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BUSHFIRE
CONSULTING
SERVICES PTY LTD

Designing Bushfire Protection Measures

Reference: J24/0507

Date of Issue: 16/08/2024

2024

Bush Fire Assessment Report

In relation to the proposed
retaining wall

At: 2 Milga Road Avalon Beach
Lot 41 DP 600889



(subject site)

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Document Tracking

Item	Detail
Project Name	Bush Fire Assessment Report, proposed retaining wall
Project Address	Lot 41 DP 600889 2 Milga Road Avalon Beach
Client Name	Savo Constructions Pty Ltd
Project Number	J24/0507
Plan Reference	Plans by NB Consulting Engineers numbered 2406021 issue A dated 26/06/2024
Prepared by	Laura Richards
Approved by	Laura Richards
BAL	N/A

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Document Control

Version	Primary Author	Description	Date Completed
1	Laura Richards	Final	16/08/2024

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It should be borne in mind that the measures recommended in this report cannot guarantee that a building will survive a bushfire event on every occasion. This is due to the degree of vegetation management, the unpredictable behaviour of bushfires and extreme weather conditions. As such, the author is not liable to any person for any damage or loss whatsoever which has occurred or may occur in relation to the person taking action or not taking action based on the recommendations of this report.

NOTE: *This bush fire assessment shall remain valid for 12 months from the date of issue.*

Executive Summary


Bushfire Consulting Services was commissioned by Savo Constructions Pty Ltd to provide a bush fire assessment for a proposed retaining wall at Lot 41 DP 600889, 2 Milga Road Avalon Beach. The subject site is mapped as designated bush fire prone land by Northern Beaches Council and is located within 100 metres of bush fire prone (hazardous) vegetation.

The proposal is a form of "other non-residential" development and, as such, this report makes recommendations in accordance with the objectives of Chapter 1 and 8 of the NSW RFS document '*Planning for Bush Fire Protection*' (PBP) (NSWRFS 2019). The recommendations address these objectives including:

- afford buildings and their occupants protection from exposure to a bush fire
- provide for a defensible space to be located around buildings
- provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings
- ensure that appropriate operational access and egress for emergency service personnel and occupants is available
- provide for ongoing management and maintenance of BPMs
- ensure that utility services are adequate to meet the needs of firefighters
- Provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation
- Provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development
- Provide adequate services of water for the protection of buildings during and after the passage of bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building
- Provide for the storage of hazardous materials away from the hazard wherever possible

Where all recommendations are implemented, the report concludes that the proposal can comply with the aim and objectives of PBP.

Compliance Summary

Laura Richards BPAD-Level 2 Accredited Practitioner FPAA Cert No: BPAD48551	
Does this development comply with the aim and objectives of PBP?	Yes
Is referral to the NSW Rural Fire Service (RFS) required?	No

List of Abbreviations

APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2018, <i>Construction of Buildings in Bushfire Prone Areas</i>
BAL	Bushfire Attack Level
BPAD	Bushfire Planning and Design (Accreditation Scheme)
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Northern Beaches Council
CDC	Complying Development Certificate
DA	Development Application
DEM	Digital Elevation Model
EP&A Act	<i>Environmental Planning and Assessment Act – 1979</i>
FDI	Fire Danger Index
FPAA	Fire Protection Association of Australia
IPA	Inner Protection Area
kW/m ²	Kilowatts per metre squared
LiDAR	Light Detection and Ranging
LPMA	Land & Property Management Authority
NCC	National Construction Code
PBP	<i>Planning for Bush Fire Protection 2019</i>
RF Act	<i>Rural Fires Act – 1997</i>
RFS	NSW Rural Fire Service
SEPP	State Environmental Planning Policy
SIX	Spatial Information Exchange

1. Introduction

This report has been commissioned by Jyri Karisto of Savo Constructions Pty Ltd to provide a bush fire assessment for a proposed retaining wall at Lot 41 DP 600889, 2 Milga Road Avalon Beach.

The subject property is “bushfire prone land” as per the local Council bushfire prone land map (Figure 4) as defined by section 10.3 (s10.3) of the *Environmental Planning & Assessment Act* (EP&A) 1979 and therefore the requirements stipulated by legislation apply to any new development on the site.

Planning for Bush Fire Protection 2019 (Chapter 8) describes this type of development as “other non-residential development” and therefore the aim and objectives of Chapter 1 and 8 of PBP are applicable.

The bush fire assessment and recommendations are derived from the Rural Fire Service document *Planning for Bush Fire Protection 2019*.

2. Purpose of this Report

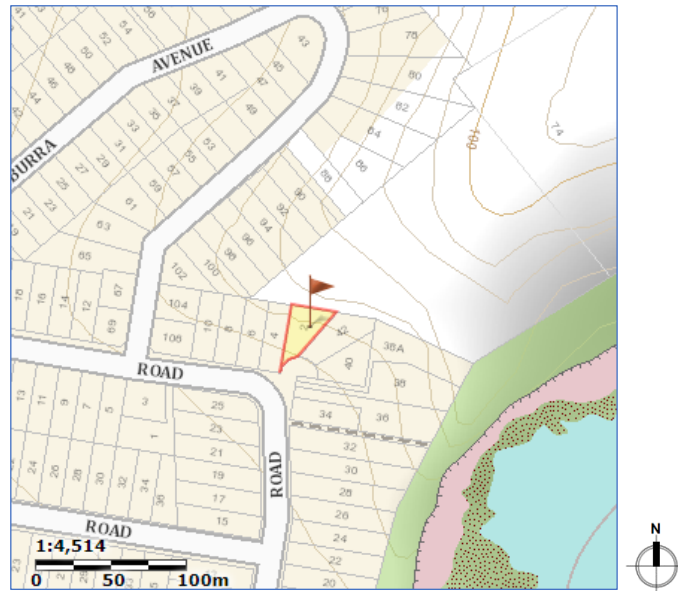
The purpose of this report is to provide the owners, the Consent Authority, the Certifier and the Rural Fire Service with a description of the proposed development as well as the vegetation type, slope and any other factors influencing the likely bushfire behaviour, sufficient to show that the development will be protected from the likely bushfire threat as outlined in current legislation.

This assessment includes an analysis of the hazard, threat and subsequent risk to the development and provides recommendations that satisfy the aim and objectives of *Planning for Bush Fire Protection*.

3. Location

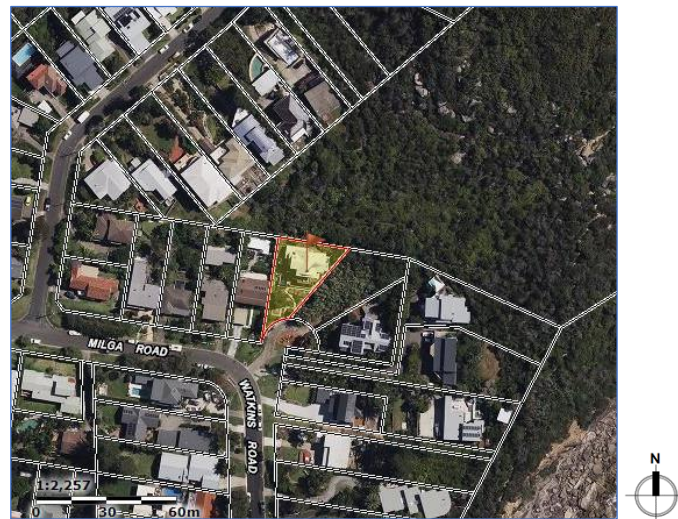
The site is located and known as Lot 41 DP 600889, 2 Milga Road Avalon Beach. The property is part of the Northern Beaches local government area.

Figure 1. Location Map. Source: LPMA SIX Viewer (NSW Government 2024a)



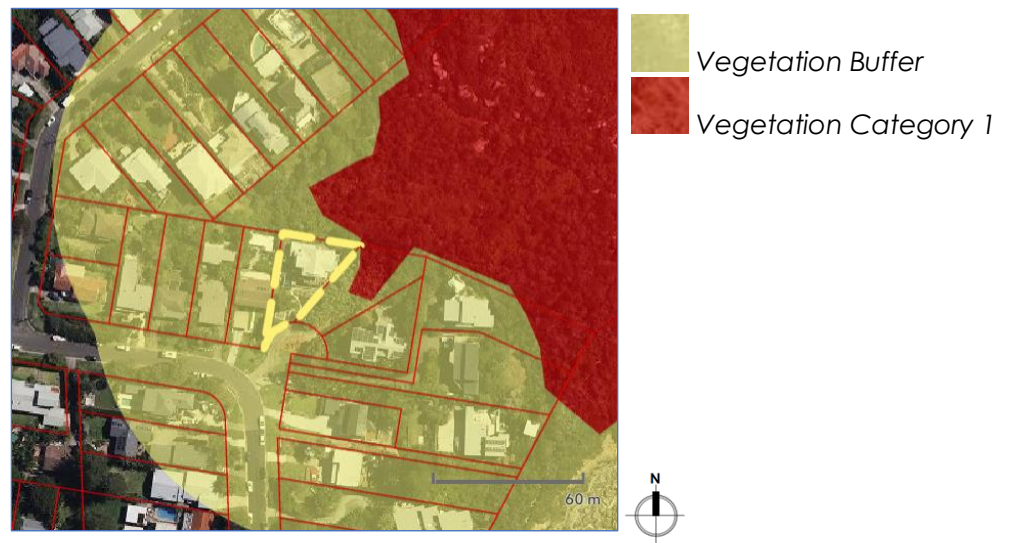
Site location outlined in red

Figure 2. Aerial Map. Source: LPMA SIX Viewer (NSW Government 2024a)



Site location outlined in red

Figure 3. Bushfire Prone Land Map. Source: NSW Government Planning Portal (NSW Government 2024b) or BMCC Mapping



Site location outlined in yellow

4. Property Description

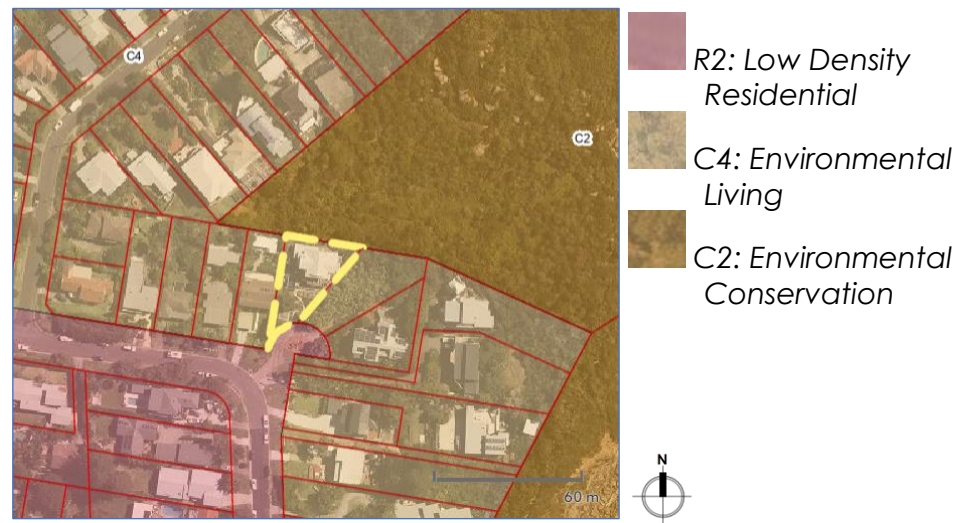
The property is comprised of Lot 41 DP 600889, 2 Milga Road Avalon Beach, covering approximately 709.59m² in area (Figure 2). It is bounded by vegetation to the approximate north, private allotments to the approximate east and west, with Watkins Road to the approximate south. It currently contains a single occupancy development, and garage, to be retained.

4.1 Zoning

The land is zoned C4 Environmental Living under Pittwater Local Environmental Plan 2014. Adjacent lands to the north are zoned C2 Environmental Conservation, C4 Environmental Living to the approximate east and west, and R2 Low Density Residential to the approximate south. (Figure 4).

There appear to be no Protected Areas associated with this land.

**Figure 4. Zoning Map. Source: NSW Government Planning Viewer
(NSW Government 2024b)**



Site location outlined in yellow

4.2 Biodiversity Values

A search of the NSW Office of Heritage and Environment and Heritage's Biodiversity Values Map (NSW Government 2024c) has been carried out and has not revealed any high biodiversity values on the land.

4.3 The Proposal

The proposal is for the addition of a retaining wall to the south of the existing garage. The retaining wall is located more than 6m from the dwelling. In terms of the NCC, the classification of the building is Class 10a,

5. Site Assessment

Bushfire Consulting Services Pty Ltd attended the site on 25 July 2024. The assessment relates to the new development shown in the site plans (reference Appendix 1 below). The NSW Spatial Services mapping website has also been used as a reference (NSW Government 2024a), and 'Ocean Shores to Desert Dunes' by David Keith (Keith 2004), in determining the vegetation type.

6. Bush Fire Attack Assessment

6.1 Determine Vegetation Formations

The hazardous vegetation formations for each aspect of the development within 140m of the asset have been identified according to Keith (2004). The bushfire threat emanates from bushland located to the north of the proposed works. This vegetation is external to the subject site boundaries.

Based on a site visit and determination of vegetation formation using the Keith (2004) Identification Key, the primary bushland vegetation having the potential to affect the subject building is most representative of Forest.

Figure 6. Hazardous vegetation affecting the subject building. Source: NearMap (2024) with overlays by BFCs P/L. Aerial Photography date: 14/07/2024



Subject site outlined in red. Vegetation was assessed to a distance of 140m from the subject building

6.2 The effective slope

The slope of the land under the classified vegetation has a direct influence on the rate of fire spread, the intensity of the fire and the level of radiant heat flux. The effective slope of the land from the new building for a distance of 100m is derived from a site assessment combined with the most detailed contour data available. The slope is then categorised into one of following classes, relative to the location of the hazard:

- all upslope vegetation (considered 0 degrees)
- >0 to 5 degrees downslope vegetation
- >5 degrees to 10 degrees downslope vegetation
- >10 degrees to 15 degrees downslope vegetation, and
- >15 degrees to 20 degrees downslope vegetation.

1m DEM data is sourced from NSW Spatial Services which is captured using LiDAR and has a horizontal accuracy of 0.3m and vertical accuracy of 0.8m at 95%.

The effective slope has been measured manually on site over a distance of 100m from the proposed development where accessible, under the classified vegetation community constituting the hazard. The slope was found to be consistent with the topographical information from NSW Spatial Services LiDAR data.

Figure 7. Slope Diagram. Source: NearMap (2024) and LiDAR (NSW Government 2024a) with overlays by BFCs P/L: Aerial Photography Date: 14/07/2024



Site location outlined in red, 1m contours

Direction from Building Footprint	Slope Description
North	All upslopes and flat land (0°)
East	N/A
South	N/A
West	N/A

6.3 Fire Weather

The development is located in the Northern Beaches Council area, a part of the Greater Sydney Region, which has a Fire Danger Index of 100.

7. Relevant objectives of PBP 8.3.2

The National Construction Code (NCC) defines a class 10 building as a non-habitable building or structure such as Class 10a – a private garage, carport, shed or the like, or Class 10b – a structure being a fence, mast, retaining or free standing wall, swimming pool or the like, or Class 10c – a private bushfire shelter.

There are no bushfire protection requirements for Class 10 buildings located more than 6m from a dwelling in bushfire prone areas. as such, AS3959-2018 does not apply (PBP 8.3.2). Any associated works such as steps, landings or walls within 6m of the dwelling are required to be non-combustible.

7.1 Objectives of Chapter 1

Objective	Comment
Afford buildings and their occupants protection from exposure to a bush fire	The retaining wall is separated from the dwelling by >6m
Provide for a defensible space to be located around buildings	A defensible space of 5m is available around the wall to the east and south, which meets the requirements of PBP
Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings	The non-combustible and non-habitable structures do not increase the likely fire spread to the dwelling
Ensure that appropriate operational access and egress for emergency	Can comply as road widths, curvatures and grades and swept

Objective	Comment
service personnel and occupants is available	paths enable appropriate operational access and egress for emergency service personnel and occupants. Vehicular access is provided and the existing access road includes a manouvering area
Provide for ongoing management and maintenance of BPMs	Normal property maintenance will ensure that BPMs are maintained
ensure that utility services are adequate to meet the needs of firefighters	Can comply, see above

8. Recommendations

The following recommendations are made for the bushfire measures for the proposed development of a retaining wall at Lot 41 DP 600889, 2 Milga Road Avalon Beach, and are based upon the relevant provisions of the NSW Rural Fire Service Guideline entitled *Planning for Bush Fire Protection 2019*.

1. Non-combustible building elements

Construction associated with the development such as steps, landings, fencing or walls within 6m of the dwelling are to be non-combustible.

2. Storage of Hazardous Materials

Wherever possible, the storage of hazardous materials will be away from the hazard.

3. Emergency and Evacuation Planning

The need to formulate an emergency evacuation plan is suggested. To do so, occupants can complete a Bush Fire Safety Plan on the NSW RFS Website <http://www.rfs.nsw.gov.au/> under publications / bushfire safety.

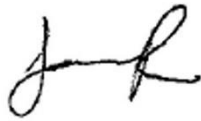
9. Summary

This report consists of a bush fire assessment for the proposed development of a retaining wall at Lot 41 DP 600889, 2 Milga Road Avalon Beach. The report concludes that the proposed development is on designated bushfire prone land and the legislative requirements for development in bushfire prone areas are applicable.

This report has considered all the elements of bushfire attack and finds that the development satisfies the aim and objectives of 'Planning for Bush Fire Protection' 2019, subject to implementation of the recommendations made by this report.

Notwithstanding the precautions adopted, it should always be remembered that bushfires burn under a wide range of conditions and an element of risk, no matter how small, always remains and although the standard is designed to improve the performance of such buildings, there can be no guarantee because of the variable nature of bushfires that any one building will withstand bushfire attack on every occasion.

This report is a bush fire assessment that provides the required information to assist local Council and the Rural Fire Service in determining compliance in accordance with Planning for Bush Fire Protection. The local Council is the final consenting authority and the construction of the building must comply with the recommendations included in the Council's conditions of consent.



Laura Richards | Accredited Bushfire Planning and Design Practitioner

Fire Protection Association Australia BPAD-Level 2 (BPAD 48551)

(a person who is recognised by the NSW Rural Fire Service as a suitably qualified consultant in bush fire risk assessment)

Corporate Silver Member Fire Protection Association Australia

Grad Cert Bushfire Protection (UWS 2018)

Grad Dip Bushfire Protection (UWS 2023)

Bushfire Consulting Services Pty Ltd

P: (02) 4744 5800 | M: 0425 833 893

10. References

Keith D 2004, *Ocean Shores to Desert Dunes, the Native Vegetation of NSW and the ACT*, Department of Environment and Conservation, Sydney

NearMap 2023, *NearMap Photomap Aerial Imagery*, NearMap Australia, Barrangaroo, NSW

NSW Government 2023a, *NSW Spatial Services*, NSW Department of Finance, Services and Innovation.

NSW Government 2023b, *NSW Planning Portal*, NSW Department of Planning and Environment.

NSW Government 2023c, *Biodiversity Values Map*, NSW Department of Environment and Heritage.

NSW RFS 2019, *Planning for Bush Fire Protection*, NSW Rural Fire Service, Sydney.

Standards Australia 2018, *Australian Standard AS 3959-2018 'Construction of Buildings in Bushfire Prone Areas'*, SAI Global, Australia.

11. Legislation

Environmental Planning & Assessment Act 1979

Rural Fires Act 1997

Rural Fires Regulation 2013

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Appendix 2 – Photos of Site and Surrounds

Source: BFCS P/L 25/07/2024



Subject site



Location of the proposed retaining wall



Vegetation to the north of the subject site

Appendix 3 – Bushfire Risk Assessment Certificate

This form is completed by a recognized consultant in bushfire risk assessment in accordance with section s4.14 of the *Environmental Planning and Assessment Act 1979 No 203*

PROPERTY ADDRESS:	Lot 41 DP 600889 2 Milga Road Avalon Beach
DESCRIPTION OF PROPOSAL:	Addition of a retaining wall
PLAN REFERENCE: (relied upon in report preparation)	Plans by NB Consulting Engineers numbered 2406021 issue A dated 26/06/2024
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.)

I, Laura Richards, of Bushfire Consulting Services Pty Ltd, have carried out a bushfire risk assessment on the above mentioned proposal and property. A detailed Bushfire Assessment Report is attached which includes the submission requirements set out in Appendix 2 of Planning for Bushfire Protection 2019 together with recommendations as to how the relevant aim and objectives are to be achieved.

REPORT REFERENCE:	J24/0507
REPORT DATE:	16/08/2024
CERTIFICATION NO/ACCREDITED SCHEME:	BPAD-Level 2 Accredited Practitioner FPAA Cert No: BPAD48551

Note: this certificate must be completed and signed by a person recognised by the NSW Rural Fire Service as a qualified consultant in bush fire risk assessment in accordance with s4.14 of the *EP&A Act 1979 No 203*.

I hereby certify, in accordance with 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 attached Bushfire Risk Assessment Report the proposed development conforms to the relevant specifications and requirements*.

* The relevant specifications and requirements being; specifications and requirements of the document entitled Planning for Bush Fire Protection prepared by the NSW Rural Fire Service in co-operation with the Department of Planning and any other document as prescribed by Section s4.14 of the Environmental Planning and Assessment Act 1979 No 203.

I am aware that the bush fire 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.

Attachments:



Bush Fire Risk Assessment Certificate



Recommendations

SIGNATURE:

DATE: 16/08/2024