorsed by
Building Code & Bushfire Hazard Solutions P/L



Stuart McMonnies

G. D. Design in Bushfire Prone Areas.
Certificate IV Fire Technology
FPA Australia BPAD Level 3 Accredited Practitioner
BPAD Accreditation No. BPAD9400



11.0 Annexure 01

List of Referenced Documents

- a) Environmental Planning and Assessment Act - 1979
- b) 'Planning for Bush Fire Protection'- 2019 - NSW Rural Fire Services & Planning NSW
- c) 'Construction of buildings in bushfire prone areas' - AS 3959 – 2018 (as - amended) – Standards Australia
- d) 'Northern Beaches Council's Bushfire Prone Land Map'
- e) Site plan prepared by Ian Sercombe Architect, Project No. 20616, Dated 7/5/2020
- f) Acknowledgements to:
 - NSW Department of Lands – SIXMaps
 - Street-directory.com.au
 - Geoscience Australia

Attachments

Attachment 01: s4.14 Compliance Certificate



Building Code & Bushfire Hazard Solutions

(Pty. Limited) ABN 19 057 337 774
PO Box 124, Berowra NSW 2081
Telephone: (02) 9457 6530 Facsimile: (02) 9457 6532
www.bushfirehazardsolutions.com.au



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

PROPERTY ADDRESS:	24 The Serpentine, Bigloa Beach
DESCRIPTION OF PROPOSAL:	Alterations and Additions
PLAN REFERENCE: (relied upon in report preparation)	Site plan prepared by Ian Sercombe Architect, Project No. 20616, Dated 7/5/2020
BAL RATING:	BAL 12.5 (If the BAL rating is FZ the application is to be referred to NSW RFS for assessment)
DOES THE PROPOSAL RELY ON ALTERNATE SOLUTIONS:	YES ☒ NO ☐ (Circle the relevant response) (If YES the application is to be referred to NSW RFS for assessment)
BUSHFIRE ASSESSMENT REPORT REFERENCE:	201372
REPORT DATE:	7 th May 2020
CERTIFICATION NO/ACCREDITED SCHEME	BPAD9400

I Stuart McMonnies 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*:

- That I am a person recognised by the *NSW Rural Fire Service* as a qualified consultant in bushfire risk assessment; and
- 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 Bushfire Protection 2019*.

Signature:  Date: 7th May 2020

