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BUSHFIRE THREAT ASSESSMENT

FOR

PLANNING PROPOSAL TO FACILITATE A RESIDENTIAL SUBDIVISION

AT

8 KERLEW STREET, NULKABA, NSW

Prepared for: **Insite Planning Services**

December 2019

AEP Ref: 1809

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1.0 Introduction

At the request of Insite Planning Services (the client), Anderson Environment & Planning (AEP) have undertaken necessary investigations to prepare a Bushfire Threat Assessment (BTA) report to support a Planning Proposal in respect to Part Lot 1552 DP 1046610, 8 Kerlew Street Nulkaba.

This report is specifically intended to assess the bushfire protection measures required by the NSW Rural Fire Service's "*Planning for Bushfire Protection 2006*" (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 3959-2009 (AS 3959) – *"Construction of buildings in bushfire-prone areas"*.

As the Planning Proposal will facilitate a seven (7) lot residential subdivision, it will be classed as 'Integrated Development' under Section 4.46 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) when the Development Application (DA) is lodged. In combination with Section 100B of the *Rural Fires Act 1997* (RF Act), a Bushfire Safety Authority (BSA) will be 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.

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

> Anderson Environment & Planning (2018). *Bushfire Threat Assessment for Planning Proposal to facilitate a Residential Subdivision at corner Kerlew & Pinchen Streets, Nulkaba, NSW.* Unpublished report for Insite Planning Services, December 19.

2.0 Site Particulars

- **Address** – 8 Kerlew Street, Nulkaba, NSW.
- **LGA** – Cessnock.
- **Title Details – Part** Lot 1552 DP1046610.
- **Subject Site (Planning Proposal Area)** – The abovementioned part lot has an area of approximately 2,000m², containing remnant vegetation of ~0.01ha**.**
- **Zoning** – Under the *Cessnock Local Environment Plan 2011* (the LEP), the subject site is zoned R5 – Large Lot Residential.
- **Current Land Use** – The subject site currently contains horse paddocks. Vegetation consists of cleared land with native and exotic grasses and groundcovers, and remnant native vegetation.
- **Surrounding Land Use** – Areas to the north and east are zoned RU5 – Village with plots containing residential dwellings and cleared land, to the south exists a 6.5ha area of native remnant bushland zoned RU2 – Rural Landscape and to the west lots zoned R5 – Large Lot Residential consisting of residential dwellings and cleared land.

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

Figure 1 – Site Location

3.0 Planning Proposal

The proposal involves the rezoning of the subject site from R5 Large Lot Residential to RU5 Village which will allow an additional 7 residential lots to be provided within a proposed residential subdivision of Lot 1552 DP1046610 – 8 Kerlew Street, Nulkaba.

4.0 Bushfire Hazard Assessment

4.1 Bushfire Prone Land Mapping

Examination of the Cessnock City Council online Planning Information portal (2017) shows land south of the site is mapped as "Bushfire Prone Land – Vegetation Category 1". The subject land itself is mapped as "Bushfire Prone Land – Vegetation Category 3". This designation has triggered the need for the assessment herewith.

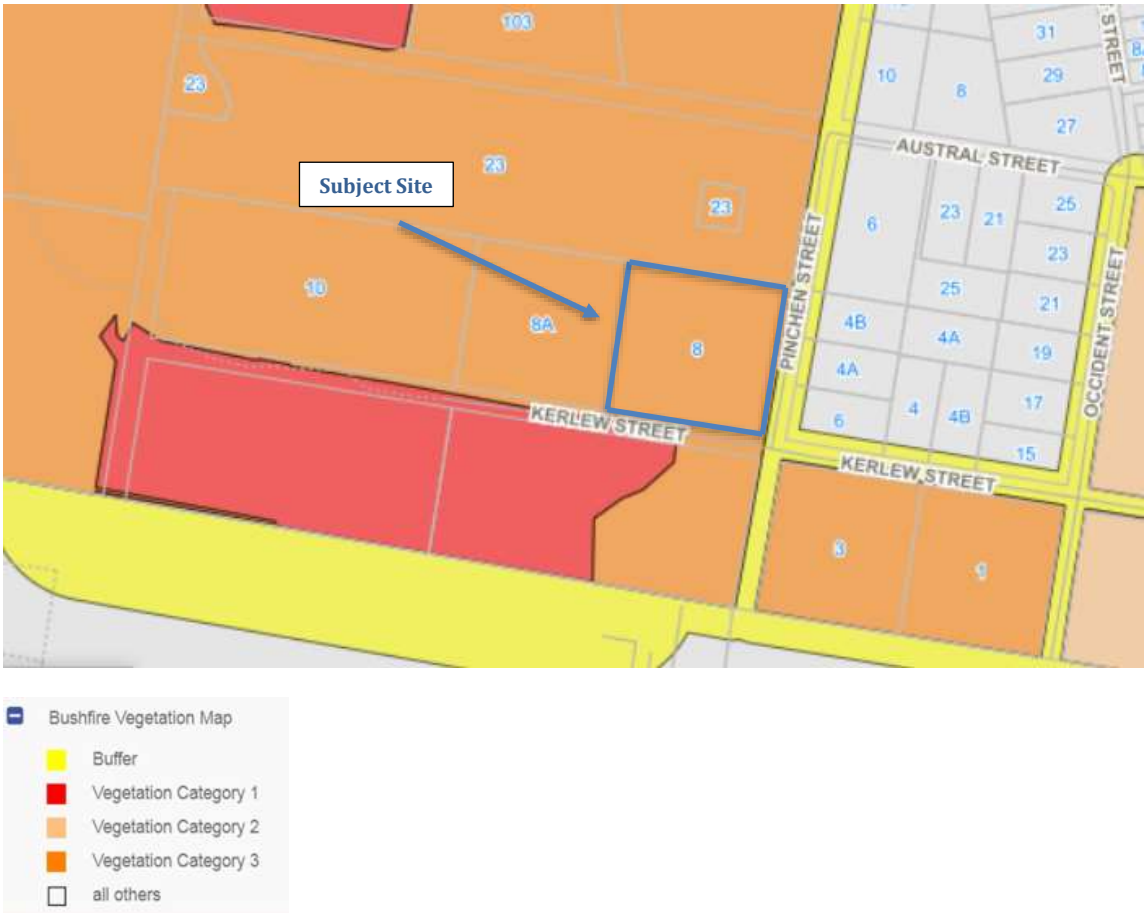


Figure 2 – Cessnock City Council (2017) Bush Fire Prone Land Mapping

Appendix 3 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:

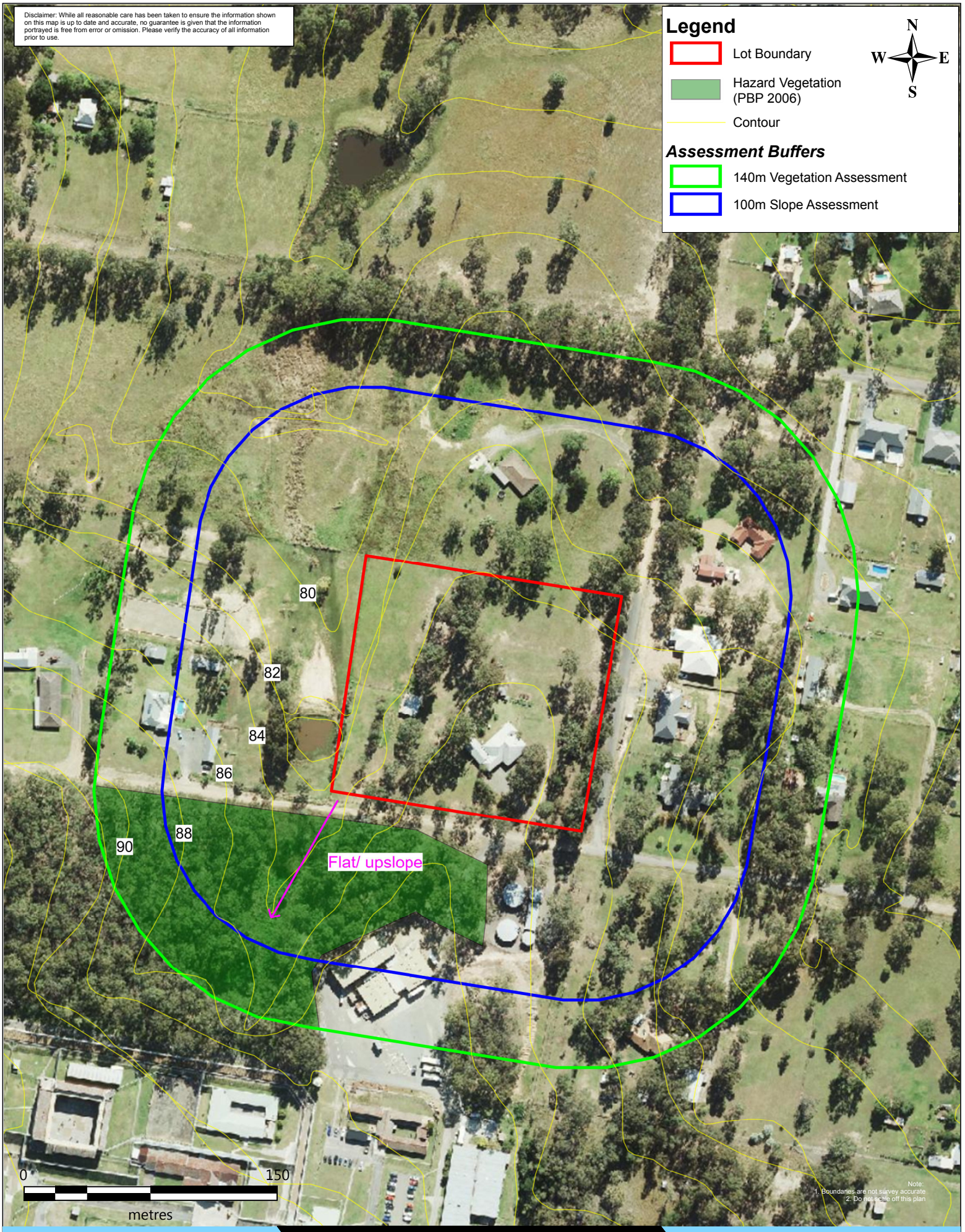
- The formation of vegetation surrounding the site (as defined by Keith 2004);
- The distance between vegetation and the site (or proposed buildings therein);
- The effective slope for each patch of vegetation; and
- The Fire Danger Index (FDI) of the council area within which the development occurs.

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 per Appendix 2 of the PBP.

AEP understands that the proposal includes the removal of all vegetation within the subject site; off-site vegetation is also considered within this BTA. This vegetation is considered to constitute "Forest" under the PBP (see **Figure 3**) and consists of relatively intact areas of bushland to the south separated from the subject site by Kerlew Street.



AEP

Title: Figure 3 - Slope and Vegetation Assessment

Date: Nov 2018

Location: Corner Kerlew & Pinchen Streets, Nulkaba

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4.3 Slope Analysis

Whilst the site itself has no slope, the surrounds vary in slope.

Vegetation to the south is flat and south-west vegetation is upslope, resulting in a Flat/ upslope class determination.

Examination of slope class to relevant hazard areas reveals:

- **South, south- west** – Flat/ upslope towards Forest Vegetation.

Figure 3 provides a visual representation of the vegetation and effective slope as it applies to the proposal.

4.4 Required Asset Protection Zones

Based on the information presented previously, the following derivation of required APZs was concluded. Consideration of APZs relates to the identified onsite and offsite hazards.

Fire Danger Index Rating = 100

South-west and South

- Predominant Vegetation – Forest
- Effective slope – Flat/ upslope
- Required Minimum APZ – 20m

Note that the derived APZ setbacks are based upon the need to conform to Level 3 construction as per AS 3959 for a building of Class 1 or 2 under the BCA. Construction standard options are discussed further in the report.

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

All lots of the proposed development will have access to Kerlew and Pinchen Streets.

Emergency response times would be expected to be prompt as the Fire and Rescue NSW Cessnock Fire Station is approximately 3km away.

5.0 Bushfire Hazard Determination

5.1 Construction Standards – AS 3959-2009

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

Bushfire Impact and AS-3959-2009

The Australian Standard 3959-2009 "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 (BALs) are measured from the edge of the hazard and incorporate vegetation type and slopes (see Section 4 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/m²)	Level of construction standard under AS 3959-2009
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)

Figure 4 depicts the BAL construction standards applicable for the proposed development. Specifically, these BALs are:

Flat/ upslope towards Forest Vegetation to the south and south-west

- <19m: BAL - Flame Zone
- 19 to <25m: BAL – 40
- 25 to <35m: BAL – 29
- 35 to <48m: BAL – 19
- 48 to <100m: 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 APZs are provided, or other acceptable mitigation measures are in place.

For a subdivision BAL Plan to be approved by the NSW Rural Fire Service (NSW RFS), the following must be demonstrated:

- That all new lots can achieve BAL-29 or less in accordance with AS3959-2009.
- That all lots can suitably accommodate (as per council's requirements) a dwelling envelope achieving BAL-29 or less.
- The Subdivision BAL plan will be assessed in accordance with the methodology outlined in PBP Addendum: Appendix 3

Therefore, any subdivision plan must achieve a buffer of at least 25m from hazard vegetation for any proposed dwelling envelope.

AEP

Title: Figure 4 - Required BALs and APZ Map

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6.0 Other Considerations

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

- **Riparian Corridors** – none present.
- **SEPP (Coastal Management)** – no relevant matters present.
- **SEPP 44 Koala Habitat** – none present.
- **Areas of geological interest** – none present.
- **Environmental protection zones or steep lands (>18°)** –No Environmental protection zones present on the subject site.
- **Land slip or flood prone areas** – none present.
- **National Parks estate or various other reserves** – none present on site.
- **Threatened species matters** – the area contains remnants of the Endangered Ecological Community Lower Hunter Spotted Gum - Ironbark Forest and six threatened species were recorded onsite, namely; Squirrel Glider, Little Bentwing-bat, Eastern Freetail-bat, Southern Myotis, Yellow-bellied Sheathtail-bat and the Greater Broad-nosed Bat.
- **Aboriginal Heritage** – none known to be present.

7.0 Conclusion

Investigations undertaken for this Bushfire Threat Assessment have revealed that the land the subject of the Planning Proposal will be affected by bushland hazard adjoining the site to the south and south-west of the site.

Suitable access and egress to the site will be provided via Kerlew and Pinchen Streets. As such, it is considered that the proposed access and egress arrangements are compliant with Chapter 4 of the PBP, and no issues have been identified with evacuation, safe haven zones, or firefighting logistics.

AEP understands that the proposed future subdivision will involve wholly clearing the land within the subject site. Any development proposal would require the inclusion of an APZ in the development plans, due to the vegetation type and location in relation to the subject site. Further, the BAL requirements mean a buffer of at least 25m between the hazard vegetation and any dwelling envelope.

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

Cessnock City Council (2017). Planning Information (online).

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

NSW Government (2008). *Rural Fires Regulation 2008*. NSW Government, Sydney.

NSW Government (2011) *Cessnock Local Environment Plan 2011*. NSW Government, Sydney.

NSW Government (2013). *Rural Fires Act 1997*. NSW Government, Sydney.

NSW Office of Environment and Heritage (OEH) (2006). *Planning for Bushfire Protection*. NSW Rural Fire Service / NSW Department of Planning, Sydney.

OEH, (201). *Threatened Species, Populations and Ecological Communities*. <www.threatenedspecies.environment.nsw.gov.au/tsprofile>.

Standards Australia (2009) AS-3959 *Construction of Buildings in Bushfire-Prone Areas.* Standards Australia, Sydney.