

BUSHFIRE RISK ASSESSMENT CERTIFICATE

THIS FORM IS TO BE COMPLETED BY A RECOGNISED CONSULTANT IN BUSHFIRE RISK ASSESSMENT IN ACCORDANCE WITH SECTION 4.14 OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979 NO 203

PROPERTY ADDRESS:	25 – 33 Robertson Road Scotland Island NSW 2105 Lot 10 DP 1106130
DESCRIPTION OF PROPOSAL:	It is proposed to refurbish the existing waterfront improvements, which include a timber boatshed (refurbish and raise levels but retain in current form/location), hardwood timber deck / skid / jetty / ramp and steps (refurbished and /or reconstructed as new, in current form/location).
PLAN REFERENCE: (relied upon in report preparation)	The extent and location of the proposed 'Alterations & Additions' to an existing residential development, are based on DA drawings by Sam Crawford Architects, Newtown (Project No. 16.18, Drawing Nos 100 – 300, Revision A, Dated 12/12/16) and SDG, Baulkham Hills (Ref No. 7476_1, Sheet No. 1, Issue C, Dated 17/01/18).
BAL RATING:	BAL LOW (Maximum) (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.)

I, Scott Jarvis of Sydney Bushfire Consultants 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 4 of Planning for Bushfire Protection 2006* together with recommendations as to how the relevant specifications and requirements are to be achieved.

REPORT REFERENCE:	79BA – 1430
REPORT DATE:	11 November 2019
CERTIFICATION No/ACCREDITED SCHEME:	FPAA / BPAD – Level 3 Certified Practitioner BPD-PA-18593

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

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 Warringah 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: 

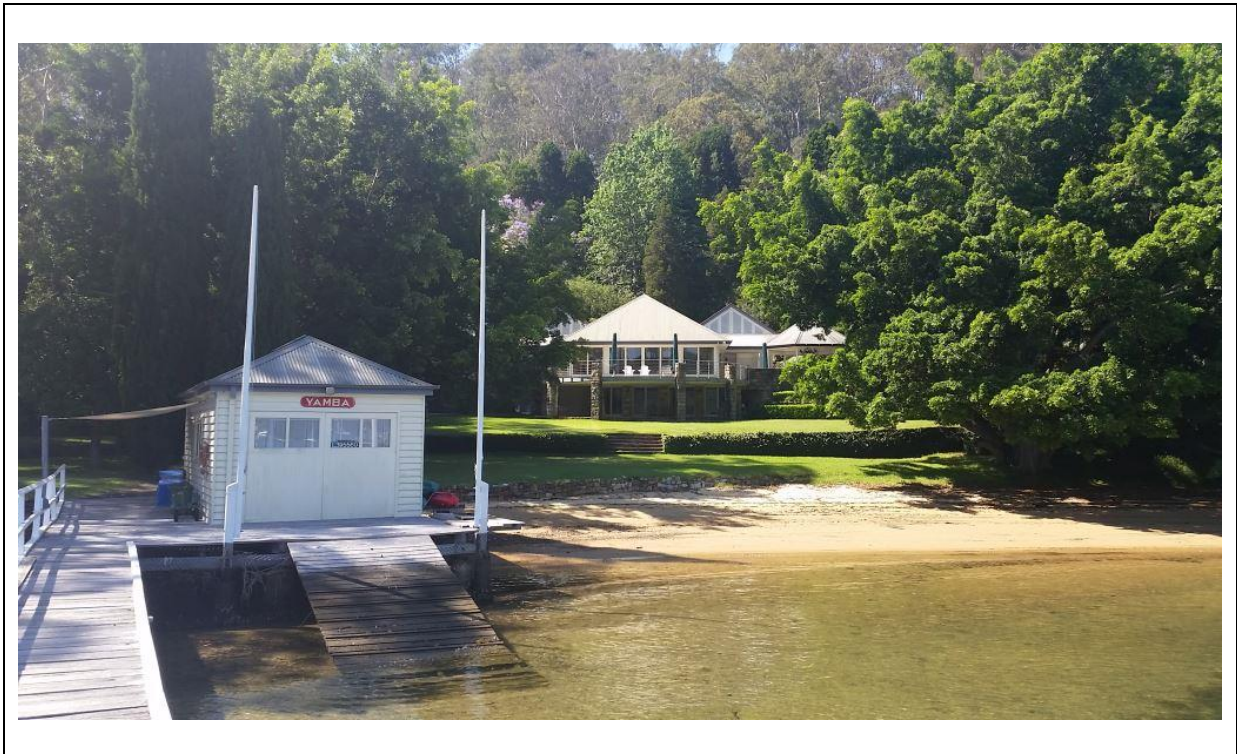
DATE: 11 NOVEMBER 2019


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 4.14 of the *EP&A Act 1979 No 203*.

**Proposed Residential Building Development
 Bushfire Assessment & Compliance Report
 Lot 10 DP 1106130
 25 – 33 Robertson Road
 Scotland Island NSW 2105**



11 November 2019



<p>Author:</p>	<p>Scott Jarvis BPAD-Level 3 Certified Practitioner BPD-PA-18593 FPAA Member No. 18593</p>	
<p>Reviewed by:</p>		

Executive Summary – Achievable (Recommended) AS3959 Level of Compliance

Construction Standard	Building Elevation / Section
Flame Zone	
BAL 40	
BAL 29	
BAL 19	
BAL 12.5	
Standard BCA Provisions	Boat Shed, Skid, Jetty, Deck, Ramps and Steps Only

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General Introduction

The following report outlines an assessment for the statutory compliance of the proposed residential building development to occur within 25 – 33 Robertson Road, Scotland Island NSW 2105 – Lot 10 DP 1106130 (herewith ‘the subject property’), and at least 140m beyond (herewith ‘the study area’). Appendix 1 / Map 1 denote the subject property and study area.

Australian Standard 3959:2009/2018 (Construction of buildings in bushfire prone areas) and the *Building Code of Australia 2019 (BCA 2019)* are the primary building compliance documents considered for this assessment. AS3959:2009/2018 being the Deemed to Satisfy (DTS) provision or acceptable construction standard.

Methodology for this site assessment for bushfire attack is based on *NSW Planning for Bushfire Protection Guidelines 2006* and specifically, *Addendum: Appendix 3, 2010*.

Terrain (slope) considered by this assessment is based on the Department of Lands Online Six Viewer contours and a site inspection (6/11/2019) of the subject property.

Vegetation extent within the subject area has been derived from available online Council vegetation mapping, aerial photo interpretation (API) and a site inspection (6/11/2019) conducted prior to finalising this report.

The extent and location of the proposed ‘Alterations & Additions’ to an existing residential development, are based on DA drawings by Sam Crawford Architects, Newtown (Project No. 16.18, Drawing Nos 100 – 300, Revision A, Dated 12/12/16) and SDG, Baulkham Hills (Ref No. 7476_1, Sheet No. 1, Issue C, Dated 17/01/18).

Photographic evidence (Dated 6/11/2019) of the subject property and surrounds is appended to this report (Appendix 2 – Site Photos).

It is noted that the subject site was recently subject to a separate development approval (Consent No. NO 303/16, Dated 18/10/2016) for minor works – being the removal of an existing rainwater tank and the installation of two new rainwater tanks and associated landscaping.

This application was supported by a full Bushfire Assessment at that time, prepared by Sydney Bushfire Consultants, Randwick (Reference No. 79BA – 970, Dated 27/06/2016).

This Bushfire Assessment recommended a raft of general bushfire protection measures, that were approved at that time, including the establishment of a suitable Asset Protection Zone, building construction standards and utility requirements (i.e. water, electricity & gas).

The bushfire related recommendations associated with this new development proposal are in line with, and are equivalent to this previous development approval, and subsequent NSW Rural Fire Service / Council requirements and advice.

1.0 Property Details

Applicants Name: Far East Land & Housing Development Company Pte Ltd
(herewith, 'the proponent')

Council: Northern Beaches Council (Pittwater LEP)

Council Reference: N/A

Lot: 10 **DP:** 1106130 **Area:** 5925m²

Address/Location: 25 – 33 Robertson Road Scotland Island NSW 2105.

Zoning: 'E3 – Environmental Management'
(Pittwater LEP 2014)

Bushfire Prone Land: YES

Aspect: The site currently has a North Westerly aspect.

The subject property is mapped as being bushfire prone as currently shown by the Pittwater Council LGA Bushfire Prone Land Map (s10.3 EP&A Act 1979). The site is located partially within the '100m Vegetation Buffer Zone' and also contains (and is constrained by) vegetation classified as 'Category 1 Bushfire Vegetation'. In this regard, any new building development should conform to the specifications and requirements of the document '*Planning for Bushfire Protection 2006*', produced by the NSW Rural Fire Service, that are relevant to the development; as otherwise required under *Section 4.14 of the Environmental Planning & Assessment Act 1979*.

Other Known Constraints:

Some of the vegetation constraining the proposed development is considered to be 'Pittwater & Wagstaffe Spotted Gum Forest'. This vegetation has been listed as an 'Endangered Ecological Community' under the *Biodiversity Conservation Act 2016*. The subject site, and all surrounding areas (entire Scotland Island) are also mapped as being within the 'Pittwater Biodiversity Map'.

However, it is **not** a recommendation of this assessment to remove or alter any significant vegetation within this area, as part of the bushfire protection measures.

A desktop assessment of the publicly available council mapping and planning enquiry system has found no other constraints to be considered in regard to development upon the subject property. No other known significant environmental features have been noted, recorded or advised of as part of this assessment.



Extract Pittwater LGA Bushfire Prone Land Map

2.0 Type of Proposal

- | | | |
|--|--|---|
| <input type="checkbox"/> New Building | <input checked="" type="checkbox"/> Urban | <input type="checkbox"/> Dual Occupancy |
| <input type="checkbox"/> Rural Residential | <input checked="" type="checkbox"/> Alterations/Additions | <input type="checkbox"/> Isolated Rural |

Proposal Description

The proposed building development is minor in nature. It is only proposed to refurbish the existing waterfront improvements, which include a timber boatshed (refurbish and raise levels but retain in current form/location), hardwood timber deck / skid / jetty / ramp and steps (refurbished and /or reconstructed as new, in current form/location).

It is not proposed to make to any alterations/additions/amendments to the existing residential structures within the site. These being a primary residence (known as 'Yamba'), and a separate 'Caretakers Cottage'.

The extent and location of the proposed 'Alterations & Additions' to an existing residential development, are based on DA drawings by Sam Crawford Architects, Newtown (Project No. 16.18, Drawing Nos 100 – 300, Revision A, Dated 12/12/16) and SDG, Baulkham Hills (Ref No. 7476_1, Sheet No. 1, Issue C, Dated 17/01/18).

The approximate location/site of the proposed building (herewith 'the subject development') is as denoted in Appendix 1 – Map 2.

3.0 Bushfire Attack

3.1 Vegetation (bushfire hazard) within 100m of the proposed building

The vegetation within the study area is mapped as 'Bushfire Prone Vegetation Category 1' on Council Bushfire Prone Land Maps. Vegetation on Scotland Island is generally mapped as 'Spotted Gum Forest'. The main body of persistent vegetation is located in the middle / top of the island, within Elizabeth Park, approximately 220m South of the subject development.

Elizabeth Park is then separated from the waterline generally by 3 separate lines of residential development and two road reserves (the lower one being Robertson Road). These residential properties have varying levels of vegetation on site, some well maintained whilst others completely overgrown, including dense canopy in some areas.

The vegetation constraining the subject development generally commences above the private residential properties on the upper/adjacent side of Robertson Road, SE – SW of the subject development. The vegetation within this area is considered to be 'Dry Sclerophyll Forest (Open Forest)'.

Based on a determination of vegetation formation using the Keith 2004 Identification Key, the bushfire vegetation having the potential to affect the subject development, based on a site visit, is most representative of 'Dry Sclerophyll Forest (Open Forest)'.

In terms of Addendum: Appendix 3 (PBP 2010) Section A.3.5 requires a conversion of vegetation types used in this assessment from Keith 2004 to Specht (AUSLIG 1990). Table A.3.5.1 converts 'Dry Sclerophyll Forest (Open Forest)' to 'Forest'.

PBP 2006 states, *'for the purposes of assessment, the following are not considered a hazard or as a predominant vegetation class/formation and can be included within an asset protection zone;*

- *non-vegetated areas including roads, footpaths, cycle ways, waterways, buildings, rocky outcrops and the like; and*
- *Reduced vegetation including maintained lawns, golf course fairways, playgrounds or sports fields, vineyards, orchards, cultivated ornamental gardens and commercial nurseries.*

The proposed development is located within a well established residential subdivision. Most adjoining allotments contain residential buildings. All adjoining allotments are generally cleared of most persistent vegetation. The proposed development also adjoins a road reserve (Robertson Road) along its SE boundary, and the Pittwater waterfront on its NW boundary.

The approximate / estimated extent of these managed lands is clearly denoted in Appendix 1 – Map 2.

3.2 Distance/Separation between building line and bushfire hazard

For the purposes of bushfire safety compliance, this assessment notes that the subject property is generally clear of persistent bushfire vegetation. Considering the location of the proposed development and the extent of the mapped bushfire vegetation on adjoining lands, the achievable separation distance has been assessed as:

Direction	Distance
South East	>100m

3.3 Effective slope that will influence bushfire behaviour

The effective slope within approximately 100m of the subject development site, which would influence bushfire behaviour, has been assessed as predominately;

Direction	Effective Slope
South East	Flat – Upslope (up to 14 degrees)

3.4 Fire Danger Index (FDI) for Local Government Area (LGA)

100 80 50

Northern Beaches Council (Pittwater) – Greater Sydney Region (Table A2.3 PBP, 2006)

3.5 Determination of Bushfire Attack Level (AS 3959:2009)

Direction	Vegetation	Slope	Minimum Distance	BAL Exposure Level
South East	Forest	Flat – Upslope	>100m	BAL – LOW

4.0 Construction Standards (AS 3959:2018 – BCA DTS)

4.1 AS 3959:2018 Construction for Bushfire Attack Level

Building Elements	Vegetation	Slope	Minimum Distance	Construction Standard
Boat Shed, Deck, Skid, Jetty, Ramp & Steps	Forest	Flat – Upslope	>100m	BAL – LOW

It is also noted that as per *Section 4.3.6 f) PBP 2006*, and *Section 3.2.3 AS3959:2018*, a Class 10a) building, located >10m from a residential building, requires no bushfire specific building construction standards (i.e. BAL – LOW).

'The standard does not provide construction requirements for buildings assessed in bushfire prone areas in accordance with Section 2 as being BAL – LOW.

Standard BCA construction requirements only

Considering the subject developments location and the calculated extent of the APZ area recommended by this report, the subject development is capable of complying with AS3959:2018.

5.0 Water Supplies

5.1 Water Supply

Yes **No** Proposed

The subject development/building is not currently connected to a reticulated water supply.

Scotland Island does have a form of water supply that incorporates a series of tanks and an aboveground PVC pipe system. This system is not considered a suitable supply for emergency firefighting operations.

PBP acceptable solutions for a non-reticulated water supply require that;

- *the minimum water supply required for firefighting purposes for each occupied building excluding drenching systems, is provided in accordance with Table 4.2.*
- *a suitable connection for firefighting purposes is made available and located within the IPA and away from the structure. A 65mm Storz outlet with a gate or Ball valve is provided.*
- *gate or Ball valve and pipes are adequate for water flow and are metal rather than plastic.*
- *any underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank. A hardened ground surface for truck access is supplied within 4 metres of the access hole.*
- *above ground tanks are manufactured of concrete or metal and raised tanks have their stands protected. Plastic tanks are not used. Tanks on the hazard side of a building are provided with adequate shielding for the protection of fire fighters.*
- *all above ground water pipes external to the building are metal including and up to any taps. Pumps are shielded.*

In this respect, PBP water supply requirements (acceptable solutions) for fire fighting (*Table 4.2 – Dedicated water supply requirements for various non reticulated subdivision developments*) include;

- **10 000 L/lot for Residential Lots (>1000m²)**

Fire fighting water supply recommendations are as listed section 9.3 (Bushfire Safety & Compliance Recommendations).

5.2 Distance to hydrant from subject proposed development

Not applicable.

5.3 Existing or planned water supply provided for fire fighting purposes

Yes No **Proposed**

As stated, no reticulated supply services the subject development, and as such a 'static supply' on site is recommended, that would be readily available for firefighting operations (if required). It is noted that a suitable / compliant static water supply has previously been installed.

6.0 Gas Supplies

Reticulated Gas: Yes **No**

Bottled Gas: Yes **No**

No reticulated gas supply is currently available to the site. Gas supply recommendations, for any proposed or future gas installation (i.e. bottled gas) are as listed section 9.4 (Bushfire Safety & Compliance Recommendations).

7.0 Electricity Supplies

The subject development site is currently serviced by an above ground electrical supply grid which services the residential subdivision within Robertson Road. The connection to the existing residences have been redirected underground.

8.0 Vehicle Access/Egress (Property Access)

The subject development is located on Scotland Island. It is a waterfront development that has direct access to Pittwater. Access to the subject development will generally be by boat only.

Robertson Road is a local sealed partial ring road on the island that runs behind the subject development. It is a sealed all weather road (within the study area). Although it is utilised for local travel around the island by some residents, it does not form part of an effective egress route.

However, the Scotland Island Rural Fire Service is located approximately 400m E of the subject development, and Robertson Road is able to provide emergency access for tankers located on the island. Scotland Island Rural Fire Service also has fire boats available for emergency access over the water.

The current access and egress arrangements, servicing the proposed development, are able to provide safe operational access for emergency services and egress in varying directions for evacuating residents.

9.0 Bushfire Safety/Compliance Recommendations

9.1 Defendable Space / Asset Protection Zone (APZ) Recommendations

Recommendation 1.

As denoted in Appendix 1 – Map 2, the area within the site identified as **‘Modified Inner Protection Area (MIPA)’** is to be managed/maintained as an APZ area for the life of the development.

The above recommendation should ensure that no easily combustible material, structures, available forest fuel/bushfire vegetation or other items be installed, stored or allowed to re-accumulate and become contiguous within the area. The MIPA extent should not support or carry a running bushfire towards the subject development site and associated infrastructure.

The area identified as **‘Modified Inner Protection Area (MIPA)’** should be managed in terms of previous advice specifically supplied by the NSW Rural Fire Service, in relation to the subject site (RFS LUA Reference D15/0585 Dated 25 March 2015). As follows:

Landscaping to the site is to comply with the principles of ‘Appendix 5’ of ‘Planning for Bushfire Protection 2006’. In this regard the following landscaping principles are to be incorporated into the development:

- *Suitable impervious areas being provided immediately surrounding the building such as courtyards, paths and driveways;*
- *Grassed areas/mown lawns or ground cover plantings being provided in close proximity to the building;*
- *Restrict planting in the immediate vicinity of the building which may over time and if not properly maintained come into contact with the building;*
- *Maximum tree cover should be less than 30%, and maximum shrub cover less than 20%;*

- *Planting should not provide a continuous canopy to the building (i.e. trees or shrubs should be isolated or located in small clusters);*
- *When considering landscape species consideration needs to be given to estimated size of plant at maturity;*
- *Avoid species with rough fibrous bark, or which retain/shed bark in long strips or retain dead materials within their canopies;*
- *Use smooth bark species of tree species which generally do not carry a fire up the bark into the crown;*
- *Avoid planting of deciduous species that may increase fuel at surface/ground level (i.e. leaf litter);*
- *Avoid climbing species to walls and pergolas;*
- *Locate combustible materials such as woodchip/mulch, flammable fuel stores away from the building; and*
- *Use low flammability vegetation species.*

In addition, given the size of the gardens within the site, a simple '**Vegetation and Property Maintenance Plan**' should be implemented, so as to initially establish the said MIPA, and then to maintain acceptable levels of native vegetation, to ensure exotic species are well managed to achieve ongoing compliance, to ensure all weeds are removed on a regular basis, and to control leaf litter and garden waste.

Maintenance should be carried out at a minimum of bi annually, and prior to the start of the 'Bushfire Danger Period' each year (generally 1 October).

9.2 Construction Standard Recommendations

Construction standards have been determined from the following sections of the planning legislation and based on the relevant bushfire assessment as discussed above.

AS 3959-2018 Section 4 Construction for Bushfire Attack Level Low (BAL – LOW)
(See Recommendation 2)

Recommendation 2.

Predicated upon the maintenance of the APZ area as per Recommendation No. 1 of this report, it is recommended the proposed residence incorporate, as a minimum, the following levels of construction as per AS 3959 – 2018 Construction of Buildings in Bushfire Prone Areas;

Boat Shed, Deck, Skid, Jetty, Ramp & Steps Only

Construction for Bushfire Attack Level Low (BAL – LOW) – Section 4 (AS3959-2018)

'The standard does not provide construction requirements for buildings assessed in bushfire prone areas in accordance with Section 2 as being BAL – LOW.

The bushfire attack level BAL – LOW is based on insufficient risk to warrant specific bushfire construction requirements.

Standard BCA construction requirements only

9.3 Water Supply Recommendations

Recommendation 3.

- Minimum supplementary static water supply of **10 000L** (installed previously 2 x 44 kL tanks)
- a suitable connection for firefighting purposes is made available and located within the IPA and away from the structure. A 65mm Storz outlet with a gate or Ball valve is provided.
- gate or Ball valve and pipes are adequate for water flow and are metal rather than plastic.
- any underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank. A hardened ground surface for truck access is supplied within 4 metres of the access hole.
- any above ground tanks are manufactured of concrete or metal and raised tanks have their stands protected. Plastic tanks, although not preferred, may be used but must be suitably shielded from radiant heat and ember attack, by the use of non-combustible shielding materials. Tanks on the hazard side of a building are provided with adequate shielding for the protection of fire fighters.
- all above ground water pipes external to the building are metal including and up to any taps.
- The subject development should maintain a portable powered pump (preferably diesel powered) >3kW (5hp) with compatible fire fighting hoses and fittings for water storage tank/supply. Pumps are to be suitably shielded from radiant heat.
- Fire fighting hoses should be of a length (e.g. 30m – 50m) so as to reach all areas immediately surrounding the subject development site/APZ area.

9.4 Gas Supply Recommendations

Recommendation 4.

- Any future gas connection is installed and maintained in accordance with AS1596 and the requirements of relevant authorities.
- Metal piping should be used.
- Any fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation.
- If any gas cylinders are located close to the building, the release valves are directed away from the building and at least 2 metres away from any combustible material
- Polymer sheathed flexible gas supply lines adjacent to the building are not used.

9.5 Electricity Supply Recommendations

Recommendation 5.

There are no additional electricity supply conditions required for PBP compliance, (above and beyond standard Council and Energy Supplier conditions), if part of the electricity supply is to be located underground.

Any part of the electricity supply located aboveground is to ensure that vegetation is managed in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).

9.6 Vehicle Access/Egress Recommendations

Recommendation 6.

The proposed building development is generally accessed by water only.

Emergency access is provided from Robertson Road and over the water.

No additional vehicle access requirements are recommended.

**10.0 Compliance or non-compliance with PBP Specific Objectives for infill.
(As per PBP 2006 Section 4.3.2)**

Specific Objective	Comment
Ensure that the bushfire risk to adjoining land is not increased.	<p>The subdivision is pre existing. The construction of this development will not increase the bushfire risk to adjoining land.</p> <p>Subsequent bushfire fuel management from within the subject property will effectively reduce the risk to both the subject property and adjoining premises.</p>
Provide a minimum defensible space.	A complying APZ (defendable space) has been recommended. This space consists of an area maintained as an MIPA.
Provide better bushfire protection, on a redevelopment site, than the existing situation. This should not result in new works being exposed to greater risk than an existing building.	The site is located within an existing subdivision. Recommendations, relating to the construction of the building include appropriate building construction standards.
Ensure that the footprint of the proposed building does not extend towards the hazard beyond existing building lines on neighbouring land.	The residence will be contained within the approved building envelope. It does not extend towards the hazard beyond the existing building lines /development on adjoining lands.
Not result in an increased bushfire management and maintenance responsibility on adjoining land owners unless they have agreed to the development	The development has not increased bushfire management and maintenance on adjoining land owners. For the purpose of this application, the management and maintenance responsibilities on adjoining land owners have not increased beyond existing legislative requirements.
Ensure building design and construction; enhance the chances of occupant and building survival.	The recommendations (above) relating to the design and construction of the building include a range of 'bushfire protection measures' that will enhance the chances of occupant and building survival.

11.0 Compliance or non-compliance with PBP performance criteria and intent for bushfire safety protection measures for infill development.

Performance Criteria	Comment
<p>APZ</p> <p>A defensible space is provided on site.</p> <p>An APZ is provided and maintained for the life of the development.</p>	<p>Can Comply – Recommendation No. 1</p> <p>A defensible space will be provided within the site boundaries with the site being maintained as an MIPA. This is complimented by some ‘cleared and managed lands’ on adjoining properties.</p>
<p>Siting and Design</p> <p>Buildings are sited and designed to minimise the risk of bushfire attack.</p>	<p>Can Comply – Recommendation Nos. 1 – 2</p> <p>The proposed development will be located within the approved building envelope. Predicated upon the proposed building standards and recommended APZ areas stated by this report, the risk of bushfire attack should be minimised upon the subject development/building.</p>
<p>Construction Standards</p> <p>Demonstrated that the proposed building can withstand bushfire attack in the form of wind, smoke, embers, radiant heat and flame contact.</p>	<p>Can Comply – Recommendation No. 2</p> <p>Predicated upon the recommended APZ areas and siting requirements, BAL - LOW construction standards can achieve the performance requirements of the planning legislation.</p>
<p>Access</p> <p>Safe, operational access is provided (and maintained) for emergency service personnel in suppressing a bushfire while residents are seeking to relocate, in advance of a bushfire (satisfying the intent and performance criteria for access roads in sections 4.1.3 and 4.2.7).</p>	<p>Can Comply - Recommendation No. 6</p> <p>Emergency access is provided from Robertson Road and over the water.</p> <p>The access arrangements are sufficient for operational fire fighting and emergency egress.</p>
<p>Water and Utility Services</p> <p>Adequate water and electricity services are provided for fire fighting operations.</p> <p>Gas and electricity services are located so as not to contribute to the risk of fire to a building.</p>	<p>Can Comply – Recommendation Nos. 3 & 5</p> <p>Can Comply – Recommendation Nos. 4 & 5</p>

<p>Landscaping</p> <p>Designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind driven embers to cause ignitions.</p>	<p>Can Comply – Recommendation No. 1</p>
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12.0 Statement assessing the environmental impact of any proposed bushfire protection measures.

Bushfire Protection Measure	Likely Environmental Impact	Comment
<p>APZ (Rec. No. 1)</p>	<p>Minor</p>	<p>The recommended APZ will require the ongoing management of exotic vegetation. The impacts on significant native vegetation are limited.</p>
<p>Construction Standard (Rec. No. 2)</p>	<p>Insignificant</p>	<p>Building to be constructed within approved / current building envelope.</p>
<p>Water Supply for fire fighting (Rec. No. 3)</p>	<p>Insignificant</p>	<p>A static non-reticulated domestic water supply will service the development.</p>
<p>Utility service protection (Rec. Nos. 3 - 5)</p>	<p>Insignificant</p>	<p>New utilities generally will be located underground.</p>
<p>Vehicle Access (Rec. No. 6)</p>	<p>Insignificant</p>	<p>Current arrangements are to be maintained.</p>

13.0 Conclusion/Summary

Based on the above assessment and the 6 recommendations to protect persons and property from danger that may arise from a bushfire, the Consent Authority should determine that this development proposal can comply with *Planning for Bushfire Protection, 2006* as required under *Section 4.14 of the Environmental Planning and Assessment Act 1979*.

As a considered opinion, the recommended mitigation measures and construction requirements as stated in this report would reasonably address the aims and objectives of PBP 2006, consistent within the relative and current bushfire risk to the subject development site.

The recommended mitigation measures include the establishment of an Asset Protection Zone, maintained as an MIPA (Recommendation No.1) and the use of BAL – LOW construction standards.

As infill development, the residence will be able to fully comply with the Acceptable Solutions provided within PBP 2006. In this regard, the subject development can reasonably facilitate PBP 2006 objectives in as far as;

- Affording occupants of any building adequate protection from exposure to bushfire;
- Providing for a defensible space to be located around buildings;
- Providing appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and/or material ignition;
- Ensuring that safe operational access and egress for emergency service personnel and residents is available;
- Providing for ongoing management and maintenance of bushfire protection measures, including fuel loads in the APZ; and
- Ensuring that utility services are adequate to meet the needs of fire fighters (and others assisting in bush fire fighting).

Should any of the above information require clarification or further discussion, please contact the author.



Scott Jarvis

Graduate Diploma Design for Bushfire Prone Areas
Diploma of Building Surveying
Diploma of Public Safety (Fire Fighting Management) (Dip PSFM)
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(Note: Scott Jarvis is a recognised/ suitably qualified consultant pursuant to Rural Fire Service of NSW requirements - Fast Fact 5/10 Version 3 Dated 7 March 2011 & Development Control Practice Note 1/10 Version 2 Dated 4 February 2011)

References/Further Reading

Australian Standard 3959-2009/2018, Construction of buildings in bushfire prone areas – Standards Australia.

Building Code of Australia (2019) – Australian Building Codes Board, Canprint.

Environmental Planning and Assessment Act (1979) – NSW Government Printer.

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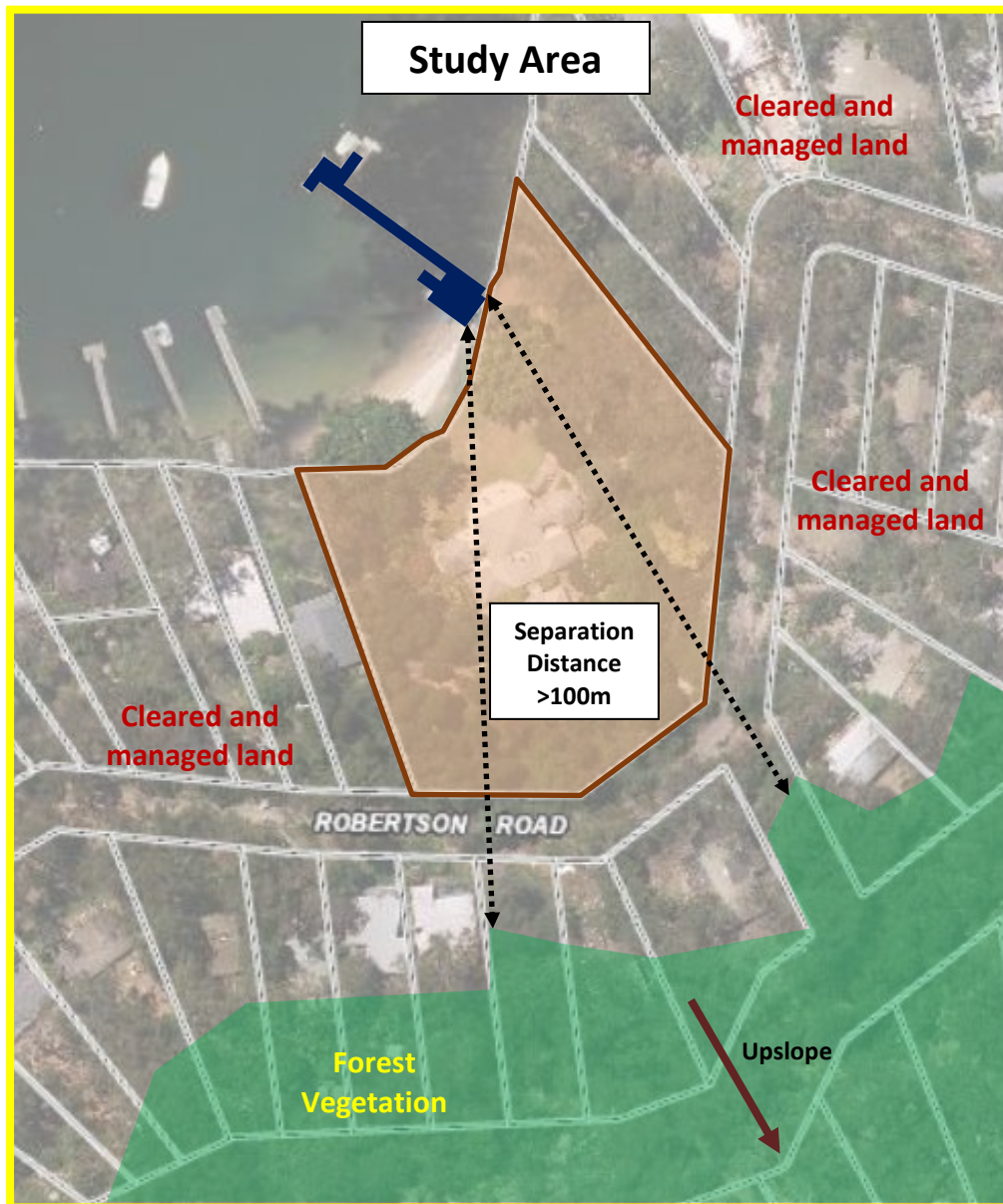
Standards for Asset Protection Zones – NSW Rural Fire Service






Appendix 1

Map 1 – Overview



Map 2 – Study Area / Subject Lot / Slopes / APZ extent



-  Proposed works
-  Recommended Inner Protection Area (IPA)
-  Subject Property Lot 10 DP 1106130
-  Study Area
-  Slope Direction

Appendix 2 – Site Photo (6/11/2019)



Existing residence, looking S



Existing jetty and deck, looking NW



Existing boat shed, looking NW



Existing water tanks, rear of site



Electrical supply connection point



Pittwater, looking NW



Robertson Road, looking NE



Robertson Road, looking W



Typical sandstone vegetation SE of subject development



Caretakers cottage