

**BUSHFIRE PROTECTION ASSESSMENT**  
**FOR THE PROPOSED SUBDIVISION**  
**OF**  
**LOT 1 in DP 202857**  
**AND**  
**CONSTRUCTION OF A DWELLING ON LOT 1 & LOT 3**  
**TRENTWOOD PARK, AVALON BEACH**

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<b>Assessment Number</b>	<b>Document</b>	<b>Preparation Date</b>	<b>Issue Date</b>	<b>Directors Approval</b>
B183264 -1	Final	01.11.2018	11.02.2019	<i>G.L.Swain</i>



## **EXECUTIVE SUMMARY**

*Australian Bushfire Protection Planners Pty Limited* has been commissioned to undertake the bushfire consultancy for the proposed additional subdivision of Lot 1 in DP 202857 and the construction of a dwelling on Lot 1 & Lot 3, Trentwood Park, Avalon Beach.

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

The three lot subdivision was assessed by the NSW Rural Fire Service and a Bushfire Safety Authority issued on the 3<sup>rd</sup> 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 10<sup>th</sup> 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.

The three lot subdivision was approved by the Land & Environment Court with modification to the driveway to the dwelling on Lot 3 and the addition of a hydrant water supply in-lieu of the provision of an access driveway that satisfies the NSW Rural Fire Service's access requirements.

The owner is seeking approval for the inclusion of an additional lot [Lot 4] and dwelling located to the north of the existing dwelling.

This application also examines the bushfire construction standards to the dwelling on Lot 1 and Lot 3 – each located in the building envelopes approved by the Land & Environment Court.

The modified subdivision layout does not amend or change the approved layout other than providing an extension of the approved driveway to proposed Lot 4, removal of ten trees within the dwelling footprint and driveway within proposed Lot 4 and modification to the approved Lot 1 to provide a stormwater easement to the street from proposed Lot 4

The location of the future dwelling on proposed Lot 4 created in the four lot subdivision is completely shielded from a bushfire in the vegetation on the land to the southwest by the existing dwelling on proposed Lot 2 and the future dwelling on Lot 3. In addition to the shielding, the future dwelling on proposed Lot 4 is located more than 70 metres from the edge of the bushfire prone vegetation on the land to the southwest of the development site – exceeding the maximum width required for residential subdivision of bushfire prone land.

The radiant heat level on the future dwelling on proposed Lot 4 does not exceed 29kW/m<sup>2</sup> and there is no requirement for an extension of the Asset Protection Zone to the new dwelling beyond the development site.

The vegetation within the development site and on adjoining land is recorded on the Northern Beaches Bushfire Prone Land Map as Category 1 Bushfire Prone Vegetation, or the buffer zone to this vegetation.

Therefore, the proposed subdivision of the land for residential purposes is Integrated Development, as defined by Section 4.46 and Section 4.47 of the *Environmental Planning and Assessment Act*.

An application lodged for the four lot subdivision of the land and the subsequent construction of a dwelling on proposed Lot 4 created by the subdivision requires the issue of a Bushfire Safety Authority by the Commissioner of the NSW Rural Fire Service under Section 100B of the *Rural Fires Act*.

The Bushfire Safety Authority authorises development to the extent that it complies with matters considered by the Commissioner to be necessary to protect persons, property or the environment from the danger that may occur from a bushfire.

This report accepts that the three lot subdivision approved by the Court addresses the NSW Rural Fire Services requirement relating to:

- The provision and maintenance of the land within the development site as an Asset Protection Zone;
- Provision of pedestrian access and a dedicated water supply for fire-fighting operations; and
- Bushfire Construction standards to the buildings.

This report therefore examines the addition of the fourth lot in respect to the adequacy of fire-fighting water sources and construction standards to the future dwelling on proposed Lot 4.

This report also examines the construction standards to the proposed dwelling on Lots 1 & 3 on the basis that the NSW Rural Fire Service has accepted matters relating to Asset Protection Zones, water supply and access for fire-fighting operations have been addressed and approved.



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

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## SECTION 1

### INTRODUCTION

#### 1.1 Aim of this Report.

This report acknowledges the approval of the previous three lot subdivision and accepts that the bushfire protection measures satisfy the requirements of the NSW Rural Fire Service.

The aim of this report is therefore limited to examining the location of the future dwelling on proposed Lot 4 in respect to the set back to the bushfire hazard on the land to the of the south of the development site, the provision of fire-fighting water supply and construction standard to the future dwelling. A further aim of this report is to examine the construction standards to the proposed dwelling on Lots 1 & 3.

#### 1.2 Statutory Requirements.

This report has been prepared having regard to the following legislative and planning requirements:

##### 1.2.1 Legislation.

###### (a) *Environmental Planning and Assessment Act (EPA Act)*

Planning and development within NSW is regulated by the *Environmental Planning & Assessment Act, 2017* (EPA Act).

In relation to bushfire planning for Industrial/Commercial Developments in bushfire prone areas in NSW Section 4.15 of the EPA Act states that:

- A consent authority is to take into consideration the likely impacts of the development, including environmental impacts on both the natural and built environments and social and economic impacts in the local area (*e.g. natural hazards such as bushfire threat*); and
- The suitability of the site for the development (*e.g. bushfires*).

Section 4.46(1) of the *EP&A Act* identifies that authorization is required under Section 100B of the *Rural Fires Act 1997* in respect of bushfire safety of the subdivision of land that could lawfully be used for residential purposes.

###### (b) *Rural Fires Act 1997*

The objectives of the *Rural Fires Act* are to provide:

- The prevention, mitigation and suppression of fires;
- Coordination of bushfire fighting and prevention;
- Protection of people and property from fires; and
- Protection of the environment.



The *Rural Fires Act* was amended in August 2002 by the *Rural Fires & Environmental Assessment Legislation Amendment Act, 2002*. In relation to bushfire planning for new residential, rural residential and special fire protection developments in bushfire prone areas in NSW, Section 100B of the Act applies.

Section 100B provides for the issue, by the Commissioner of the NSW Rural Fire Service, of a Bushfire Safety Authority for development which creates the subdivision of bushfire prone land for residential and rural residential development and construction of special fire protection developments located within a Bushfire Prone Area.

An application for a Bushfire Safety Authority must be lodged as part of the Development Application process and must demonstrate compliance with *Planning for Bushfire Protection 2006* and other matters which are considered necessary, by the Commissioner, to protect persons, property and the environment from the impact of bushfire.

In relation to the management of bushfire fuels on public and private lands within NSW, the following section of the Act applies:

- Sections 63(1) and 63(2) require public authorities and owners / occupiers of land to take all practicable steps to prevent the occurrence of bushfires on, and to minimize the danger of the spread of bushfires.

**(c) *Rural Fires Regulation 2013.***

Section 44 of the *Rural Fires Regulation* provides details of the matters that are required to be addressed for the issue of a *Bushfire Safety Authority* under Section 100B of the *Rural Fires Act*.

**1.2.2 Planning Policies.**

***Planning for Bushfire Protection – 2006 – (Rural Fire Service).***

This document provides guidance on the planning and development control processes in relation to bushfire protection measures for rural residential and residential subdivision and Special Protection Developments in bushfire prone areas.

The Commissioner may determine additional measures that are considered necessary to protect the development against the impact of bushfire.

**1.3 Documentation Reviewed in this Assessment.**

The following documents were reviewed in the preparation of this report:

- Site Plan of proposed subdivision of Lot 1 in DP 202857 Trentwood Park Avalon Beach, prepared by Gartnertrovato Architects;
- Floor Plans. Elevations and Sections of the proposed dwelling on proposed Lot 4 in the subdivision of Lot 1 in DP 202857 Trentwood Park Avalon Beach, prepared by Gartnertrovato Architects;
- Floor Plans. Elevations and Sections of the proposed dwelling on Lots 1 & 3 in the subdivision of Lot 1 in DP 202857 Trentwood Park Avalon Beach, prepared by Gartnertrovato Architects;
- *Planning for Bushfire Protection 2006* prepared by the NSW Rural Fire Service;
- Australian Standard AS3959 *Construction of Buildings in Bushfire Prone Areas*;
- *Rural Fires Regulation 2013*;
- Northern Beaches Bushfire Prone Land Map;

#### **1.4 Site Inspection.**

Graham Swain of Australian Bushfire Protection Planners Pty Limited inspected the site and surrounding areas on the 27<sup>th</sup> February 2017, as part of the Court hearing, to assess the topography, slopes and vegetation classification within and adjoining the development property and to validate the approved subdivision's compliance with the requisite Asset Protection Zones and access provisions.

Subsequent to this inspection I 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. This advice included a recommendation that a hydrant water supply be provided in lieu of providing a complying access driveway. This recommendation was supported by the NSW Rural Fire Service and approved by the Court.

#### **1.5 Development Proposal.**

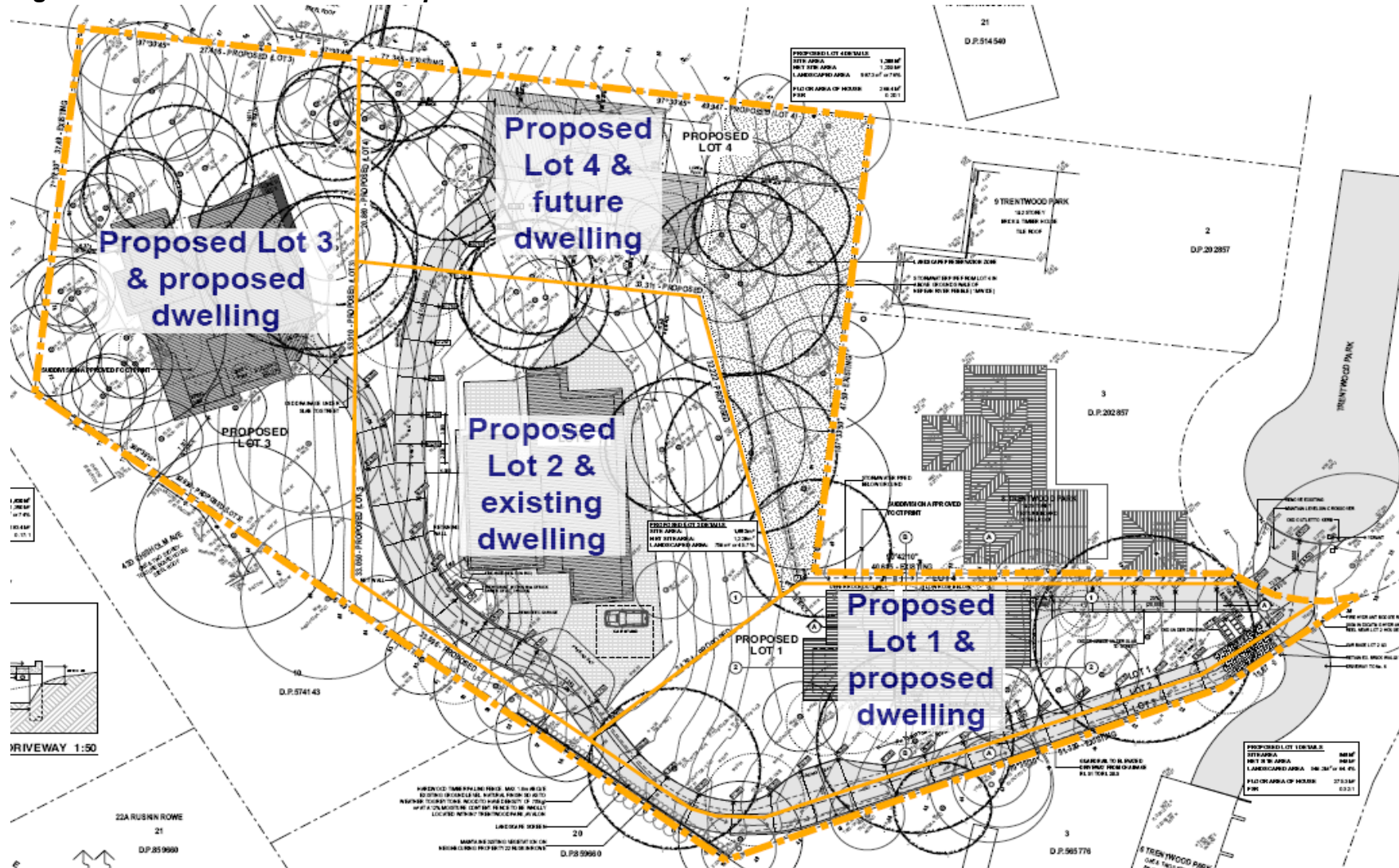
This Bushfire Protection Assessment has been prepared for the proposed subdivision of Lot 1 in DP 202857 Trentwood Park, Avalon Beach, creating an additional [fourth] lot to the approved three lot subdivision.

Vehicular access to the proposed fourth lot is via an extension off the approved driveway to Lot 3.

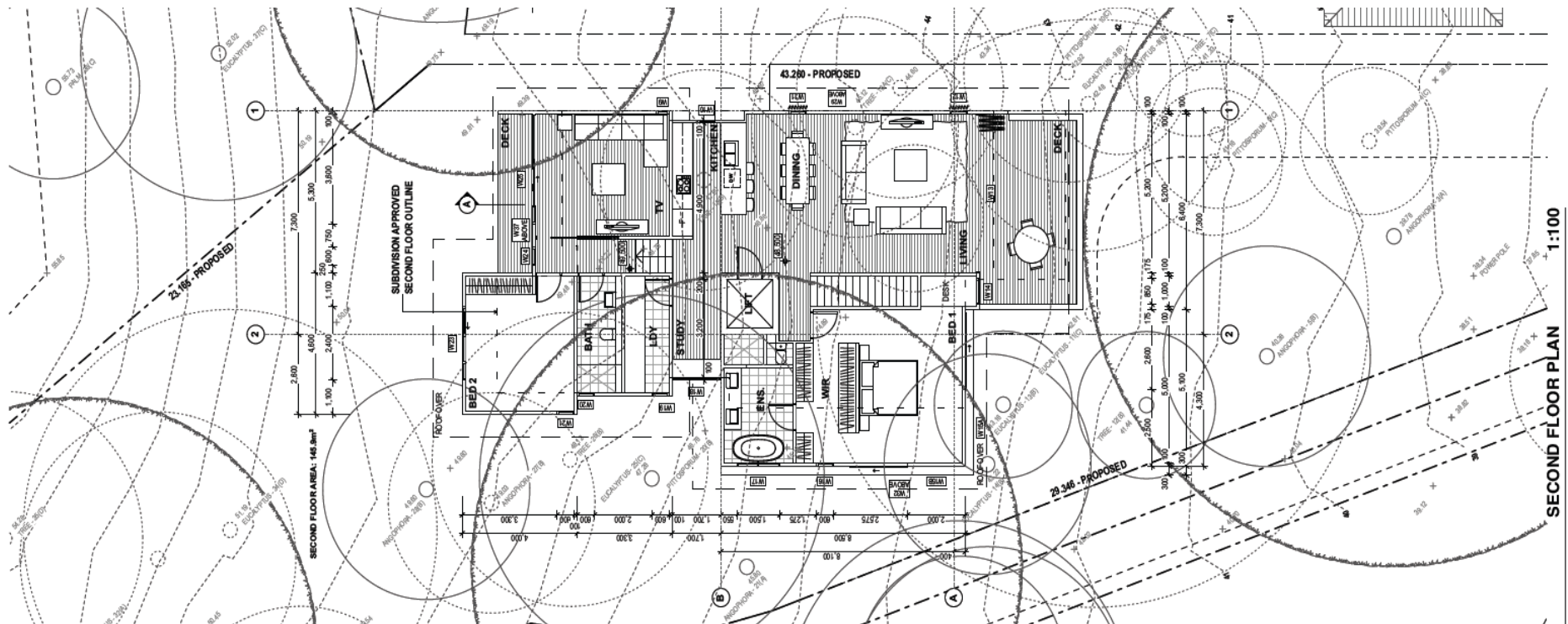
This access is not suitable for heavy vehicles with an alternate solution being provided i.e. hydrant water supply. Refer to Figure 1 – Plan of Subdivision Proposal on Page 11.

This report also examines the bushfire construction standards to the proposed dwelling on Lots 1 & 3 – Refer to Architectural Plans & Elevations of the proposed dwelling on Lots 1 & 3 on Pages 12 - 15.

**Figure 1 – Plan of Subdivision Proposal**

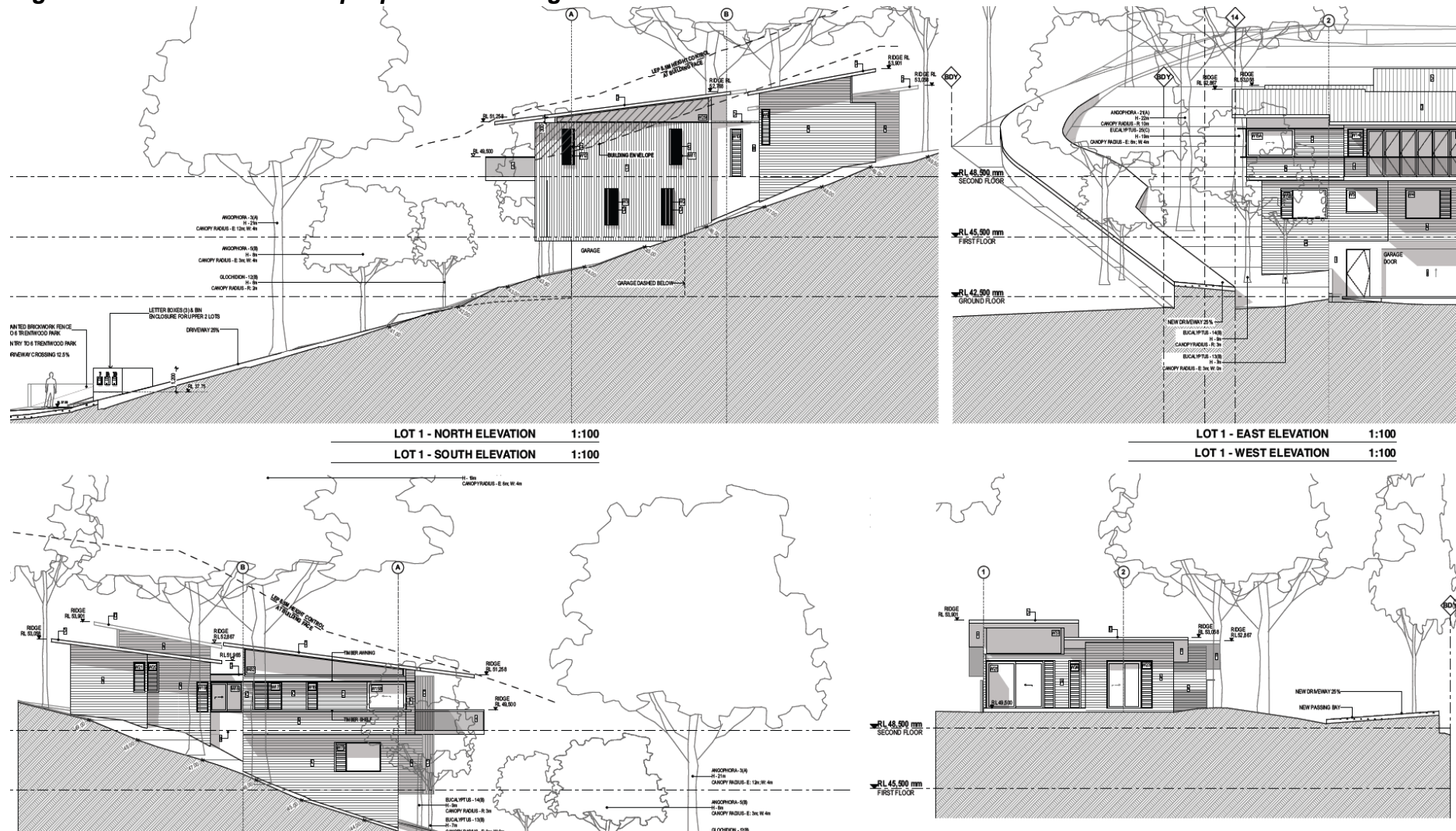


**Figure 2 – Second Floor Plan for the proposed Dwelling on Lot 1.**

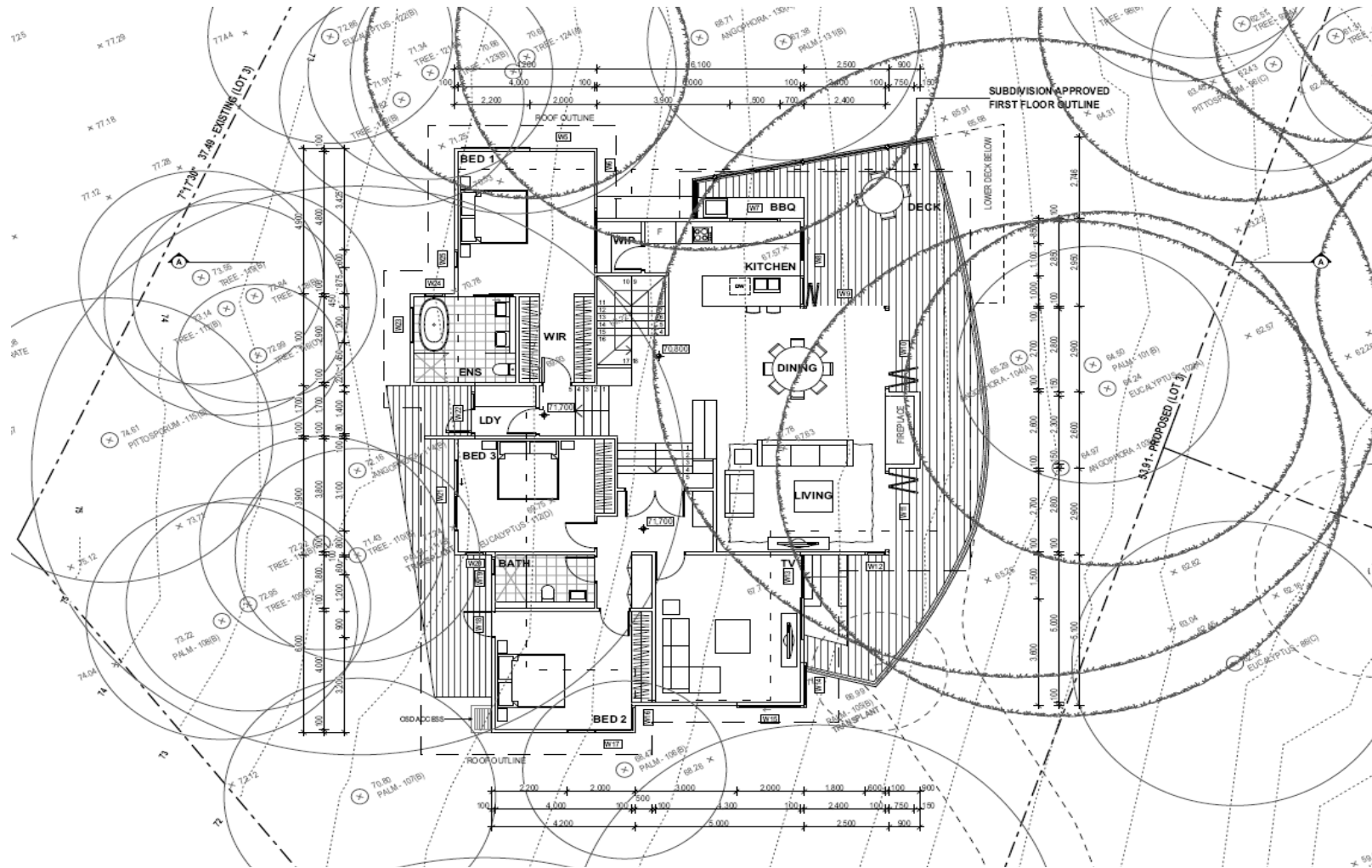




**Figure 3 – Elevations of the proposed Dwelling on Lot 1.**

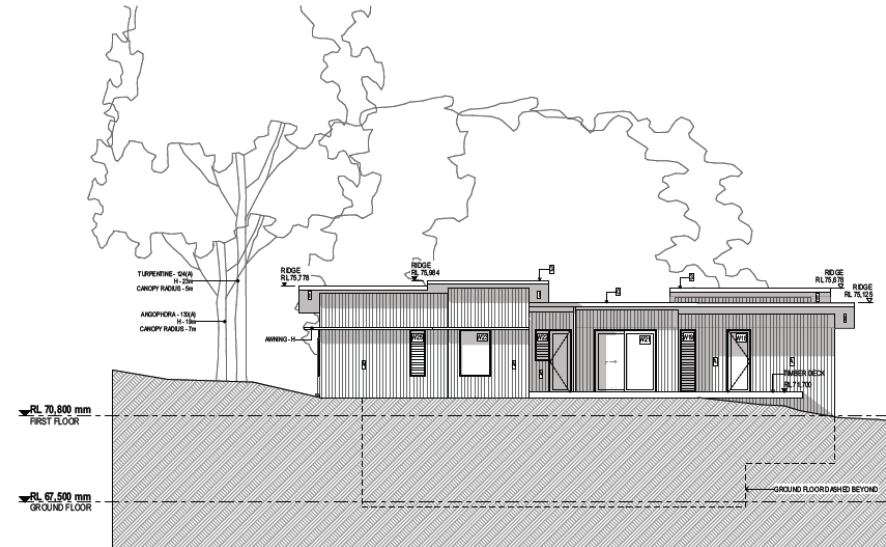
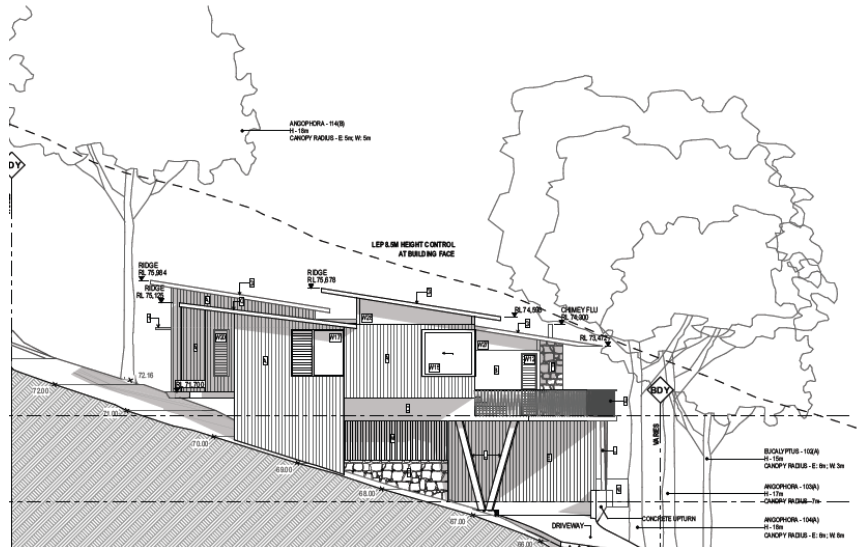
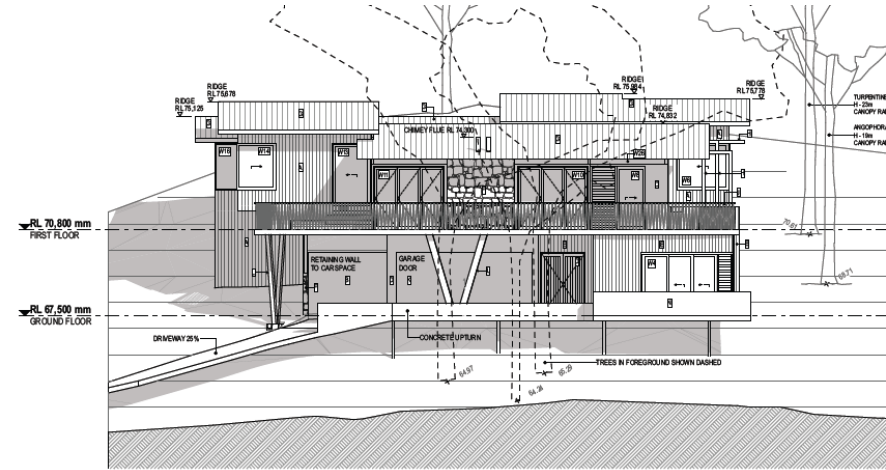
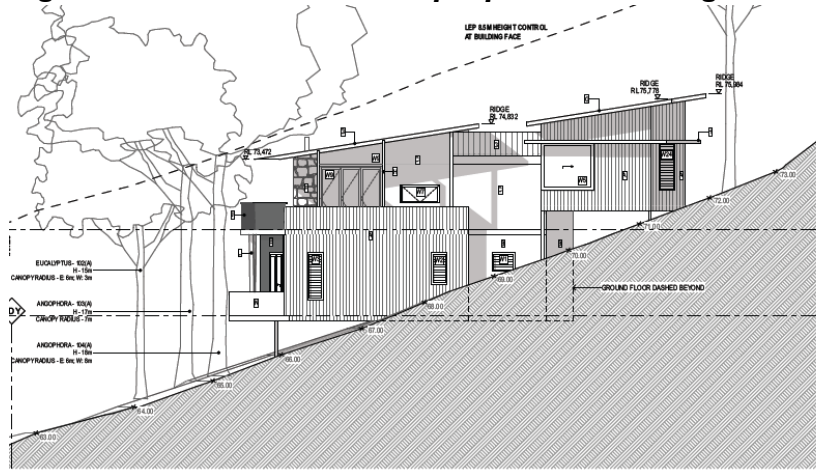


**Figure 4 – First Floor Plan of the proposed Dwelling on Lot 3.**





**Figure 5 – Elevations of the proposed Dwelling on Lot 3.**



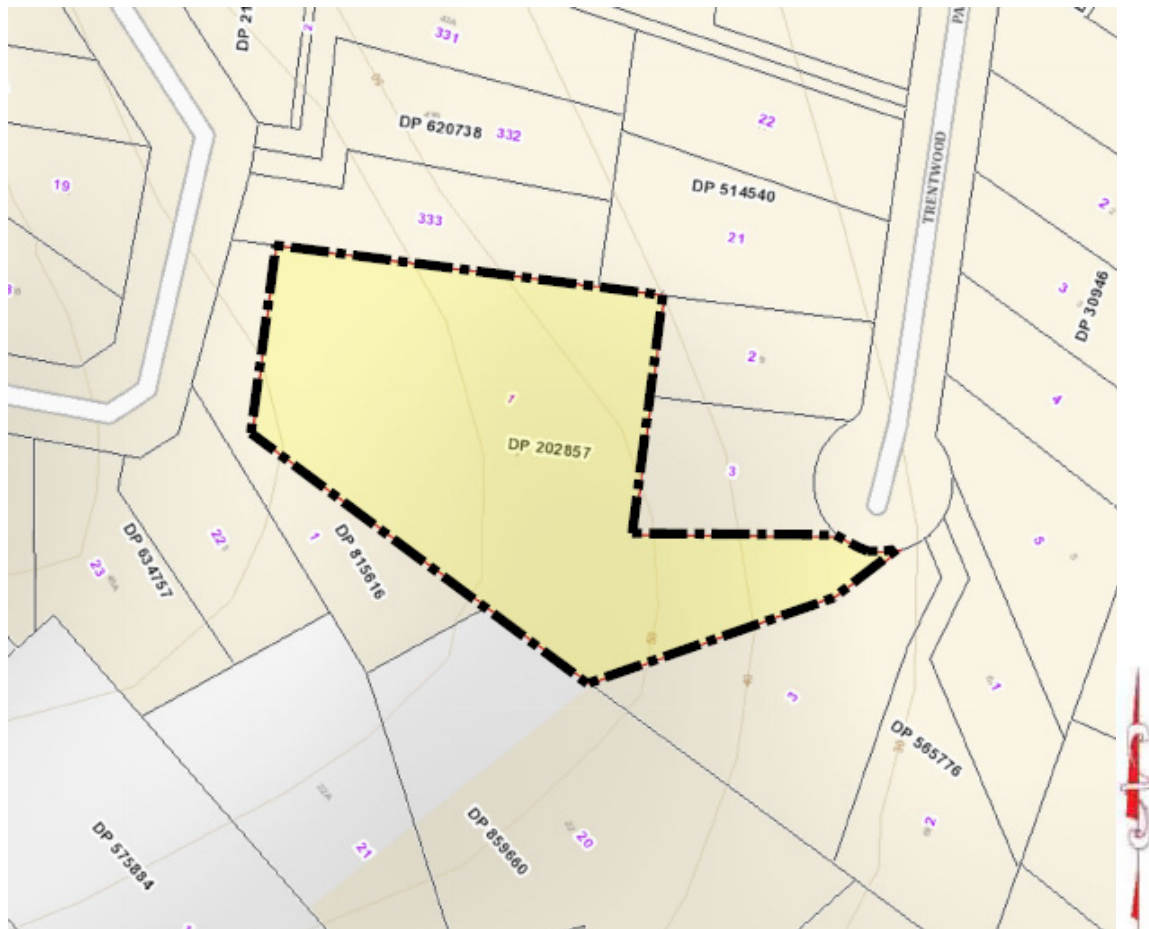
## SECTION 2

### PROPERTY DESCRIPTION

#### 2.1 Location.

The subdivision proposal is over land within Lot 1 in DP 202857 Trentwood Park, located approximately two kilometres to the southwest of the southern edge of Avalon Beach City.

**Figure 2 – Location of Development Site.**



#### 2.2 Existing Land Use.

The development site contains an existing dwelling, landscaped gardens and driveway.

#### 2.3 Surrounding Land Use.

The surrounding land is zoned R2 Low Density Residential and contains existing residential development. Small area of unmanaged private land extends to the southwest from the south-western boundary of the development site.

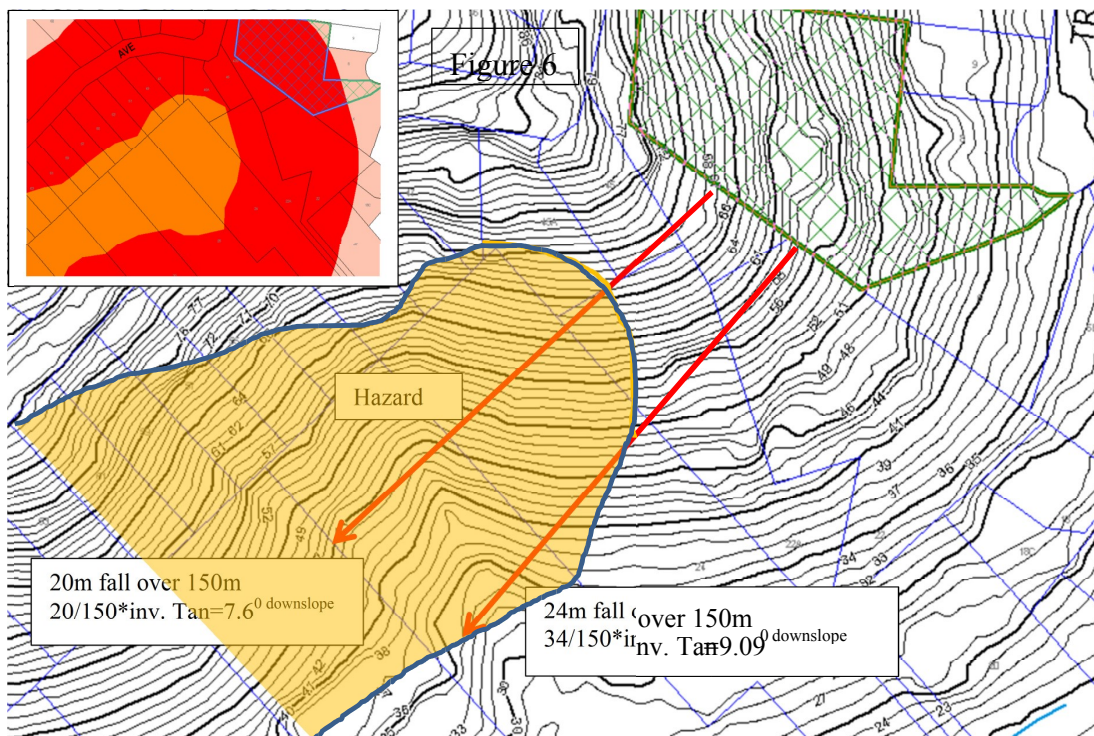


**Figure 3 – Aerial Photograph of Lot 1 in DP 202857 Trentwood Park, Avalon Beach.**



## 2.4 Topography.

The topography of the land to the southwest of the development site ranges from 7.6 degrees to 9.09 degrees – refer to Figure 4 below.



Source: Bushfire Risk Assessment – Ronald Coffey

## 2.5 Vegetation.

The development site contains managed landscaped gardens located beneath a tree canopy.

The bushfire hazard consists of the forest vegetation on the land to the southwest of the site. Refer to figures extracted from the Bushfire Report prepared by Ronald Coffey below:



Figure 4

The hazard is shown outlined in red and shaded. The closest point of the hazard to the SW boundary of the subject site is 40m.

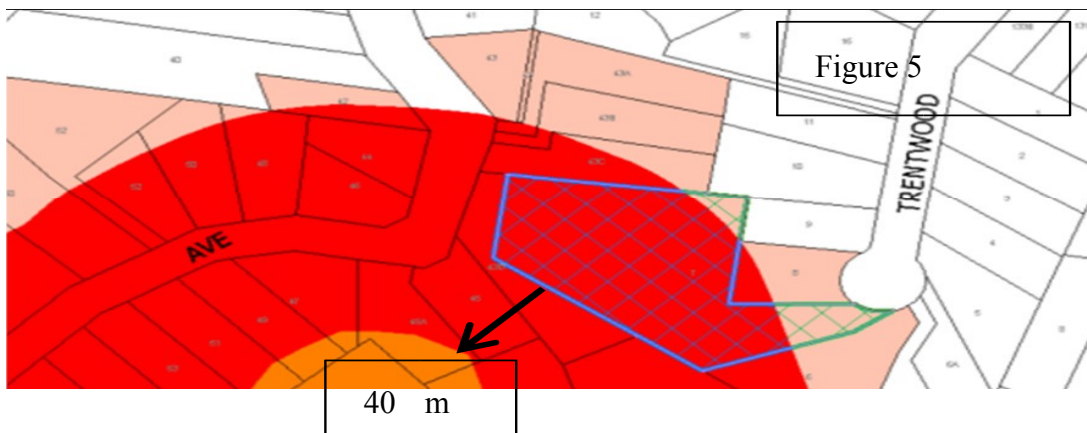


Figure 5

The black arrow indicates the closest point of the hazard, as shown on the Bushfire Prone Land Map, to the south-western boundary of the subject site.

North, East & West: Properties in these directions are developed and maintained and there is no threat from bushfire attack for more than 140m.



## SECTION 3

### BUSHFIRE PROTECTION ASSESSMENT

#### 3.1 Introduction.

Section 44 of the *Rural Fires Regulation 2013* requires that an application for a *Bushfire Safety Authority* must include a bushfire assessment for the proposed development (including the methodology used in the assessment) that addresses the extent to which the development provides:

- *Asset protection zones;*
- *The siting and adequacy of water supplies for fire fighting operations;*
- *Capacity of public roads to handle increased volumes of traffic during a bushfire emergency;*
- *Whether or not public roads link with the fire trail network and have two way access;*
- *The adequacy of access and egress for the purposes of emergency response;*
- *The adequacy of bushfire maintenance plans and fire emergency procedures;*
- *The construction standards to be used for building elements.*

These measures were assessed in the approved three lot subdivision and found to satisfy the requirements of *Planning for Bushfire Protection 2006*.

The proposed four lot subdivision relies on these measures being retained with the future dwelling erected on proposed Lot 4, located more than 70 metres from the bushfire hazard on the adjacent land.

This separation lowers the construction standard to the building to BAL 12.5.

#### 3.2 Bushfire Construction Standards to the proposed dwelling on Lot 1 and Lot 3.

The southwest corner of the proposed dwelling on Lot 1 is located just inside the 100 metre wide buffer zone to the Category 1 Bushfire Prone Vegetation on the land to the south of the development site. Therefore it is recommended that this dwelling shall be constructed to comply with Section 3 and Section 5 [12.5] of A.S. 3959 – 2009 – *Construction of Buildings in Bushfire Prone Areas* and Addendum Appendix 3 of *Planning for Bushfire Protection 2006*.

The proposed dwelling on Lot 3 is located more than 45 metres from the Category 1 Bushfire Prone Vegetation on the land to the south of the development site. The effective slope of the land containing the bushfire hazard is less than 10 degrees downslope therefore it is recommended that the roof and elevations exposed to the hazard shall be constructed to comply with Section 3 and Section 7 [29] of A.S. 3959 – 2009 – *Construction of Buildings in Bushfire Prone Areas* and Addendum Appendix 3 of *Planning for Bushfire Protection 2006*.

The non-exposed elevations shall be constructed to comply with Section 3 and Section 6 [19] of A.S. 3959 – 2009 – *Construction of Buildings in Bushfire Prone Areas* and Addendum Appendix 3 of *Planning for Bushfire Protection 2006*.

### **3.3 Water Supplies for Firefighting Operations & Utility Services.**

The approved three lot subdivision provided a fire-fighting water supply from the street mains to a hydrant located adjacent to the south-western corner of the existing dwelling on proposed Lot 2 – within 60 metres of the farthest corner of the future dwelling on Lot 3.

The location of the hydrant also satisfies the hose line length for the future dwelling on proposed Lot 4.

No additional bushfire fighting water supplies are required.

### **3.4 Bushfire Hazard Management.**

Management of the vegetation within the proposed lots shall comply with the recommendations of Appendix A5.4 & Appendix A5.5 of *Planning for Bushfire Protection 2006* and the Rural Fire Service “*Standards for Asset Protection Zones*”.



## SECTION 4

### RECOMMENDATIONS

#### **Recommendation 1 – Asset Protection Zones to future dwellings:**

The whole of the development site shall be maintained in accordance with the prescriptions of Appendix 5 of *Planning for Bushfire Protection 2006* and the NSW Rural Fire Service “Standards for Asset Protection Zones”.

#### **Recommendation 2 – Construction Standards to the future dwelling on proposed Lot 4:**

The future dwelling erected on proposed Lot 4 shall be constructed to comply with Section 3 and Section 5 [BAL 12.5] specifications pursuant to A.S. 3959 – 2009 – ‘Construction of Buildings in Bushfire Prone Areas’ and Addendum Appendix 3 of *Planning for Bushfire Protection 2006*.

In addition, roof gutters and valleys shall have fitted a non-combustible protection device which minimises the accumulation of combustible materials in the gutter/valley.

#### **Recommendation 3 – Construction Standards - Dwelling on Lot 1:**

The proposed dwelling erected on Lot 1 shall be constructed to comply with Section 3 and Section 5 [BAL 12.5] specifications pursuant to A.S. 3959 – 2009 – ‘Construction of Buildings in Bushfire Prone Areas’ and Addendum Appendix 3 of *Planning for Bushfire Protection 2006*.

In addition, roof gutters and valleys shall have fitted a non-combustible protection device which minimises the accumulation of combustible materials in the gutter/valley.

#### **Recommendation 4 – Construction Standards - Dwelling on Lot 3:**

The roof and elevations of the dwelling erected on Lot 3 which are exposed to the bushfire hazard shall be constructed to comply with Section 3 and Section 7 [BAL 29] of A.S. 3959 – 2009 – *Construction of Buildings in Bushfire Prone Areas* and Addendum Appendix 3 of *Planning for Bushfire Protection 2006*.

The non-exposed elevations shall be constructed to comply with Section 3 and Section 6 [19] of A.S. 3959 – 2009 – *Construction of Buildings in Bushfire Prone Areas* and Addendum Appendix 3 of *Planning for Bushfire Protection 2006*.

In addition, roof gutters and valleys shall have fitted a non-combustible protection device which minimises the accumulation of combustible materials in the gutter/valley.

## SECTION 5

### CONCLUSION

The proposed development consists of the re-subdivision of the approved three lot subdivision of Lot 1 in DP 202857 Trentwood Park at Avalon Beach and construction of a new dwelling on Lots 1 & 3 created in the subdivision of the land.

The subdivision proposal creates an additional lot [Lot 4] located to the north of the existing dwelling with vehicular access extending off the approved driveway to the dwelling on Lot 3.

The fourth dwelling is located more than 70 metres from the bushfire hazard on the adjacent land to the southwest of the development site.

This separation reduces the radiant heat exposure on the future dwelling to less than 12.5 kW/m<sup>2</sup>.

Fire-fighting access to the fourth dwelling [on proposed Lot 4] is not required as the location of the dwelling satisfies the hose line lengths of A.S. 2419.1 – 2005.

The proposed four lot subdivision addresses the requirements of Section 44 of the *Rural Fires Regulation 2013* as a prerequisite for the issue of a *Bushfire Safety Authority* under Section 100B (4) of the *Rural Fires Act* for the subdivision application.

The following table summarises the extent to which the development proposal conforms with [or deviates from] the requirements of Section 44 of the *Rural Fires Regulation 2013* and the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006*.

Bushfire Construction Standards have been recommended for the erection of a new dwelling on Lot 1 & 3, created in the amended four lot subdivision.

**Table 1. Compliance with the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006*.**

<b>Bushfire Protection Measure</b>	<b>Compliance with deemed-to-satisfy provisions of <i>Planning for Bushfire Protection 2006</i>.</b>
Asset Protection Zone setbacks	The Asset Protection Zone setback for the approved three lot subdivision was approved by the NSW Rural Fire Service. The fourth dwelling is located further from the bushfire hazard than approved dwelling sites
Siting & adequacy of water supplies for firefighting operations	Reticulated fire-fighting water supply provided complete with hydrant installed to satisfy the specifications of A.S. 2419.1 – 2005.
Capacity of public roads to handle increased volumes of traffic in the event of a bushfire emergency	Trentwood Park provides for increased volumes of traffic in the event of the bushfire emergency.
Fire trail network	Nil.
Adequacy of emergency response access and egress	Not relevant – alternate solution provided with hydrant installed.
Adequacy of Bushfire Maintenance Plans and fire emergency procedures	A Bushfire Maintenance Plan is not required as the proposed fire protection measures do not extend onto adjoining properties.
Building construction standards	BAL 12.5 construction recommended to the future dwelling on proposed Lot 4. Construction standards as recommended to apply to the proposed dwelling on Lots 1 & 3.
Adequacy of sprinkler systems & other fire protection measures	Not applicable

The proposed subdivision as represented by the subdivision layout prepared by *Gartner & Trovato Architects* exceeds the minimum “Deemed-to-Satisfy” specifications set out in Chapter 4 (Performance Based Control) and the aim and objectives of *Planning for Bushfire Protection 2006* and affords occupants of the future dwellings adequate protection from exposure to a bushfire.

The construction of the proposed dwelling on Lots 1 & 3 satisfies the NSW Rural Fire Services’ requirement that radiant heat exposure on the exterior of a building located in a bushfire prone area shall not exceed 29kW/m<sup>2</sup>.

## REFERENCES:

- N.S.W Rural Fire Service – *Planning for Bushfire Protection 2006*;
- NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping 2006*;
- *Environmental Planning & Assessment Act – 1979*;
- *Rural Fires Act – 1997*;
- *Rural Fires and Environmental Assessment Legislation Amendment Act 2002*;
- *Rural Fires Regulation 2013*;
- *Biodiversity Conservation Act 2016*;
- *Bushfire Environmental Assessment Code 2006*;
- *Northern Beaches Bushfire Prone Land Map*;
- Building Code of Australia;
- Australian Standard A.S 3959-2009 “*Construction of Buildings in Bushfire Prone Areas*”.