

**SUPPLEMENTARY BUSHFIRE REPORT
FOR THE PROPOSED THREE LOT
SUBDIVISION OF LOT 1 in DP 202857
No. 7 TRENTWOOD PARK,
AVALON BEACH**

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Assessment Number	Document	Preparation Date	Issue Date	Directors Approval
B172918 - 1	Final	30.6.2017	24.8.2017	<i>G.L.Swain</i>

Australian Bushfire Protection Planners Pty Limited has been commissioned to review the amended subdivision layout for the proposed three lot subdivision of Lot 1 in DP 202857, Trentwood Park, Avalon Beach.

A Development Application was lodged with Pittwater Council on the 9th December 2015, under DA N0530/15, for the subdivision of one into three, demolition of existing detached garage and extension of existing access road to provide access to new lots.

The application was supported by a Bushfire Report prepared by R Coffey, dated 13.06.2014, for a five lot subdivision. A subsequent amended application was submitted for a three lot subdivision with supporting advice on the adequacy of the bushfire protection measures supplied by R Coffey.

The three lot subdivision was assessed by the NSW Rural Fire Service and a Bushfire Safety Authority issued on the 3rd February 2016, under Section 100B of the Rural Fires Act 1997, with the following conditions:

Asset Protection Zones

The intent of measures is to provide sufficient space and maintain reduced fuel loads so as to ensure radiant heat levels of buildings are below critical limits and to prevent direct flame contact with a building. To achieve this, the following conditions shall apply:

1. At the issue of subdivision certificate and in perpetuity the entire property shall be managed as an inner protection area (IPA) as outlined within section 4.1.3 and Appendix 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'.

Water and Utilities

The intent of measures is to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building. To achieve this, the following conditions shall apply:

2. Water, electricity and gas are to comply with section 4.1.3 of 'Planning for Bush Fire Protection 2006'.

Access

The intent of measures for property access is to provide safe access to/from the public road system for fire fighters providing property protection during a bush fire and for occupants faced with evacuation. To achieve this, the following conditions shall apply:

3. Property access roads shall comply with section 4.1.3 (2) of 'Planning for Bush Fire Protection 2006'.

- The access road is to provide a loop road around the future dwelling envelope on proposed Lot 3 or incorporate a turning circle with a minimum 12 metre outer radius,
- The access road is not to traverse a wetland or other land potentially subject to periodic inundation (other than a flood or storm surge),
- Curves are to have a minimum inner radius of 6 metres,
- The road must have a grade of no greater than 15°, and a maximum crossfall of 10°, and
- A minimum vertical clearance of 4 metres must be provided to any overhanging obstruction, including tree branches.

Pittwater Council refused the application on the 10th January 2017, citing the following reasons for refusal:

1. The proposed development would necessitate the removal of a large number of trees, the full extent of which is unknown. This will adversely impact upon numerous significant native trees, the biodiversity, flora and fauna of the site, and result in an adverse visual and character impact. This is contrary to the provisions of clauses 5.9 and 7.6 of Pittwater LEP 2014 and controls B4.2, B4.4 and B4.22 of Pittwater 21 DCP.
2. The proposed development, and in particular the extent of tree removal required to facilitate future development and bushfire requirements, will have an adverse visual impact upon the adjacent Ruskin Rowe Heritage Conservation Area. This is contrary to the provisions of clause 5.10 of Pittwater LEP 2014 and control B1.2 of Pittwater 21 DCP.
3. The application documentation does not sufficiently demonstrate that the new lots would be sufficiently protected from the site's bushfire hazard, particularly regarding the provision of appropriate access and the creation of an Inner Protection Area. This is contrary to the provisions of controls 4.5 and B3.2 of Pittwater 21 DCP.
4. The proposed development, and in particular the extent of tree and habitat removal which is likely to be required, is inconsistent with the desired future character of the Avalon Beach locality. This is contrary to control A4.1, D1.1 and D1.4 of Pittwater 21 DCP.
5. The proposed development has not been designed to provide adequate access for waste, recycling, delivery and emergency vehicles, which is likely to result in a reduction in amenity and safety to the subject site and surrounding sites. This is contrary to controls B6.2, B6.7 and C4.6 of Pittwater 21 DCP.
6. The application has not provided dwelling designs to enable an adequate consideration of the environmental constraints of the land.

I inspected the development site on the 27th February 2017.

Subsequent to this inspection I have provided advice to the project Architect and Arborist on the bushfire protection measures required to be implemented to satisfy Conditions 1 - 3 of the Bushfire Safety Authority.

Assessment of Compliance with Bushfire Safety Authority:

Condition 1:

Condition 1 requires that the entire property shall be managed as an Inner Protection Area [IPA] as outlined within Section 4.1.3 and Appendix 5 of *Planning for Bushfire Protection 2006* and the NSW Rural Fire Service's document 'Standards for Asset Protection Zones'.

Section 4.1.3 of *Planning for Bushfire Protection 2006* establishes the 'performance criteria and acceptable solutions' for the provision of Asset Protection Zones to new development – refer to Table 1 below:

Table 1 – Asset Protection Zones [PPFP – 2006]

Performance Criteria	Acceptable solutions
The intent may be achieved where:	
<ul style="list-style-type: none">• radiant heat levels at any point on a proposed building will not exceed 29 kW/m²	<ul style="list-style-type: none">• an APZ is provided in accordance with the relevant tables/ figures in Appendix 2 of this document• the APZ is wholly within the boundaries of the development site. Exceptional circumstances may apply [see section 3.3]
<ul style="list-style-type: none">• APZs are managed and maintained to prevent the spread of a fire towards the building.	<ul style="list-style-type: none">• in accordance with the requirements of Standards for Asset Protection Zones (RFS, 2005) <p><i>Note: A Monitoring and Fuel Management Program should be required as a condition of development consent</i></p>
<ul style="list-style-type: none">• APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is negated	<ul style="list-style-type: none">• the APZ is located on lands with a slope less than 18 degrees.

Assessment of Compliance with Performance Criteria:

Performance Criteria [1] requires that radiant heat levels at any point on a proposed building will not exceed 29kW/m².

The location of the future dwelling on proposed Lot 3 created in the subdivision is completely shielded from a fire in the vegetation on the land to the southwest by the adjoining two storey dwelling on Lot 10 in DP 574143. In addition to the shielding, the future dwelling is located 49 metres from the edge of the bushfire prone vegetation.

The location of the future dwelling on proposed Lot 1 is protected by the existing managed Asset Protection Zone and dwelling on Lot 20 in DP 859660, to the southwest.

The radiant heat levels on the future dwellings do not exceed 29kW/m² and there is no requirement for an extension of the Asset Protection Zone to each of the new dwellings beyond the development site.

Performance Criteria [2] requires that APZs are managed and maintained to prevent the spread of fire towards the building. The Acceptable Solution is for the APZ to be managed in accordance with the NSW Rural Fire Service's document '*Standards for Asset Protection Zones 2005*'.

'*Step 6 – Ongoing Management and Landscaping*' of the document provides the following information:

- ensure that vegetation does not provide a continuous path to the house;
- remove all noxious and environmental weeds;
- plant or clear vegetation into clumps rather than continuous rows;
- prune low branches two metres from the ground to prevent a ground fire from spreading into trees;
- locate vegetation far enough away from the asset so that plants will not ignite the asset by direct flame contact or radiant heat emission;
- plant and maintain short green grass around the house as this will slow the fire and reduce fire intensity. Alternatively, provide non-flammable pathways directly around the dwelling;
- ensure that shrubs and other plants do not directly abut the dwelling. Where this does occur, gardens should contain low-flammability plants and non flammable ground cover such as pebbles and crush tile; and
- avoid erecting brush type fencing and planting "pencil pine" type trees next to buildings, as these are highly flammable.



I have reviewed the amended subdivision plans and inspected the property with Mr Peter Caster from Tree Wise Men and confirm that the property is currently being maintained to achieve a low fuel hazard. I also confirm that the tree crown separation/location for the future dwelling on proposed Lots 2 & 3 has been determined to ensure a discontinuous path from the bushfire hazard to the new and existing dwellings and to satisfy the performance criteria of an Inner Protection Area.

Current landscaping to the existing dwelling on proposed Lot 2 ensures that shrubs and other plants do not directly abut the dwelling. The landscaping to the future dwelling erected on proposed Lots 1 & 3 will ensure that this requirement is satisfied for proposed Lots 1 & 3.

Performance Criteria [3] requires that APZs are located on land that is less than 18 degrees. The existing management of the property maintains the landscaped gardens without affecting the stability of the land.

Condition 2:

Condition 2 requires that water, electricity and gas comply with Section 4.1.3 of *Planning for Bushfire Protection 2006*. Refer to Table 2 below:

Table 2 – Water, Electricity and Gas [PPFP – 2006]

Performance Criteria	Acceptable solutions
The intent may be achieved where:	
<p>Reticulated water supplies</p> <ul style="list-style-type: none"> water supplies are easily accessible and located at regular intervals 	<ul style="list-style-type: none"> reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads fire hydrant spacing, sizing and pressures comply with AS 2419.1 – 2005. Where this cannot be met, the RFS will require a test report of the water pressures anticipated by the relevant water supply authority. In such cases, the location, number and sizing of hydrants shall be determined using fire engineering principles hydrants are not located within any road carriageway all above ground water and gas service pipes external to the building are metal, including and up to any taps the provisions of parking on public roads are met.
<p>Non-reticulated water supply areas</p> <ul style="list-style-type: none"> for rural-residential and rural developments (or settlements) in bush fire prone areas, a water supply reserve dedicated to firefighting purposes is installed and maintained. The supply of water can be an amalgam of minimum quantities for each lot in the subdivision (community titled subdivisions), or held individually on each lot 	<ul style="list-style-type: none"> the minimum dedicated 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. 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.
<p>Electricity Services</p> <ul style="list-style-type: none"> location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of buildings regular inspection of lines is undertaken to ensure they are not fouled by branches. 	<ul style="list-style-type: none"> where practicable, electrical transmission lines are underground. where overhead electrical transmission lines are proposed: <ul style="list-style-type: none"> lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).
<p>Gas services</p> <ul style="list-style-type: none"> location of gas services will not lead to ignition of surrounding bushland or the fabric of buildings 	<ul style="list-style-type: none"> reticulated or bottled gas is installed and maintained in accordance with AS 1596 and the requirements of relevant authorities. Metal piping is to be used. all 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 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. Connections to and from gas cylinders are metal. polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used.

Performance Criteria – Water Supplies for Fire-fighting Operations:

Discussions with the NSW Rural Fire Service have resolved that the proposed subdivision is not capable of providing fire appliance access to proposed Lot 3.

Therefore, an alternate solution is being proposed in order to provide a fire-fighting hydrant to the future dwelling erected on proposed Lot 3 and the existing dwelling on proposed Lot 2. This alternate solution provides for the installation of a fire-fighting water supply line off the main in the street and a Booster Assembly located at the driveway entrance off the Trentwood Park cul-de-sac.

The supply line to the hydrant is to be located beneath the driveway with the hydrant located between the existing dwelling on proposed Lots 2 and the future dwelling on proposed Lot 3 so that the furthest part of each of these buildings is not more than 70 metres distant from the hydrant.

The hydrant shall be a dual-head Millcock Valve complete with twin ball valves, Stortz Couplings and Blanking Caps. There is to be a Hose Box located adjacent to the hydrant, complete with two [2] lengths of 38mm canvas lay-flat hose, three-way nozzle and Stortz spanner.

Electricity and gas supplies to the existing and future dwellings are underground and therefore do not present a bushfire hazard.

Condition 3:

Condition 3 requires that property access roads shall comply with Section 4.1.3(2) of *Planning for Bushfire Protection 2006*.

This requirement has been addressed by the provision of a hydrant supply and booster system to proposed Lots 2 & 3.

Complying fire-fighting access to proposed Lot 1 is provided directly off the Trentwood Park cul-de-sac.

Conclusion:

I have examined the location of the bushfire hazard to the development site and confirm that the only hazard exists to the southwest, beyond the adjacent residential development on Lot 10 in DP 574143.

This hazard is limited to the vegetation in the rear of the lots located further to the southwest with a 40 metre wide separation [Asset Protection Zone] to the south-western boundary of the development site and more than 49 metres to the corner of the future dwelling on proposed Lot 3. In addition to this separation, the future dwelling on proposed Lot 3 is shielded [behind] by the elevated dwelling on the lot to the southwest [Lot 10 in DP 574143].

The separation and shielding address the Asset Protection Zone/radiant heat exposure requirements to the future dwelling on proposed Lot 3.

The southwest fire path will NOT impact on the future dwelling on proposed Lot 1 as it is located to the 'side' of the southwest fire path and protected by the existing buildings/managed land on Lot 3 in DP 565776 and Lot 20 in DP 859660.

The amended subdivision layout recognises that access for fire-fighting operations is now not required as an alternate solution provides a fire-fighting water supply to protect the existing dwelling on proposed Lot 2 and the future dwelling on proposed Lot 3. This alternate solution and the deletion of the requirement to provide access for fire appliances to the existing dwelling on proposed Lot 2 and the future dwelling on proposed Lot 3 also permits the retention of additional trees on the site.

The continued maintenance of the site as an urban landscaped garden, with minor tree removal, satisfies the performance requirements of an Inner Protection Area.

The amended subdivision layout addresses the bushfire protection measures required by the Bushfire Safety Authority issued by the NSW Rural Fire Service, dated 3rd February 2016.



Graham Swain,
Managing Director,
Australian Bushfire Protection Planners Pty Limited
24.08.2017