



CLARKE DOWDLE & ASSOCIATES

DEVELOPMENT CONSULTANTS

SURVEYORS • PLANNERS • ECOLOGISTS • BUSHFIRE CONSULTANTS

BUSH FIRE ASSESSMENT REPORT



For the Proposed Development
at

**30 ABERNETHY STREET,
SEAFORTH, NSW
(LOT A IN DP 358783)**

May 2022

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DOCUMENT TRACKING

Project Location	30 Abernethy Street Seaforth
Date	17/05/22
Prepared by	Ashley Dowdle
Reviewed by	Kristan Dowdle
Approved by	Kristan Dowdle
Status	FINAL
Version	2

1.0 INTRODUCTION

We have attended the above-described property for the purpose of undertaking a Bush Fire Assessment Report (BFAR) in accordance with the guidelines outlined in Planning for Bushfire Protection, 2019 (PBP), to determine the level of bushfire threat to the site. Northern Beaches Council has provided mapping of Bushfire Prone Areas that identifies areas of bushfire threat. This mapping identifies properties that are in the buffer zone of 100m metres from Category 1 mapped vegetation or 30m from Category 2 & 3 mapped vegetation. All developments occurring on land mapped as bushfire prone are subject to the conditions detailed in the planning document PBP.

The subject site has been mapped as bushfire prone land (See Figure 1); therefore, the purpose of this BFAR is to provide information to Northern Beaches Council to ascertain compliance or otherwise with AS3959-2018 'Construction of Buildings in Bush Fire Prone Areas' and PBP.

This report will provide an independent assessment of the bushfire risk to the proposal, based upon the surrounding site conditions with reference to Section 4.14 of the Environmental Planning and Assessment Act 1979, PBP and AS3959-2018.

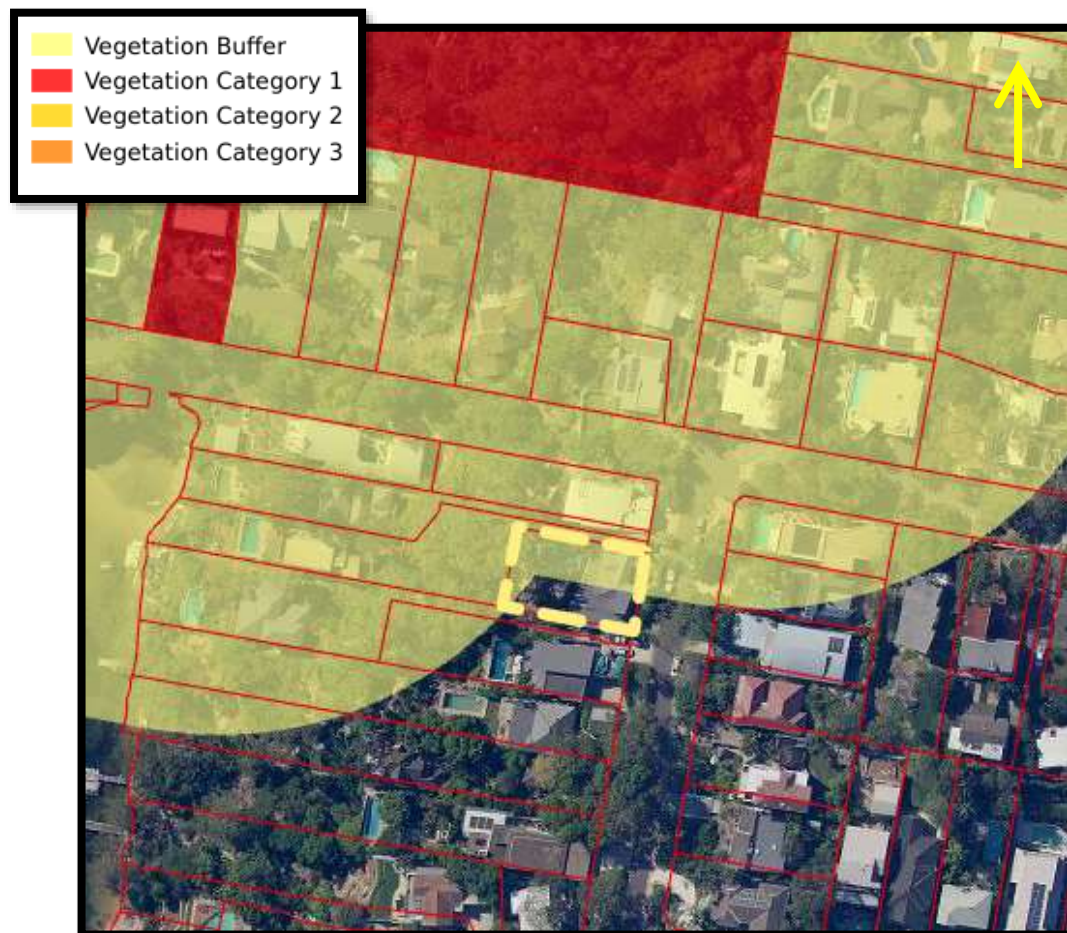


Figure 1: Bushfire Mapping (site boundary in yellow)
Source: Department of Planning, 2022

1.1 Proposed Development

The proposal will involve the demolition of the existing dwelling for the subsequent construction of a new single occupancy dwelling upon the property. Figure 2 provides a site plan of the proposed works.

The final building plans outlining the size and dimension of the proposed development will accompany the Development Application.

Figure 2: Development Site Plan

2.0 SITE IDENTIFICATION

The site is located at 30 Abernethy Street Seaforth (Lot A DP 358783). The site is in the Local Government Area (LGA) of Northern Beaches Council (Fire Danger Index-100). The site is provided access via Abernethy Street to the east.

The site is a residential parcel of land that contains an existing dwelling on the eastern portions of the site. Land conditions within the site consist of managed lawns and landscaped gardens.

The site is connected to the town-reticulated supply of water and to the mains electrical grid.



Figure 3: Aerial Photograph of the site (site boundary bordered in blue)
Source: Nearmap, 2022

3.0 BUSH FIRE HAZARD ASSESSMENT

3.1 Surrounding Vegetation

The surrounding land and vegetation found within 140m of the site are detailed below

North

To the north, beyond rows of developed residential allotments is Gurney Crescent Reserve which contains vegetation that has been mapped as *Smooth-barked Apple - Coast Banksia / Cheese Tree open forest on sandstone slopes on the foreshores of the drowned river valleys of Sydney*. This vegetation meets with the Keith (2004) description of a 'dry sclerophyll forest'. In accordance with Appendix 1 in PBP, this vegetation will be assessed as **Forest** as per PBP.

West, South & East

The surrounding land on these aspects are occupied by developed residential allotments containing managed curtilage throughout. Whilst some trees do exist on these aspects predominately managed lands exist beneath and there is no connectivity to other larger areas of vegetation. Therefore these aspects are deemed not to contain a bushfire hazard.



View to the north along Abernethy Street



View to the south along Abernethy Street



Hydrant located upon the adjoining allotment (No. 26)

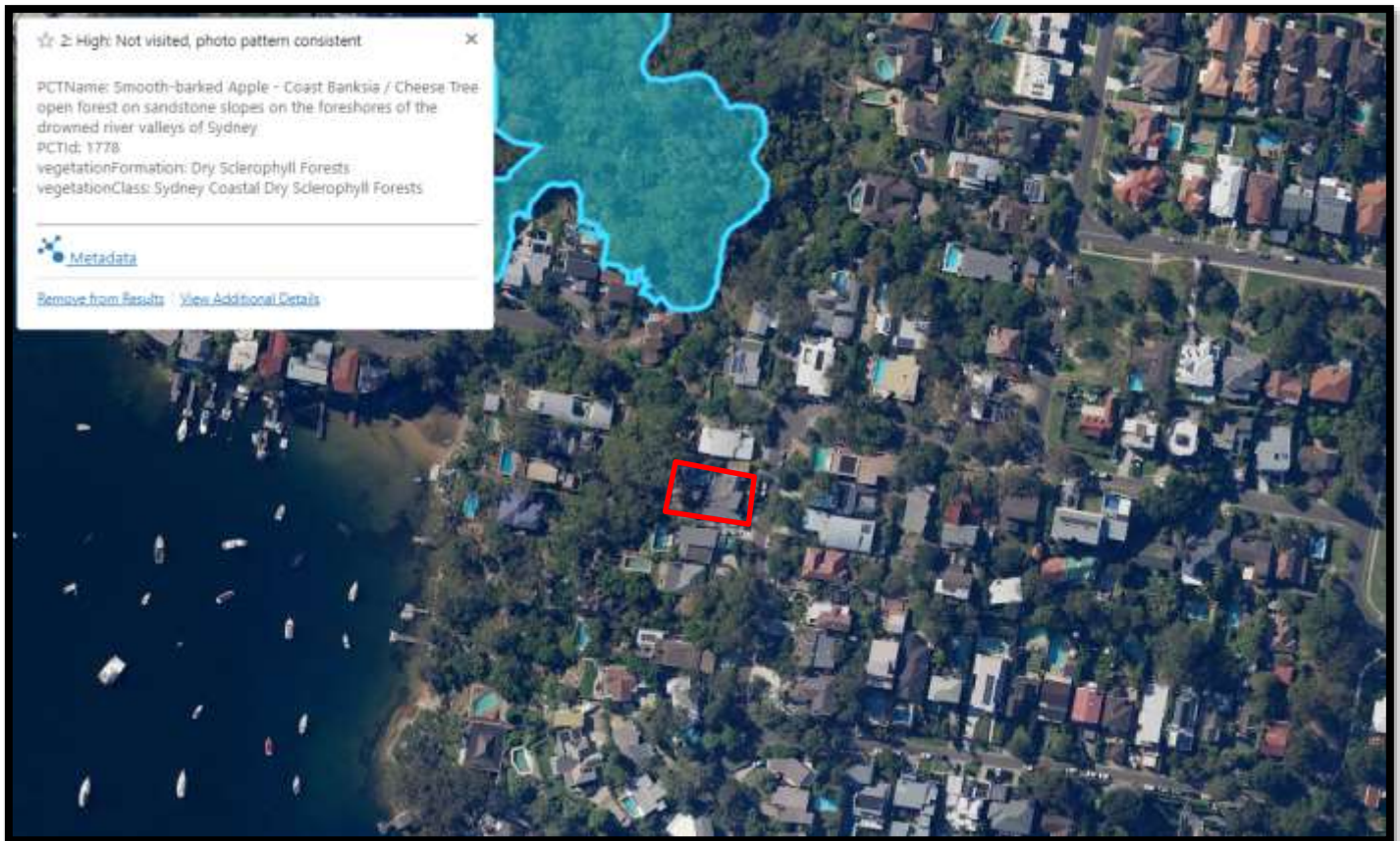


Figure 4: Vegetation Mapping (Site Bordered in red)
Source: SEED - The Central Resource for Sharing and Enabling Environmental Data in NSW, 2022

3.2 Effective Slope

PBP states in A1.5 that the effective slope is;

‘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 ultimate level of radiant heat flux. The effective slope is the slope of the ground under the hazard (vegetation). It is not the slope between the vegetation and the building (slope located between the asset and vegetation is the site slope).’

Figure 4 provides the topographic and vegetation mapping surrounding the proposal as sourced by NSW Spatial Services (2m contours).

The effective slope measured 100m from the proposed development for the hazard facing aspects are (See Figure 5);

North: Flat/Up Slope

4.0 BUSHFIRE ATTACK LEVEL (BAL) ASSESSMENT

The bushfire risk to property depends on the vegetation type, slope and proximity of vegetation to the proposed development, and can be classified as BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40 and BAL FZ as outlined in AS3959-2018 and PBP. The categories of bushfire attack were determined for the vegetation conditions currently existing on the site and adjacent areas. Following the identification of the bushfire attack category for each aspect, the site will be assessed according to vegetation that presents the highest level of bushfire attack risk. AS3959-2018 provides two methods to determine complying Bushfire Attack Levels, these are; the **Simplified Procedure-Method 1** (deemed-to-satisfy) and **Detailed Method for Determining the Bushfire Attack Level-Method 2** (alternate solution).

The level of bushfire attack then determines the construction standards necessary for the proposed development. These protective construction measures are outlined in Australian Standard AS3959-2018. The BAL required for each of the aspects/facades for the proposed development are summarised in Table 1.

Table 1: Bushfire Attack Assessment

	ASPECT	
	Northern	Southern, Western & Eastern
Vegetation¹ within 100m of development	Forest	Managed Lands
Effective Slope of Land	Flat/Up Slope	-
APZ Required/Setback Provided²	~89m	>100m
Bushfire Attack Level (BAL)⁴	BAL 12.5	BAL 12.5 ⁴

Notes for Table 1:

- (1) Refer to Keith (2004), AS 3959-2018 and PBP
- (2) Distance to vegetation
- (3) BAL's are in accordance with Table A1.12.5 in PBP
- (4) PBP states where an elevation is shielded from direct radiant heat arising from bush fire attack, then the construction requirements for that elevation can be reduced to the next lower BAL except when BAL 12.5 where all aspects shall comply with BAL 12.5. The shielding of an elevation shall apply to all the elements of the wall but shall not apply to subfloors or roofs.
- Table 1 **does not display applicable BAL Ratings** for each aspect (**See recommendations of this report**)

Proposed Additions & Alterations

With reference to Table 1 and Table A1.12.5 in PBP, the proposed development is subject to BAL 12.5 from the northern aspects as per AS3959-2018.

Recommendations deemed suitable for the type and location of the proposed development will be made which meet with the National Construction Code (NCC) deemed-to-satisfy provisions of AS3959-2018 and PBP.



Figure 5: Bushfire Site Plan

5.0 RECOMMENDATIONS

This Bush Fire Assessment Report concluded that the proposed development may comply with the performance criteria for PBP if the proposed acceptable solutions and recommendations are implemented. These items are outlined below.

5.1 Asset Protection Zones

- **The entire site shall be maintained as an APZ for the lifetime of the development.**
- The APZ shall be maintained to meet with the requirements of an Inner Protection Area (IPA) as outlined in Appendix 4 in PBP.

5.1.1 *Environmental Considerations*

No tree clearing will be required for bushfire protection purposes.

5.2 Construction Standards

Proposed Development

- The **proposed development** shall comply with AS3959-2018 **Sections 3 & 5 (BAL 12.5)** and section 7.5 in PBP.

Service Pipes

- All exposed piping should be of metal. Pipes of other materials should be buried to a depth of at least 300mm below the finished ground level.

Fencing (if applicable)

- All new fencing shall be constructed in accordance with section 7.6 in PBP.

5.3 Property Access and Evacuation Safety

- Safe access is provided to the subject property via Wedgewood Crescent. This road will serve both as an access point for firefighters and an egress point for residents during a bushfire event.
- It is recommended that the building occupants prepare a bushfire survival plan which addresses the option to leave early before bushfire impacting the site. Details on how to prepare this plan are provided by the NSW RFS website (http://www.rfs.nsw.gov.au/file_system/attachments/Attachment_BushFireSurvivalPlan.pdf)

5.4 Water and Utility Services Supply

5.4.1 *Water*

The site is connected to the reticulated supply of water (within 70m of a water hydrant). In recognition of these, the following recommendations are made;

- Taps and fittings should be constructed of metal; and
- The number of taps and/or length of hose should be adequate in number and/or length to supply water to the dwelling;

5.4.2 *Gas (if applicable)*

- Any gas cylinders or gas connections should be installed and maintained in accordance with Australian Standard AS1596 - *The Storage and Handling of LP Gas* and the requirements of relevant authorities.

- If gas cylinders need to be kept close to the building, the release valves are directed away from the building and at least 2 metres away from any combustible material, so that they do not act as a catalyst to combustion.

5.4.3 Electricity

- Electrical connection occurs via overhead lines

6.0 BAL CERTIFICATE

BUSHFIRE RISK ASSESSMENT CERTIFICATE ISSUED UNDER 4.14 1(b) OF THE ENVIRONMENTAL PLANNING & ASSESSMENT Act, 1979.

PROPERTY ADDRESS:	30 Abernethy St, Seaforth (Lot A in DP 358783)
DESCRIPTION OF PROPOSAL:	Construction of a new dwelling
PLAN REFERENCE: (Relied upon for Report Preparation)	Project No: 2011 Dwg No's: A001, A003-A005, A008, A009, A101-A104, A200-A203, A300-A302, A401, A403, A404 & A501
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:	No (If YES the application is to be referred to NSW RFS for assessment.)
REPORT REFERENCE:	GO: 25182
REPORT DATE:	117/05/2022
CERTIFICATION No/ACCREDITED SCHEME:	BPAD15318

I **Kristan Dowdle** of **Clarke Dowdle & Associates** hereby certify, in accordance with Section 4.14 of the *Environmental Planning and Assessment Act 1979*:

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 outlined within this certificate, the proposed development conforms to 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 4.14(1) (a) of the *Environmental Planning and Assessment Act 1979* No 203.

Yours sincerely,



Kristan Dowdle
Bushfire Consultant *BPAD-Certified Practitioner*
B.ENV.SC. (Environmental Management)
Grad. Dip. (Design in Bushfire Prone Areas)



7.0 PERFORMANCE CRITERIA COMPLIANCE

The following table indicates compliance or otherwise with Section 7.4a of PBP

PBP PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION COMPLIANCE
in relation to Asset Protection Zones: <ul style="list-style-type: none"> APZs are provided commensurate with the construction of the building; and A defensible space is provided. APZs are managed and maintained to prevent the spread of a fire to the building. the APZ is provided in perpetuity. APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised. 	<p>The proposal is provided with an APZ as outlined in Appendix 1 in PBP. Therefore, the proposal provides compliance.</p>
in relation to construction standards: <ul style="list-style-type: none"> the proposed building can withstand bush fire attack in the form of embers, radiant heat and flame contact. proposed fences and gates are designed to minimise the spread of bush fire. proposed Class 10a buildings are designed to minimise the spread of bush fire. 	<p>The proposal shall comply with Sections 3 and 5 (BAL 12.5) of AS3959-2018 and Section 7.5 in PBP 2019. Therefore, the proposal provides compliance.</p>
in relation to access requirements: <ul style="list-style-type: none"> firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation. the capacity of access roads is adequate for firefighting vehicles. there is appropriate access to water supply. firefighting vehicles can access the dwelling and exit the property safely. 	<p>The proposal is provided direct access via Abernethy Street. The proposal meets with the requirements of Section 7.4a of PBP and therefore the proposal is deemed to provide compliance.</p>
in relation to water and utility services: <ul style="list-style-type: none"> an adequate water supply is provided for firefighting purposes. water supplies are located at regular intervals; and the water supply is accessible and reliable for firefighting operations. flows and pressure are appropriate. the integrity of the water supply is maintained. a static water supply is provided for firefighting purposes in areas where reticulated water is not available. location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings. location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings. 	<p>Services are provided that meet with the requirements of section 7.4a of PBP. Therefore, the proposal provides compliance.</p>
in relation to landscaping: <ul style="list-style-type: none"> landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions. 	<p>The site will be maintained to meet with the requirements of an APZ. Therefore, the proposal provides compliance</p>

8.0 CONCLUSION

Clarke Dowdle & Associates have been engaged to conduct a Bush Fire Assessment Report upon the property located at 30 Abernethy Street Seaforth, NSW. This original assessment was performed in May 2022 and was conducted in accordance with the procedures and methods recommended in the NSW Rural Fire Service published document 'Planning for Bushfire Protection, 2019' (PBP).

This report has outlined and provided recommendations demonstrating how the proposed development may comply with the performance criteria set out in PBP.

The determining authorities and Rural Fire Service may suggest additional measures to be implemented with any planning and construction upon the subject site.

We would be pleased to provide further information on any aspects of this report.

For and on behalf of

Clarke Dowdle and Associates



Ashley Dowdle
Bushfire Consultant
Planning for Bushfire Prone Areas - UTS Short Course



Kristan Dowdle
B. Env. Sc
Grad. Dip Design in Bushfire Prone Areas
BPAD-Certified Practitioner (BPAD15318)
Bushfire Consultant

Disclaimer

PBP States;

Due to a range of limitations, the measures contained in this document do not guarantee that loss of life, injury and/or property damage will not occur during a bush fire event

AS 3959-2018 states;

It should be borne in mind that the measures contained in this standard cannot guarantee that the building will survive a bushfire event on every occasion. This is substantially due to the unpredictable nature and behaviour of fire and extreme weather conditions.

This report provides the required information to assist Local Council and the Rural Fire Service in determining compliance in accordance with PBP and AS 3959-2018 and as stated above, this report does not guarantee that the proposal will withstand bushfire attack on every occasion.

REFERENCES

- Keith, D. (2004), *Ocean Shores to Desert Dunes*. Department of Environment and Conservation, Sydney
- National Construction Code (2019), Building Codes Australia, *Class 1 and Class 10 Building Housing Provisions Volume 2*
- NSW Rural Fire Service and Department of Planning (2019), *Planning for Bushfire Protection, A guide for Councils, Planners, Fire Authorities and Developers*. NSW Rural Fire Service.
- Schauble, J. (2004). *The Australian Bushfire Safety Guide*. Harper Collins Publishers, Sydney, Australia.
- Standards Australia, (2018), *AS3959 Construction of Buildings in Bushfire-prone Areas*. Standards Australia International