

Bushfire Threat Assessment

Planning Proposal

Lot 437 DP 755242

1377 Hue Hue Road Wyee, NSW



Prepared for: Topa Property Pty Ltd

12 July 2022

AEP Ref: 2389

Revision: 02

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AEP Project Team	Tim Mouton Natalie Black Andrew Harker Chris Wark

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1.0 Introduction

Anderson Environment & Planning was commissioned by Topa Property Pty Ltd (the client) to undertake a Bushfire Threat Assessment (BTA) for a Planning Proposal to rezone RU2 – Rural landscape to R2 – Low Density at 1377 Hue Hue Road, Wyee (the Subject Site).

The Planning Proposal will be assessed as per Division 3.2 of the Environmental Planning and Assessment Act 1979 (EP&A Act). As a result, section 3.18 requires concurrence from the Rural Fire Service (RFS) to enable the planning proposal to proceed on Bushfire Prone Land. This report addresses the required heads of consideration relevant to obtaining concurrence from the RFS.

This report is specifically intended to assess the bushfire protection measures required by “Planning for Bushfire Protection 2019” (PBP) and the construction requirements for proposed development in accordance with the provisions of the Building Code of Australia – Volume 2, Edition 2010 and Australian Standard 3959-2009 (AS 3959) – “Construction of buildings in bushfire-prone areas”, to provide direction for future development planning within the site.

For the purposes of referencing, this document should be referred to as:

Anderson Environment & Planning (2021). *Bushfire Threat Assessment Planning Proposal at 1377 Hue Hue Road Wyee, NSW*. Unpublished report for Topa Property Pty Ltd. August 2021.

2.0 Site Particulars

- **Address** – 1377 Hue Hue Road Wyee, NSW.
- **LGA** – Lake Macquarie Council.
- **Title Details** – Lot 437 DP 755242.
- **Subject Site** – The Subject Site encompasses the proposed subdivision footprint within Lot 437 DP 755242, including part of the Digary Road easement along the western boundary of the lot. The Subject Site covers approximately 3.8ha.
- **Zoning** – Under the *Lake Macquarie Local Environmental Plan 2014* (the LEP), the Subject Site is currently zoned RU2 – Rural Landscape, and C2 – Environmental Conservation.
- **Current Land Use** – Lot 437 DP 755242 is occupied by two residential dwellings at the front of the lot. The surrounding areas in the northern and central portion of the lot contain pasture, including stock fencing and a number of rural sheds and structures associated with keeping horses. The southern portion of the lot contains a patch of remnant native forest, associated with vegetation surrounding Mannering Creek, which flows through the far southern corner of the lot.
- **Surrounding Land Use** – The site is bounded by Hue Hue Rd to the north, beyond which lies low density residential and semi-rural properties containing scattered patches of remnant bushland. Cleared agricultural land and the M1 Motorway lies to the west, and a residential subdivision lies to the east. Remnant vegetation occurs to the south, which is associated with riparian areas surrounding Mannering Creek.
- **Proposed Development** – Planning Proposal to rezone RU2 -Rural Landscape to R2 – Low Density Residential at 1377 Hue Hue Road, Wyee.

Figure 1 depicts the extent of the site overlain on an aerial photograph of the locality. **Figure 2** depicts the Concept Plan for the Planning Proposal within the Subject Site.

Disclaimer: While all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

Legend

Project Boundary

Development Footprint

Cadastre

N



Note:
1. Boundaries are not survey accurate
2. Do not scale off the plan



Figure 1 - Site Location

Date: July 2022

Location: 1377 Hue Hue Rd, Wyee, NSW

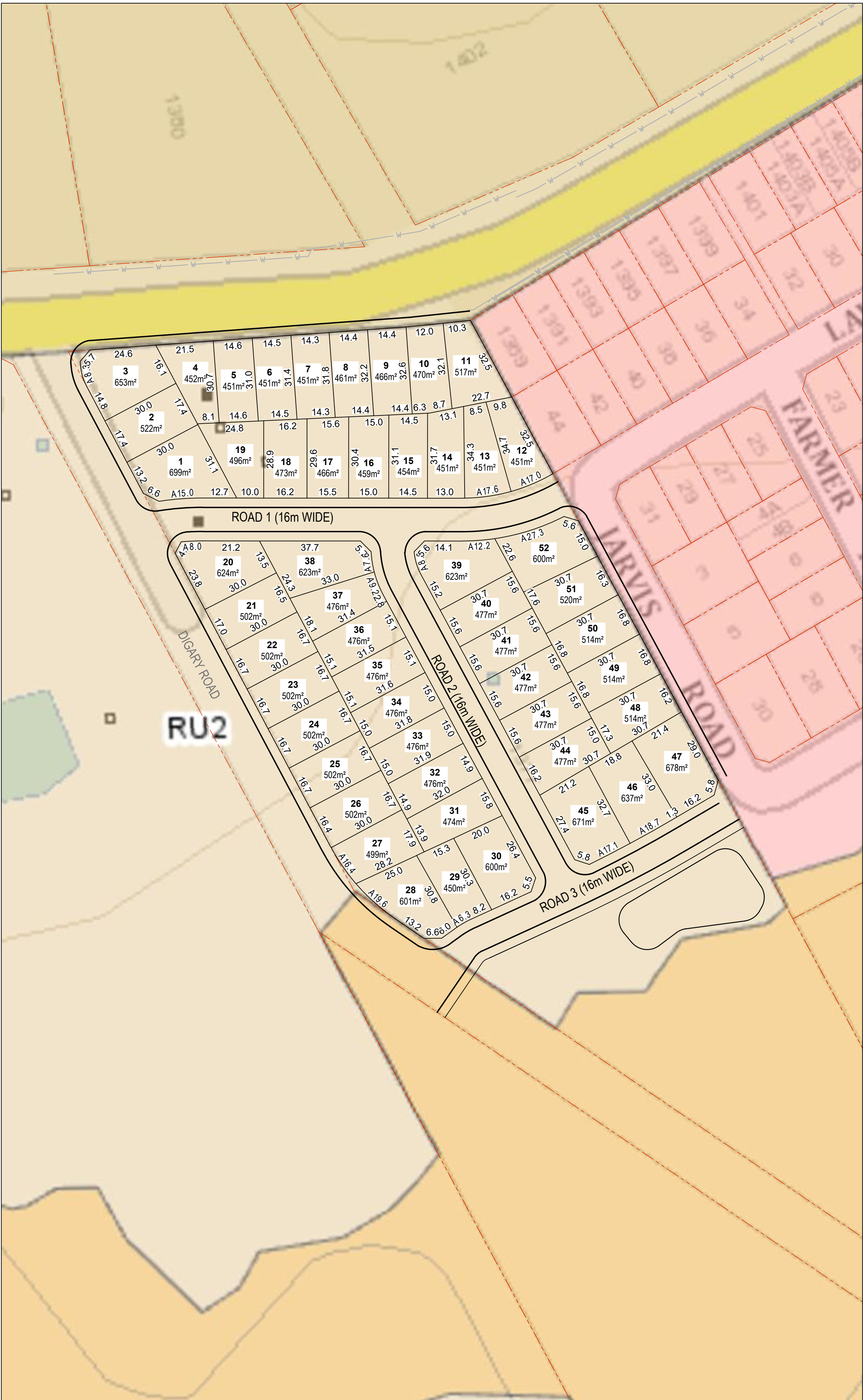
Client: Topa Property Pty Ltd

AEP ref: 2389



LEGEND

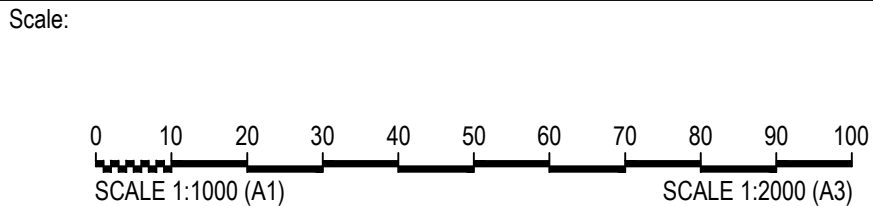
EXISTING CADASTRAL
PROPOSED LOT



ISSUED FOR INFORMATION

Rev	Drawn	Design	Appd.	Date	Revision Description
02	OS	PB	JP	27/04/2021	ISSUE FOR INFORMATION
01	PB	PB	-	21/04/2021	ISSUE FOR INFORMATION

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CONSULT AUSTRALIA
Member Firm

Project:
**HUE HUE ROAD
WYEE**

Title: CONCEPT PLAN OF SUBDIVISION				
Project No. 21-0089	Set No. 02	Milestone SK	Plan 001	Revision 02








3.0 Bushfire Hazard Assessment

3.1 Bushfire Prone Land Mapping

Examination of the Lake Macquarie Council LGA Bushfire Prone Land (BPL) Mapping (NSW Planning Portal) confirms that part of the site is mapped as “Vegetation Category 1” as shown in **Figure 3**. This designation has triggered the need for this assessment as part of the Planning Proposal submission.

Disclaimer: While all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

Legend

-  Study Area
-  Cadastre
-  Development Footprint
- Bushfire Prone Land**
 -  Vegetation Buffer
 -  Vegetation Category 1
 -  Vegetation Category 2
 -  Vegetation Category 3



0 75 150 m

Note:
1. Boundaries are not survey accurate
2. Do not scale off the plan



AEP

Title: Figure 3 - Bushfire Prone Land

Date: July 2022

Location: 1377 Hue Hue Road, Wyee

Client: Topa Nominees No 1 Pty Ltd

AEP ref: 2389.01

3.2 Planning for Bushfire Protection 2019

Planning for Bush Fire Protection 2019 aims to provide an assessment and review process for proposed development within NSW on land identified as bush fire prone to minimise the risk of bush fires to life and property.

Section 4.2 and Table 4.2.1 within the PBP (2019) outline the bush fires issues and assessment considerations for a strategic development proposal. **Table 1** outlines these components and assessment as relates to the Subject Site.

Table 1 - Bush Fire Issues and Strategic Assessment

Issue	Detail	PBP 2019 Considerations	AEP Assessment
Bush fire landscape assessment	A Bush fire landscape assessment considers the likelihood of a bush fire, its potential severity and intensity and the potential impact on life and property in the context of the broader surrounding landscape.	<p>The bush fire hazard in the surrounding area, including:</p> <ul style="list-style-type: none"> • Vegetation • Topography • Weather 	<p>The site and surrounds occur within the Greater Hunter region, with existing vegetation subsequently classified with a Fire Danger Index (FDI) of 100 as per Appendix 1 Section A1.6 of the PBP.</p> <p>AEP understands that hazard vegetation directly to the south of the proposed development area within C2 zoned land will be retained, thus on and off-site vegetation will be considered within this bushfire assessment. All retained on-site vegetation and other vegetation within 140m of the site has been subject to this assessment as per PBP guidelines:</p> <ul style="list-style-type: none"> • North, south east, south west and west – has been determine as managed land, refer Plate 4. • East – Residential development, refer Plate 3. • South hazard vegetation - Vegetated areas to the south occur as Eucalypt-dominated Riparian and Swamp Forest that constitutes 'Forest' vegetation as defined in the PBP, which represent a future hazard to the development as proposed on the site, refer Plate 1. • North east and north west hazard vegetation - Eucalypt-dominated 'Forest' vegetation as defined in the PBP, which represent future hazards to the development as proposed on the site, refer Plate 2. <p>Figure 4 provides an indication of the vegetation surrounding the site that constitute the future hazard post development for the proposal.</p>
		The potential fire behaviour that might be generated based on the above.	Canopy fire may occur in the C2 zoned land to the south.

Issue	Detail	PBP 2019 Considerations	AEP Assessment
		Any history of bush fire in the area.	No information available on Lake Macquarie City Council webpage, Rural Fires Services webpage or other local historical sites.
		Potential fire runs into the site and the intensity of such fire runs.	Canopy fire may occur in the C2 zoned land to the south.
		The difficulty in accessing and suppressing a fire, the continuity of bush fire hazards or the fragmentation of landscape fuels and the complexity of the associated terrain.	The Proposal has ample space to provide the required APZs, perimeter roads, hydrants and, given the location to local fire station (2km), this is not considered an issue.
Land use assessment	The land use assessment will identify the most appropriate locations within the masterplan area or site layout for the proposed land uses.	The risk profile of different areas of the development layout based on the above landscape study.	<p>Slope Analysis</p> <p>From the plan presented in Figure 4, it is apparent that the site falls predominantly downslope to the south. Land to the north also falls downslope of Hue Hue Rd. Examination of slope class to relevant hazard areas reveals:</p> <ul style="list-style-type: none"> • North – 0-5 degrees downslope • East – Upslope / flat • South – 0-5 degrees downslope • West – Upslope / flat <p>Asset Protection Zones</p> <p>Based on the information presented previously, the following derivation of required Asset Protection Zones (APZ's) was concluded. Examination of slope class to relevant hazard areas reveals:</p> <p><u>Fire Danger Index Rating = 100</u></p> <p><u>South</u></p> <ul style="list-style-type: none"> • Predominant Vegetation – Forest. • Effective Slope – 0-5 degrees downslope • Required minimum APZ – 29m.

Issue	Detail	PBP 2019 Considerations	AEP Assessment
			<p>As per Section A4.1.2 of PBP2019, the APZ may be composed of an Inner Protection Area (IPA) and an Outer Protection Area (OPA) with management summarised as follows:</p> <ul style="list-style-type: none"> • IPA: up to 15% canopy cover; 2-5m minimum canopy separation; no shrubs at the base of trees; shrub cover under 10%; grasses kept to no more than 100mm in height; • OPA: up to 30% canopy cover; 2-5m minimum canopy separation; shrub cover under 20%; grasses kept to no more than 100mm in height; • The OPA can be located within 10 metres from the outer edge of the APZ. <p>Figure 5 shows the required APZs.</p>
		The proposed land use zones and permitted uses.	Given the above assessment the proposed Residential zone is deemed suitable within the Subject Site.
		The most appropriate siting of different land uses based on risk profiles within the site (i.e. not locating development on ridge tops).	Given the above assessment the proposal to rezone the RU2 land is deemed the most appropriate area within the Lot.
		The impact of the siting of these uses on APZ provision.	Refer Above APZ assessment.
Access and egress	A study of the existing and proposed road networks both within and external to the masterplan area or site layout.	The capacity for the proposed road network to deal with evacuating residents and responding emergency services, based on the existing and proposed community profile.	<p>Future development would be serviced via the existing accessways including Hue Hue Road to the north, Digary Road to the west, and Jarvis Road to the east.</p> <p>Perimeter road is provided and as per Figure 2 shows there is adequate area to meet the required 8m wide and sealed.</p> <p>Emergency response times would be expected to be prompt as the central hub of Wyee is under 2km from the site, including an RFS depot</p>
		The location of key access routes and direction of travel.	As discussed above.

Issue	Detail	PBP 2019 Considerations	AEP Assessment
		The potential for development to be isolated in the event of a bush fire.	Given the development to the east and the location of Wyee Village it is unlikely that in the event of a fire the Subject Site would become isolated.
Emergency services	An assessment of the future impact of new development on emergency services.	Consideration of the increase in demand for emergency services responding to a bush fire emergency including the need for new stations/ brigades.	Given the proximity to the M1 Motorway and the local fire station it has been determined that the planning proposal to rezone the land would not significantly increase the demand on fire vehicles nor emergency timeframes.
		Impact on the ability of emergency services to carry out fire suppression in a bush fire emergency.	There is ample land for the C2 land to be accessed via a perimeter road, therefore it has been determined that this would provide suitable access to undertake suppression activities if required.
Infrastructure	An assessment of the issues associated with infrastructure and utilities.	The ability of the reticulated water system to deal with a major bush fire event in terms of pressures, flows, and spacing of hydrants.	It is expected that future development would be serviced by a reticulated water supply system extended from existing and proposed residential areas. The reticulated water supply and street hydrant access will need to be delivered in accordance with AS 2419.1–2017.
		Life safety issues associated with fire and proximity to high voltage power lines, natural gas supply lines etc.	There is a natural gas supply pipeline within the northern road reserve of Hue Hue Road. It has been considered and deemed a minimal risk given it is situated below ground.
Adjoining land	The impact of new development on adjoining landowners and their ability to undertake bush fire management.	Consideration of the implications of a change in land use on adjoining land including increased pressure on BPMs through the implementation of Bush Fire Management Plans.	The planning proposal is likely to reduce the risk of Bush Fire to the adjoining land, given the area proposed residential zone land will be managed, reducing the risk of grass fires into the adjoining residential development to the east.



Plate 1: Forest Hazard Vegetation looking directly south



Plate 2: Hazard vegetation looking north across Hue Hue Rd










Plate 3: Cleared land and residential development looking south east



Plate 4: Cleared land looking west towards the M1 Motorway

Disclaimer: While all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

Legend

-  Study Area
-  Cadastre
-  Development Footprint
-  100m Slope Assessment
-  140m Vegetation Assessment
-  Hazard Vegetation
-  2m Contours



AEP

Title: Figure 4 - Slope and Hazard Vegetation Assessment

Date: July 2022

Location: 1377 Hue Hue Road, Wyee

Client: Topa Nominees No 1 Pty Ltd

AEP ref: 2389.01

4.0 Bushfire Hazard Determination

4.1 Construction Standards – AS 3959:2018

As outlined above, the identification of proximate hazards post development has resulted in the need for APZs, and hence consideration of related construction standards.

The Australian Standard 3959:2018 “Construction of buildings in bushfire prone areas”, details six (6) levels of construction standard that are required for buildings, depending upon the expected impact of a bushfire from adjacent areas. These Bushfire Attack Levels (BAL) are measured from the edge of the hazard and incorporate vegetation type and slopes (Section 4) to determine the relevant distance for each BAL rating (and associated construction standard).

The relationship between the expected impact of a bushfire and the BAL rating is provided in **Table 2** below. BALs and APZs are shown in **Figure 5**.

Table 2 - BAL Construction Standard

Bushfire Attack Level	Maximum radiant heat impact (kW/m ²)	Level of construction standard under AS 3959:2018
Low		No special construction requirements
12.5	≤12.5	BAL – 12.5
19	12.6 to 19.0	BAL – 19
29	19.1 to 29	BAL - 29
40	29 to 40	BAL – 40
Flame Zone	≥40	BAL – FZ (Not deemed to satisfy provisions)

The BAL construction standards applicable for the proposed development are:

0-5 degrees downslope towards Forest vegetation to the north and south

- <22m – BAL-FZ
- 22 to <29m – BAL-40
- 29 to <40m – BAL-29
- 40 to <54m – BAL-19
- 54 to < 100m – BAL-12.5

Figure 5 shows the required APZ in the South, and BALs for the Subject Site.

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AEP

Title: Figure 5 - BALs and APZs

Location: 1377 Hue Hue Road, Wyee

Client: Topa Nominees No 1 Pty Ltd

Date: July 2022

AEP ref: 2389.01

5.0 Other Considerations

The following analysis applies to the site in reference to environmental features present.

- **Riparian Corridors** – Mannering Creek forms the southern boundary of the site and is a 3rd order watercourse. The hazard vegetation is associated with parts of the riparian corridor that would be protected.
- **SEPP (Resilience and Hazards)** – N/A.
- **SEPP (Biodiversity Conservation 2021)** – no ‘Core Koala Habitat’ present within the development footprint.
- **Areas of geological interest** – none present.
- **Environmental protection zones or steep lands (>18°)** – none present.
- **Land slip or flood prone areas** – Flood prone land is identified in the the C2 Land.
- **National Parks estate or various other reserves** – none present.
- **Threatened species matters** – Several threatened species known from the area. An Ecological Assessment Report prepared by AEP accompanies this BTA report as part of the submitted Planning Proposal. No threatened species would be notably impacted by the proposed land use.
- **Aboriginal Heritage** – none known to be present.

6.0 Conclusion

Investigations undertaken for this Bushfire Threat Assessment report have revealed that the Planning Proposal will be affected by Forest vegetation to the north east, north west and south post rezoning and development.

Required Asset Protection Zones and associated BAL construction standards have been derived and applied to the site. It has been shown that existing and future hazards associated with the bushland to the south will result in the required APZ encroaching into the Subject Site. As such, the position of future building envelopes along the southern interface will need to take this into consideration. Based on a review of the Concept Plan, it is not considered that the APZ encroachments prohibit a building envelope to be positioned to allow building to BAL-29 standards on any proposed Lot.

Suitable access / egress is provided off Hue Hue Road, Digary Road and via the proposed internal road network. It is considered that the proposed access and egress arrangements are appropriate, and no issues have been identified with evacuation, safe haven zones, or firefighting logistics.

A reticulated water supply system from established residential areas is expected to service the site, and street hydrant access will need to be delivered in accordance with AS2419.1 – 2017.

It is considered that the proposed protection measures, principally APZ's, perimeter roads and relevant construction standards, would comply with the relevant requirements of PBP 2019 and AS-3959. When applied, these measures should provide adequate protection to life and property within the proposed development in the event of a bushfire occurring in the immediate locality.

As such, it is considered that the Planning Proposal is able to meet the required objectives and principles of PBP 2019. However, it can never be guaranteed that the site and residents and property therein will not at some stage be affected by a bushfire event.

7.0 References

NSW Government (1979). *Environment and Planning & Assessment Act 1979*. NSW Government, Sydney.

NSW Government (2013). *Rural Fires Regulation 2013*. NSW Government, Sydney.

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NSW Government (2014). *Lake Macquarie City Council Local Environmental Plan*.
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NSW Rural Fire Service / NSW Department of Planning, Sydney.

Standards Australia (2018) AS-3959 *Construction of Buildings in Bushfire-Prone Areas*.
Standards Australia, Sydney.