

BUSHFIRE THREAT ASSESSMENT

FOR

PROPOSED RESIDENTIAL SUBDIVISION

AT

BILLABONG PARADE
CHISHOLM, NSW

Prepared for: **Avid**
 c/- AdW Johnson

15 January 2021

AEP Ref: 2270

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1.0 Introduction

It is proposed that a residential subdivision to accommodate the development of seven (7) lots of Draft Lot 5 of Lot 2 DP 1090329, Lot 600 DP 1240613, Draft Lot 6 of Lots 3 DP 1090329 and Lot 728 DP 1240614, Chisholm (*the site*).

At the request of Avid (*the client*), Anderson Environment & Planning (AEP) have undertaken necessary investigations to prepare a Bushfire Threat Assessment (BTA) report addressing the proposed development.

This report is specifically intended to assess the bushfire protection measures required by the NSW Rural Fire Service's "Planning for Bushfire Protection 2019" (PBP) and the construction requirements of the proposed development in accordance with the provisions of the Building Code of Australia – Volume 2, Edition 2010 and Australian Standard 3959-2018 (AS 3959) – "*Construction of buildings in bushfire-prone areas*".

The proposal will involve subdivision for residential purposes as per 100B of the *Rural Fires Act 1997* (RF Act). As a result, a Bushfire Safety Authority (BSA) is required from the Rural Fire Service (RFS) to enable the development to proceed. This report addresses the required heads of consideration relevant to obtaining a BSA.


2.0 Site Particulars

- **Address** –Billabong Pde Chisholm.
- **LGA** – Maitland.
- **Title Details** – Draft Lot 5 of Lot 2 DP 1090329, Lot 600 DP 1240613, Draft Lot 6 of Lots 3 DP 1090329 and Lot 728 DP 1240614.
- **Study Area** – As per the PBP, this includes the Subject Site and surrounding 140m for slope analysis and 100m for hazard vegetation analysis.
- **Zoning** – The entire site is zoned R1 – General Residential (Maitland LEP 2011).
- **Current Land Use** – The site is vacant dominated by weeds.
- **Surrounding Land Use** – Majority of the surrounding lands consist of existing residential with grassland and lakes to the west and north.

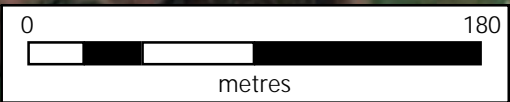
Figure 1 depicts the extent of the site overlain on an aerial photograph of the locality.

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

 Lot Boundary

 Cadastre



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



Title: Figure 1 - Site Location

Date: January 2021

Location: Billabong Pde, Chisholm, NSW

Client: Avid

AEP Ref: 2270

3.0 Proposed Development

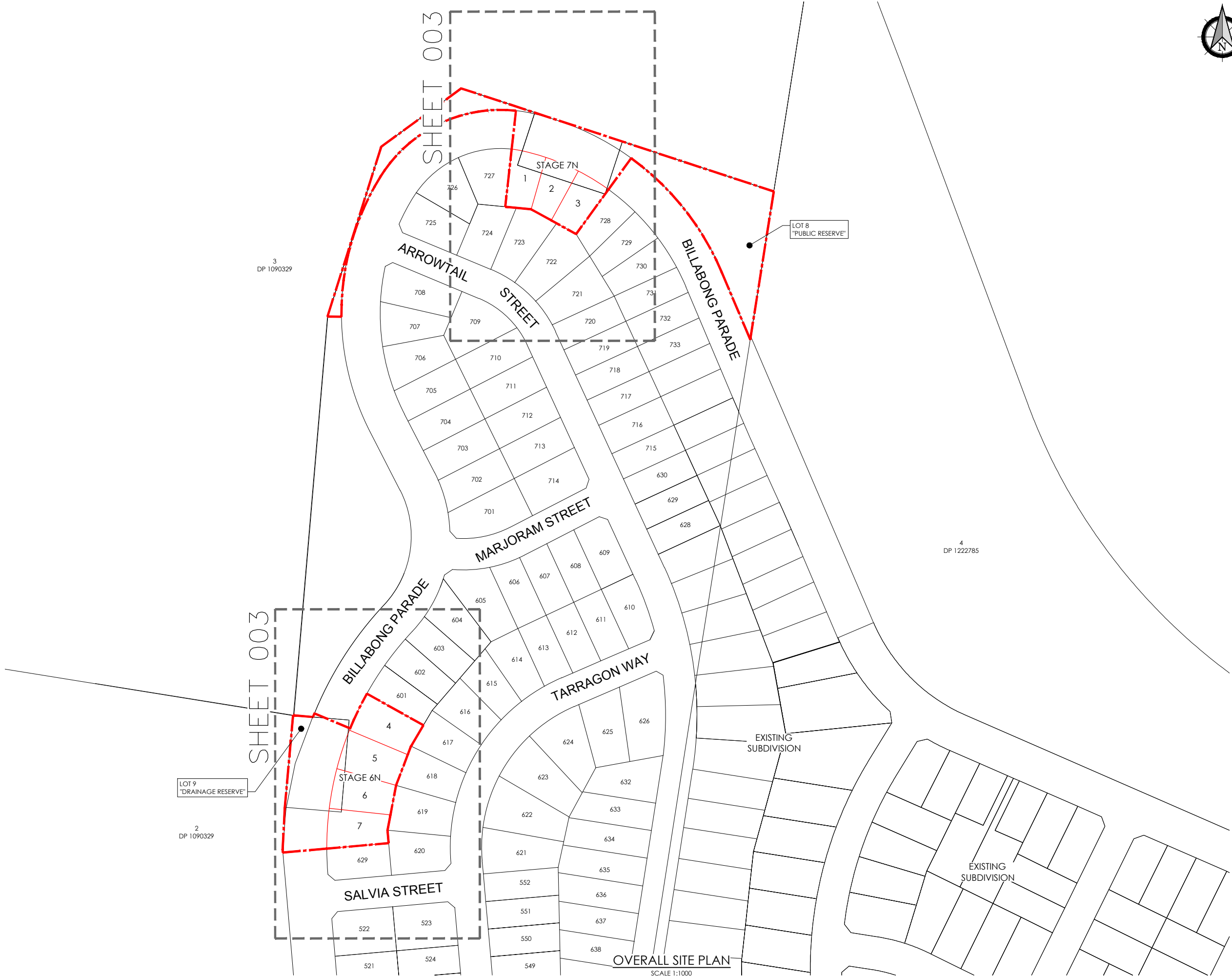
The proposed development is the creation of seven residential Lots within the Avid Harvest Estate and is consistent within the Thornton North Structure Plan.

Figure 2 depicts the plan of proposed development within the Subject Site.



LEGEND

- - - SITE BOUNDARY
- PROPOSED LOT
- EXISTING BOUNDARY



OVERALL SITE PLAN
SCALE 1:1000

drawing title:
OVERALL SITE PLAN

location: CHISHOLM

council: MAITLAND CITY COUNCIL

dwg ref: 50031 (6N & 7N)-DA-002

client:

AVID
Property Group

adw
johnson

central coast office ph: (02) 4305 4300
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ver.	date	comment	drawn	pm	level information	scale (A1 original size)	notes
B	13.01.2021	GENERAL AMENDMENTS	JJ	MK	DATUM: CONTOUR INTERVAL:	A1 1:1000 0 25 50m A3 1:2000	

4.0 Bushfire Hazard Assessment

4.1 Bushfire Prone Land Mapping

Examination of NSW Planning Portal (2021) Bushfire Prone Land Mapping confirmed that the site is mapped as “Bushfire Prone Land – Vegetation Category 1”. The designation triggers the need for the assessment in this report.

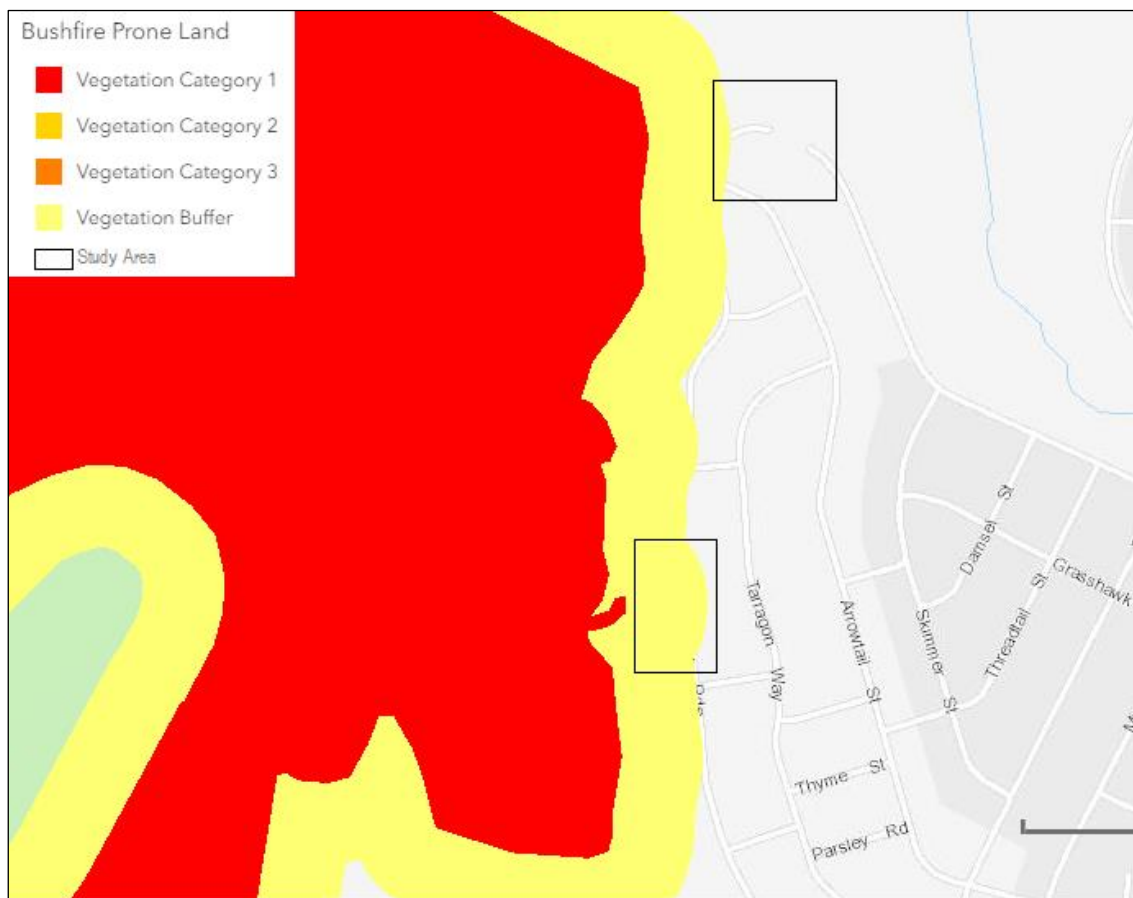


Figure 3 – NSW Planning Portal (2021) Bushfire Prone Land Mapping

Appendix 1 of the PBP provides the steps required to determine the level of bushfire hazard that applies to the site. Factors influencing the hazard level include:

- The formation of vegetation surrounding the site (as defined by Keith 2004);
- The distance between vegetation and the site (or proposed buildings therein);
- The effective slope for each patch of vegetation; and

- The Fire Danger Index (FDI) of the council area within which the development occurs.

These factors together provide an indication of the level of threat posed to the development from any vegetation retained within the site and surrounding vegetation in the event of a bushfire, and the required mitigation measures to be taken in the form of Asset Protection Zones (APZs) and building construction standards. These measures are detailed further in **Section 5** below.

4.2 Vegetation Analysis

The site and surrounds occur within the Greater Hunter Region, with existing vegetation subsequently classified with a Fire Danger Index (FDI) of 100 as NSW Rural Fire Service (2017) NSW Local Government Areas FDI.

The vegetation within the proposed lots consists of exotic weeds and is not considered a hazard (refer to **Plates 1** and **2**).

The managed land fronting the proposed lots is shown in **Figure 5**. The north of proposed Lots 1, 2 and 3, consists of roads, pathways and mown lawn (refer **Plate 3** and **4**) and does not constitute hazard vegetation until approximately 15m from the boundary. The vegetation approximately 15m to the west, south west and north west of the proposed lots consists of “Grassland” and “Freshwater Wetlands which is dominated by exotic species with scattered remnant vegetation and identified as posing a bushfire hazard under the PBP (refer **Figure 5** and **Plate 5** and **6**).

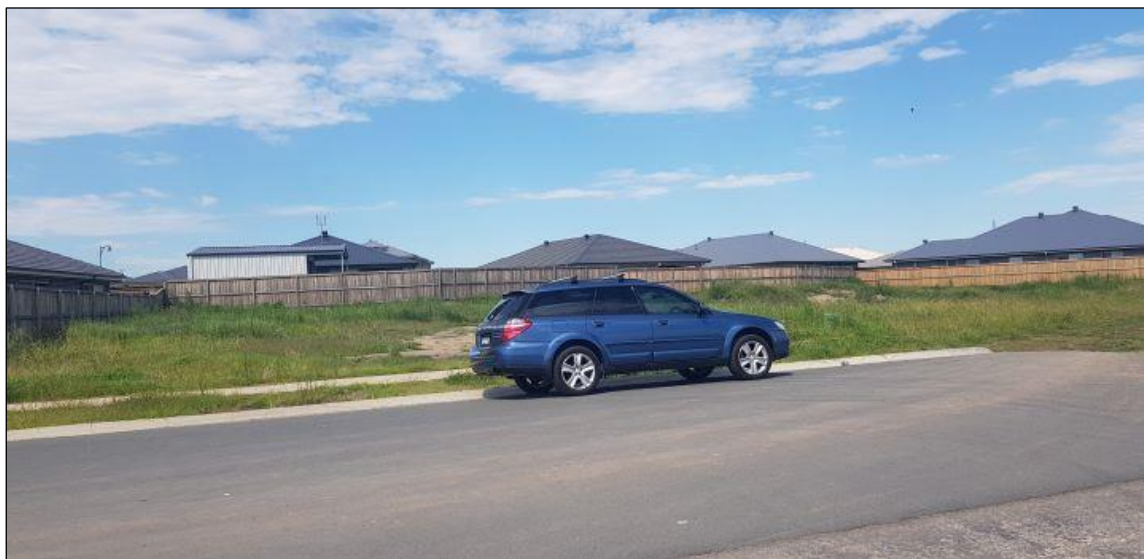


Plate 1 – Dominant managed exotic vegetation within proposed lots Lot 1, 2 and 3.



Plate 2 – Dominant managed exotic vegetation within proposed lots Lot 4, 5, 6 and 7.



Plate 3 – Managed Vegetation, Road and Pathways adjoining the proposed Lot 1, 2 and 3.



Plate 4 – Managed Vegetation, Road and Pathways adjoining the proposed Lot 4, 5, 6 and 7.



Plate 5 – Grasslands and Freshwater Wetlands in the north of proposed Lot 1, 2 and 3.



Plate 6 – Grasslands and Freshwater Wetlands in the west of proposed Lot 4, 5, 6 and 7.

The land in the north east, east, south and south east are existing residential lots and therefore do not constitute a potential bushfire hazard (refer **Plate7**).



Plate 7 – Surrounding residential development.

4.3 Slope Analysis


From the plan presented in **Figure 4**, it is apparent that the site slopes towards the lakes located to the west and north of the site. With the existing residential area being flat to upslope.


Examination of slope class to relevant hazard areas reveals:

- Grassland – 0⁰ -5⁰ in the west, south west, north west and north (only for lots 1, 2 and 3) and
- Freshwater Wetlands – 0⁰ -5⁰ in the west, south west, north west and north (only for lots 1, 2 and 3).

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

 Lot Boundary

 2m Contour

Vegetation


 Grassland

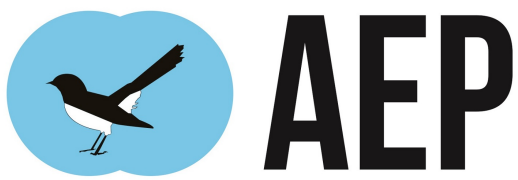
 Managed Lawn

 Freshwater Wetland

Assessment Buffers

 140m Vegetation Assessment

 100m Slope Assessment



Title: Figure 4 - Slope and Vegetation Assessment

Date: January 2021

Location: Billabong Pde, Chisholm, NSW

Client: Avid

AEP Ref: 2270

4.4 Required Asset Protection Zones

Based on the information presented previously, the following derivation of required Asset Protection Zones (APZ's) was concluded.

Fire Danger Index Rating = 100

Grasslands

- Predominant Vegetation – Grassland
- Effective slope – 0° - 5°.
- Required Minimum APZ – 10m.

Freshwater Wetlands

- Predominant Vegetation – Freshwater Wetlands.
- Effective slope – 0° - 5°.
- Required Minimum APZ – 6m.

As the Freshwater Wetland is located on the outer edge of the Study Area, and the Grasslands are located between this vegetation type and the proposed lots, the APZ for Grasslands has been used for determining the required APZs.

As the area adjoining the proposed lots and the hazard vegetation consists of roads, footpaths and managed land no vegetation is required to be removed for the 10m APZ.

4.5 Water Supply

It is expected that the development will 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 2419.1–2005.



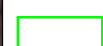


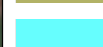
4.6 Access and Egress

The proposed development will be predominantly serviced via the new Distributor Road that connects to Raymond Terrace Road, constructed as part of the development to the west. Roads proposed within the site are compliant with Section 5.3.2 of the PBP 2019.

Emergency response times would be expected to be prompt within an established suburb such as Thornton.

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Legend

-  Lot Boundary
-  Required APZ
-  140m Vegetation Assessment
-  Grassland
-  Managed Lawn
-  Freshwater Wetland



AEP

Title: Figure 5 - Required APZs Location:

Date: January 2021

Billabong Pde, Chisholm, NSW

Client: Avid

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5.0 Bushfire Hazard Determination

5.1 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 standards that are required for buildings, depending upon the expected impact of a bushfire from adjacent areas. These Bushfire Attack Levels (BALs) are measured from the edge of the hazard and incorporate vegetation type and slopes (see above) 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 1** below.

Table 1 – 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 that apply to the subject site are as follows:

0⁰ - 5⁰ 'Grasslands Vegetation

- <9m: BAL – Flame Zone
- 9 to <12m: BAL – 40
- 12 to <17m: BAL – 29
- 17 to <25m: BAL – 19
- 25 to <50m: BAL – 12.5

These BALs are to be adopted as the minimum requirement for each specific zone. Any lessening of these requirements would require reassessment to ensure increased APZ's are provided, or other acceptable mitigation measures are in place.

6.0 Other Considerations

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

- **Riparian Corridors** – none present
- **SEPP (Coastal Management) 2018** – Coastal Use Area, Coastal Environment and Littoral Rainforest Proximity Area are present. These areas will be developed and will have been addressed in the ecological assessments.
- **SEPP (Koala Habitat Protection) 2020** – none present.
- **Areas of geological interest** – none present.
- **Environmental protection zones or steep lands (>18°)** – none present.
- **Land slip or flood prone areas** – none present.
- **National Parks estate or various other reserves** – none present
- **Threatened species matters** – none known to be present
- **Aboriginal Heritage** – none known to be present.

7.0 Conclusion

Investigations undertaken for this Bushfire Threat Assessment report have revealed that the proposed seven Lots will be affected by bushland hazard adjoining the site to the west and north. With the proposed Lots adjoining existing managed land such as roads, footpaths and mown lawn.

The proximate Grassland hazard has necessitated the need for application of APZ setbacks for the development interface, and also the application of building construction levels for proximate dwellings. All Asset Protection Zones (APZs) are located within existing managed lands.

Suitable access / egress will be provided via a perimeter road system which further connects to the wider proposed residential estate. 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.

An expansion of the existing reticulated water supply system is expected to service the site, and street hydrant access is to be delivered in accordance with AS2419.1 – 2005.

It is considered that the proposed protection measures, principally APZs and relevant construction standards, comply with the relevant requirements of Planning for Bushfire Protection 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.

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.

8.0 References

- Environment al Planning & Assessment Act 1979*. NSW Government.
- Keith D (2004). *Ocean Shores to Desert Dunes*. DEC, Sydney.
- Maitland City Council (2003). *Thornton North Structure Plan*
- Maitland City Council (2011). *Bushfire Prone Land Map*. February 2011.
- NSW Government (2019). *Planning Portal*. www.planningportal.nsw.gov.au.
- NSW Rural Fire Service (2019). *Planning for Bushfire Protection - November 2019*. NSW RFS, November 2019.
- OEH (2017). *Threatened Species, Populations and Ecological Communities* website. (<http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/>)
- Rural Fires Act 1997*. NSW Government.
- Rural Fires Act Regulation 2008*. NSW Government.
- Standards Australia (2018), *AS-3959 Construction of Buildings in Bushfire-Prone Areas*. Council of Standards Australia, November 2018.