

Bushfire Assessment Report

Proposed: **Alterations & Additions**

At:
**25 Ballyshannon Road,
Killarny Heights NSW**

Reference Number: 180722

Prepared For:
Karen Spencer

9th April 2019



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

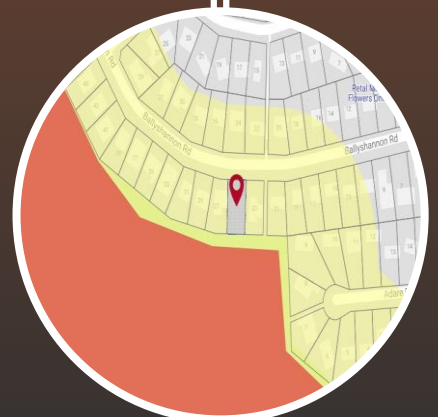
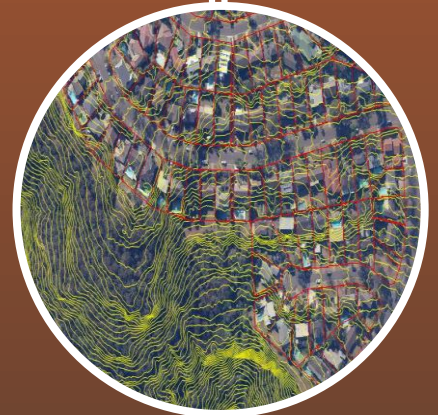
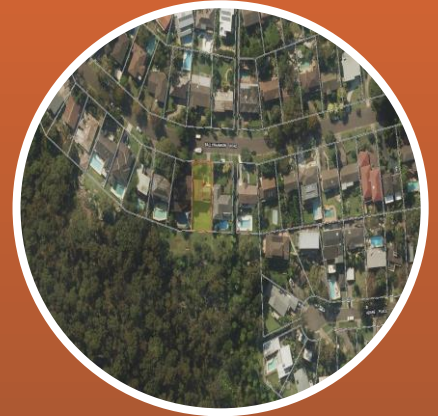
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S4.14 applications (under the Environmental Planning and Assessment Act 1979) and all infill development applications may be referred by Council to the NSW Rural Fire Service for review and concurrence during the DA process. S100B applications under 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.

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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List of Abbreviations:

APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2009 as amended.
BAL	Bushfire Attack Level
BCA	Building Code of Australia
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Northern Beaches Council
DA	Development Application
ELVISE	Elevation and Depth Foundation Spatial Data
EP&A Act	Environmental Planning and Assessment Act - 1979
ESD	Ecologically Sustainable Development
FRNSW	Fire & Rescue NSW
IPA	Inner Protection Area
NCC	National Construction Code
NP	National Park
NSP	Neighbourhood Safer Place
OPA	Outer Protection Area
PBP	Planning for Bush Fire 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

1.0 Introduction

The development proposal relates to the alterations and additions to an existing dwelling within an existing residential allotment located at 25 Ballyshannon Road, Killarney Heights (Lot 2 Section 81 DP 758566).

The subject property is a residential allotment that has street frontage to Ballyshannon Road to the north, abuts private residential allotments to the east and west and Garigal National Park to the south. The vegetation identified as being the hazard is within Garigal National Park to the south of the subject dwelling.

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 - 2006 (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 – 2006' for the purposes of bushfire hazard determination and Australian Standard AS3959 – 2009 titled 'Construction of buildings in bushfire-prone areas' as amended for building/structural provisions.

Company representatives have made several site inspections of the subject property and the surrounding area.

The plans by Matt Elkan Architect, Date April 2019 have 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 – 2006*.

	North	South	East	West
Vegetation Structure	Maintained curtilages	Forest	Maintained curtilages	Maintained curtilages
Slope	N/A	5 – 10 degrees down	N/A	N/A
Asset Protection Zone	N/A	13 metres	N/A	N/A
Significant Environmental Features	Ballyshannon Road	Garrigal National Park	Neighbouring private residential allotments	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	BAL FZ	N/A	N/A
Required Construction Level	BAL 40	BAL FZ	BAL FZ	BAL FZ

Asset Protection Zones Compliance

The available Asset Protection Zone was measured to be 13 metres from the hazard interface to the south. The APZs consist of maintained grounds within the subject property.

It is acknowledged that there is a 7 – 15 metre wide external APZ within Garigal National Park but as ongoing maintenance of this area can not be guaranteed it has been excluded from this report. Regardless if it was included it would not alter the recommendations of this report.

Construction Level Compliance

The highest Bushfire Attack Level to the proposed works was determined from Table 2.4.2 of AS3959 – 2009 to be 'Flame Zone' and construction requirements within NSW are therefore outside the scope of AS 3959 – 2009 as 'BAL FZ' has not been adopted as a set of deemed to satisfy provisions. The proposed works will be constructed to BAL FZ under AS3959 – 2009 inclusive of the NSW variations and amendments as detailed in the Building Code of Australia and Appendix 3 Planning for Bush Fire Protection 2006.

Works facing north (street façade) can be downgraded to BAL 40 due to shielding provided by the existing dwelling.

Proposed outdoor entertaining area and pool are within the APZ and therefore must be constructed out of non-combustible materials.

Access and Services

Guideline Ref.	Proposed Development Determinations	Compliance
Property Access (Driveway)	The most distant external point of the subject dwelling is less than 70 metres from a public through road supporting a hydrant system and therefore access requirements are not applicable to this development.	Yes
Water Supply	The most distant external point of the building footprint will be less than 70 metres from a public road supporting a hydrant network and therefore a Static Water Supply is not required.	Yes
Evacuation	Evacuation is possible by utilising existing road infrastructure. It is encouraged that the occupants complete a Bush Fire Safety Plan addressing "Prepare, Act Survive" as advocated by the NSW RFS http://www.rfs.nsw.gov.au/ under publications / bushfire safety.	Yes
Electrical Supply	Existing supply provided.	N/A

6.0 Aerial view of the subject allotment



Image 01: Aerial view of the subject area (Dept. Land and Property Management SIXMaps)

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 - 2006' (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 – 2009 'Construction of buildings in bushfire prone areas'.

Planning for Bush Fire Protection – 2006, (PBP) formally adopted on the 1st March 2007 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 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.

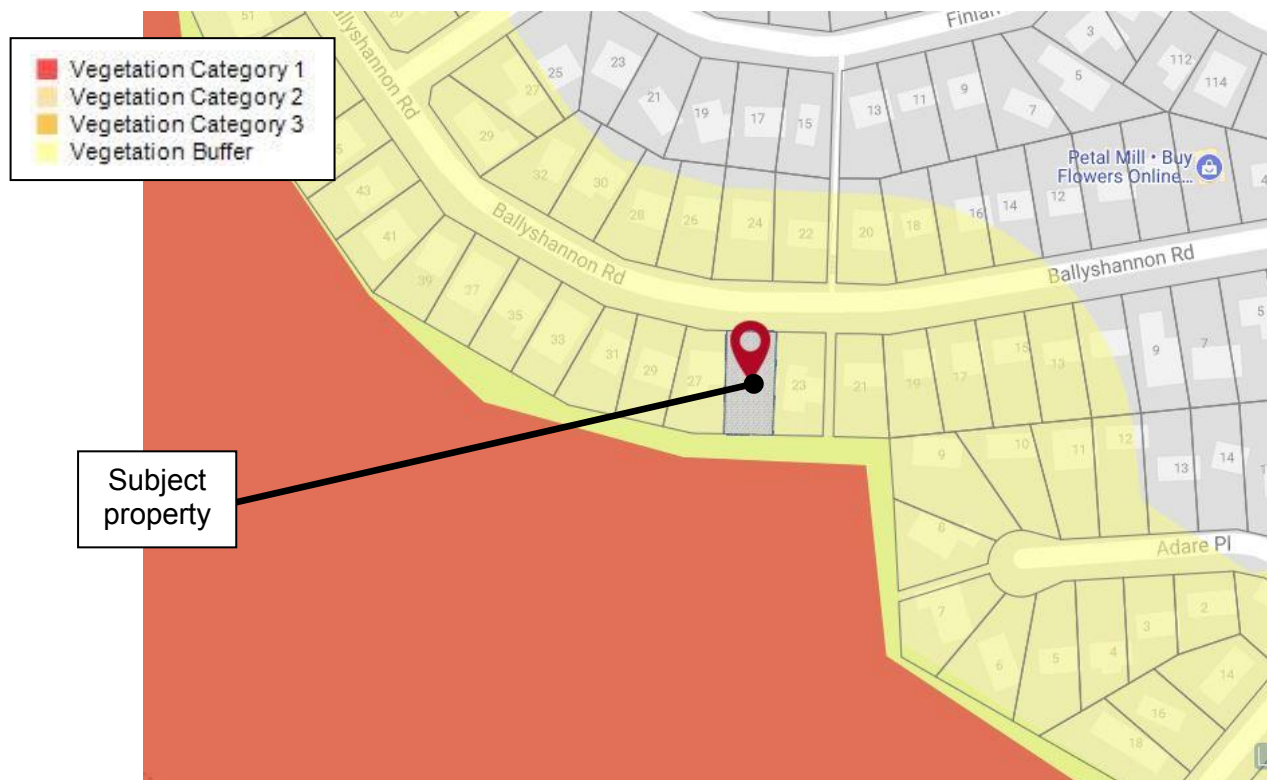


Image 02: Extract from Northern Beaches Council's Bushfire Prone Land Map

7.02 Location

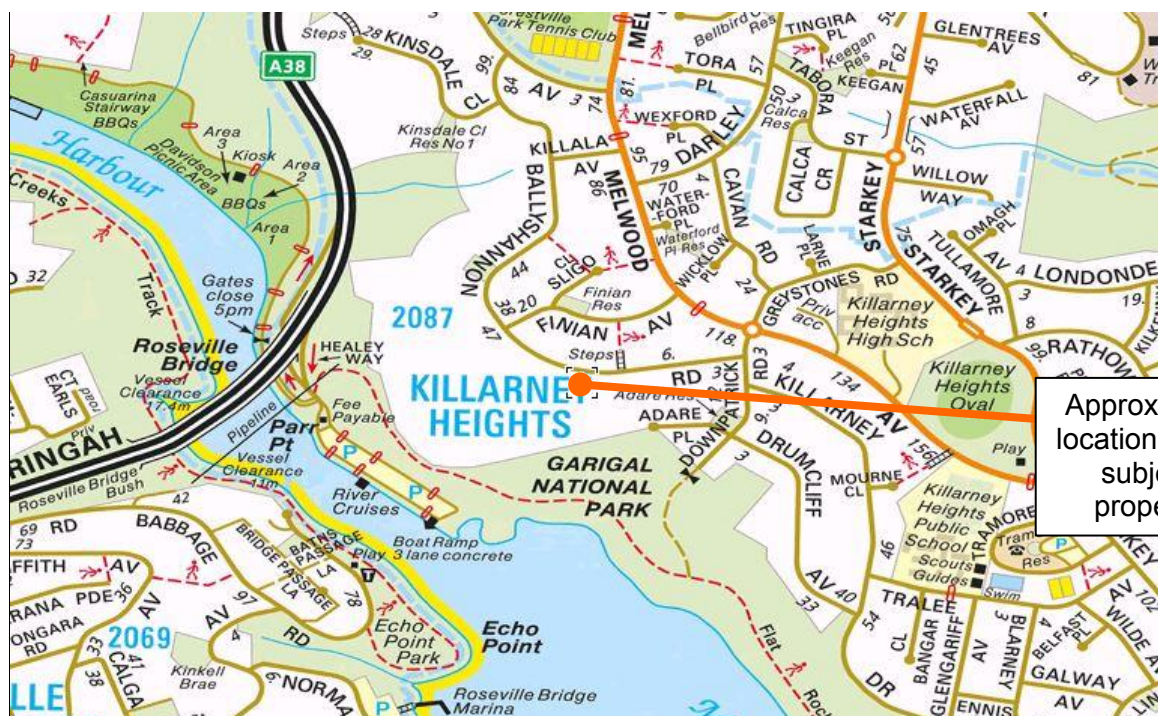
The subject property is known as 25 Ballyshannon Road, Killarney Heights (Lot 2 Section 81 DP 758566) and is a residential allotment located within Northern Beaches Councils Local Government Area. The subject property is a residential allotment that has street frontage to Ballyshannon Road to the north, abuts private residential allotments to the east and west and Garrigal National Park to the south.

The vegetation identified as being the hazard is within Garrigal National Park to the south of the subject dwelling.



Subject property

Photograph 01: View west from Ballyshannon Road toward the subject property



Approximate location of the subject property

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

7.03 Vegetation

The predominant vegetation within the subject property and neighbouring private residential allotments was found to consist of landscaped gardens and mown lawns.

The vegetation identified as being the hazard is within the vegetated allotments to the south. The vegetation posing a hazard to the north was found to consist of trees 10 - 30 metres in height with 50 - 70% foliage cover, the understorey consisted of low trees, shrubs and grasses.

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

Forest



Photograph 02: View of the vegetation within Garrigal National Park



Forest

Photograph 03: View of the vegetation within Garrigal National Park

7.04 Slope and Topography

The slope that would most significantly influence bushfire behaviour must be assessed for a distance of 100 metres from the proposed new works. The most significant bushfire impact from the south is expected to be a fire 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:

- 5 - 10 degrees downslope within the hazard to the south



Image 04: Extract from ELVIS – Geoscience Australia (1 metre 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 Garrigal National Park to the south.

The available Asset Protection Zone was measured to be 13 metres to the hazard interface to the south. The APZ consists of maintained grounds entirely within the subject property.

It is acknowledged that there is a 7 – 15 metre wide external APZ within Garrigal National Park but as ongoing maintenance of this area can not be guaranteed it has been excluded from this report. Regardless if it was included it would not alter the recommendations of this report.

All grounds within the subject property not built upon are to be maintained in accordance with an Asset Protection Zone as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones'.



Photograph 04: View of the maintained rear yard of subject property

7.06 Property Access – Fire Services & Evacuation

Persons seeking to egress from the subject dwelling can do so freely along the existing road infrastructure.

Fire services have free access to the property and around the subject dwelling. Attending fire services can access the hazard via the subject property, neighbouring properties and existing fire trails for hazard reduction or fire suppression activities.

Access to the subject dwelling and hazard interface is considered satisfactory.

7.07 Fire Fighting Water Supply

Hydrants are available throughout Ballyshannon Road and surrounding streets 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. Regardless the existing swimming pool provides an additional supply.

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 - 2006

Planning for Bush Fire Protection – 2006 (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:

Southern Aspect:

- a) Vegetation Structure Forest
- b) Slope 5 - 10 degrees down
- c) A 13 metre Asset Protection Zones is available
- d) The Bushfire Attack Level was determined to be 'BAL FZ'

8.02 Australian Standard AS 3959 – 2009 'Construction of buildings in bushfire –prone areas'

Australian Standard 3959 – 2009 '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 – 2006 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 - 2009.

8.03 Correlation between bushfire impact and AS3959

Bushfire Attack Level	Maximum radiant heat impact (kW/m ²)	Level of construction under AS3959-2009
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 25 Ballyshannon Road, Killarney Heights was assessed against the requirements of Planning for Bush Fire Protection 2006 noting the following:

- a) Water supplies for fire fighting purposes are adequate.
- b) Access to the subject property is available from Ballyshannon Road.
- c) Fire services can access the hazard via the subject property, neighbouring properties and existing fire trails for hazard reduction or fire suppression activities.
- d) Recommendations to maintain the Asset Protection Zones within the subject property will be included.

8.05 Viable Construction Method

The objectives of Planning for Bush Fire Protection – 2006 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 2.4.2 of AS3959 – 2009 to be 'Flame Zone' and construction requirements within NSW are therefore outside the scope of AS 3959 – 2009 as 'BAL FZ' has not been adopted as a set of deemed to satisfy provisions. The proposed works will be constructed to BAL FZ under AS3959 – 2009 inclusive of the NSW variations and amendments as detailed in the Building Code of Australia and Appendix 3 Planning for Bush Fire Protection 2006.

Works facing north (street façade) can be downgraded to BAL 40 due to shielding provided by the existing dwelling.

Proposed outdoor entertaining area and pool are within the APZ and therefore must be constructed out of non-combustible materials.

9.0 Recommendations

The following recommendations are provided as the minimum necessary for compliance with Planning for Bush Fire Protection – 2006 and Australian Standard 3959 'Construction of buildings in bushfire-prone areas - 2009. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

Asset Protection Zones

1. That all grounds within the subject property not built upon be maintained as an Asset Protection Zone as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 2 of Planning for Bush Fire Protection 2006.

Construction

2. That any new roof and all new construction facing south, east, and west shall comply with Australian Standard A53959-2009 "Construction of buildings in bush fire-prone areas" Section 9.
3. All new construction facing north is to comply with BAL 40 under Australian Standard A53959-2009 "Construction of buildings in bush fire-prone areas" Section 8.
4. Outdoor entertaining area and pool must be constructed out of non-combustible materials

Landscaping

5. That any new landscaping within the subject property is to comply with Appendix 5 'Landscaping and Property Maintenance' of Planning for Bush Fire Protection 2006.

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 – 2006 and of the construction requirements of AS3959 – 2009. 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 Garrigal National Park to the south of the subject property. The vegetation posing a hazard was determined to be Forest on a 5 - 10 degree downslope.

The proposed alterations and additions were found to provide a 13 metre Asset Protection Zone (APZ) to the south. The existing APZ was found to consist of maintained grounds entirely within the subject property.

The highest Bushfire Attack Level to the proposed works was determined from Table 2.4.2 of AS3959 – 2009 to be 'Flame Zone' and construction requirements within NSW are therefore outside the scope of AS 3959 – 2009 as 'BAL FZ' has not been adopted as a set of deemed to satisfy provisions. The proposed works will be constructed to BAL FZ under AS3959 – 2009 inclusive of the NSW variations and amendments as detailed in the Building Code of Australia and Appendix 3 Planning for Bush Fire Protection 2006.

All works facing north can be downgraded to BAL 40 due to shielding provided by the existing dwelling itself.

Proposed outdoor entertaining area and pool are within the APZ and therefore must be constructed out of non-combustible materials.

The existing water supply and access provisions are considered adequate in this instance 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 and also satisfy both the Rural Fire Service's concerns and those of Council in this area.

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



Andrew Muirhead

Diploma of Engineering

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



David McMonnies

AFSM. / M I Fire E
Masters of Const. Mgt. / G. D. Design in Bushfire Prone Areas.
Advanced Fire Technology Certificate.
Managing Director,
Fire Protection Association of Australia BPAD – Level 3 Practitioner
Certification number – BPAD2354



11.0 Annexure 01

List of Referenced Documents

- a) Environmental Planning and Assessment Act - 1979
- b) 'Planning for Bush Fire Protection'- 2006 - NSW Rural Fire Services & Planning NSW
- c) 'Construction of buildings in bushfire prone areas' - AS 3959 – 2009 (as - amended) – Standards Australia
- d) 'Northern Beaches Council's Bushfire Prone Land Map'
- e) Plans by Matt Elkan Architect, Date April 2019
- f) Acknowledgements to:
 - Geoscience Australia
 - NSW Department of Lands – SIXMaps
 - Street-directory.com.au

Attachments

Attachment 01: s4.14 Compliance Certificate



Building Code & Bushfire Hazard Solutions

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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:	25 Ballyshannon Road, Killarney Heights
DESCRIPTION OF PROPOSAL:	Alterations and Additions
PLAN REFERENCE: (relied upon in report preparation)	Plans by Matt Elkan Architect, Date April 2019
BAL RATING:	BAL FZ <small>(If the BAL rating is FZ the application is to be referred to NSW RFS for assessment)</small>
DOES THE PROPOSAL RELY ON ALTERNATE SOLUTIONS:	YES <input checked="" type="radio"/> NO <input type="radio"/> <small>(Circle the relevant response)</small> <small>(If YES the application is to be referred to NSW RFS for assessment)</small>
BUSHFIRE ASSESSMENT REPORT REFERENCE:	180722
REPORT DATE:	9 th April 2019
CERTIFICATION NO/ACCREDITED SCHEME	BPAD2394

I David 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 2006*.

Signature:  Date: 9th April 2019

