



## **Bushfire Assessment**

### **Residential Subdivision**

**Highland Views Stages 7-9,  
Glenmore Park**

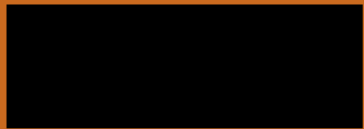
### **CCL Development**

**16 November 2020**

**(Ref: 17138)**

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report by  
**david peterson**



FPA AUSTRALIA (NO.BPAD18882)  
BPAD LEVEL 3 ACCREDITED PRACTITIONER  
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# 1 Introduction

<b>Street or property name:</b>	2183 The Northern Road	
<b>Suburb, town or locality:</b>	Glenmore Park	<b>Postcode:</b> 2745
<b>Lot/DP no:</b>	Lot 4 DP 1240361	
<b>Local Government Area:</b>	Penrith City Council	
<b>Type of development:</b>	Residential subdivision	

## 1.1 Background

CCL Development commissioned Peterson Bushfire to prepare a Bushfire Assessment Report for a proposed residential subdivision located within 'bush fire prone land'. This report presents the assessment and recommendations to ensure compliance with the relevant bushfire protection legislation and policy.

This bushfire assessment has been prepared by a consultant accredited by the Fire Protection Association of Australia's BPAD scheme (Accreditation No. BPD-L3-18882).

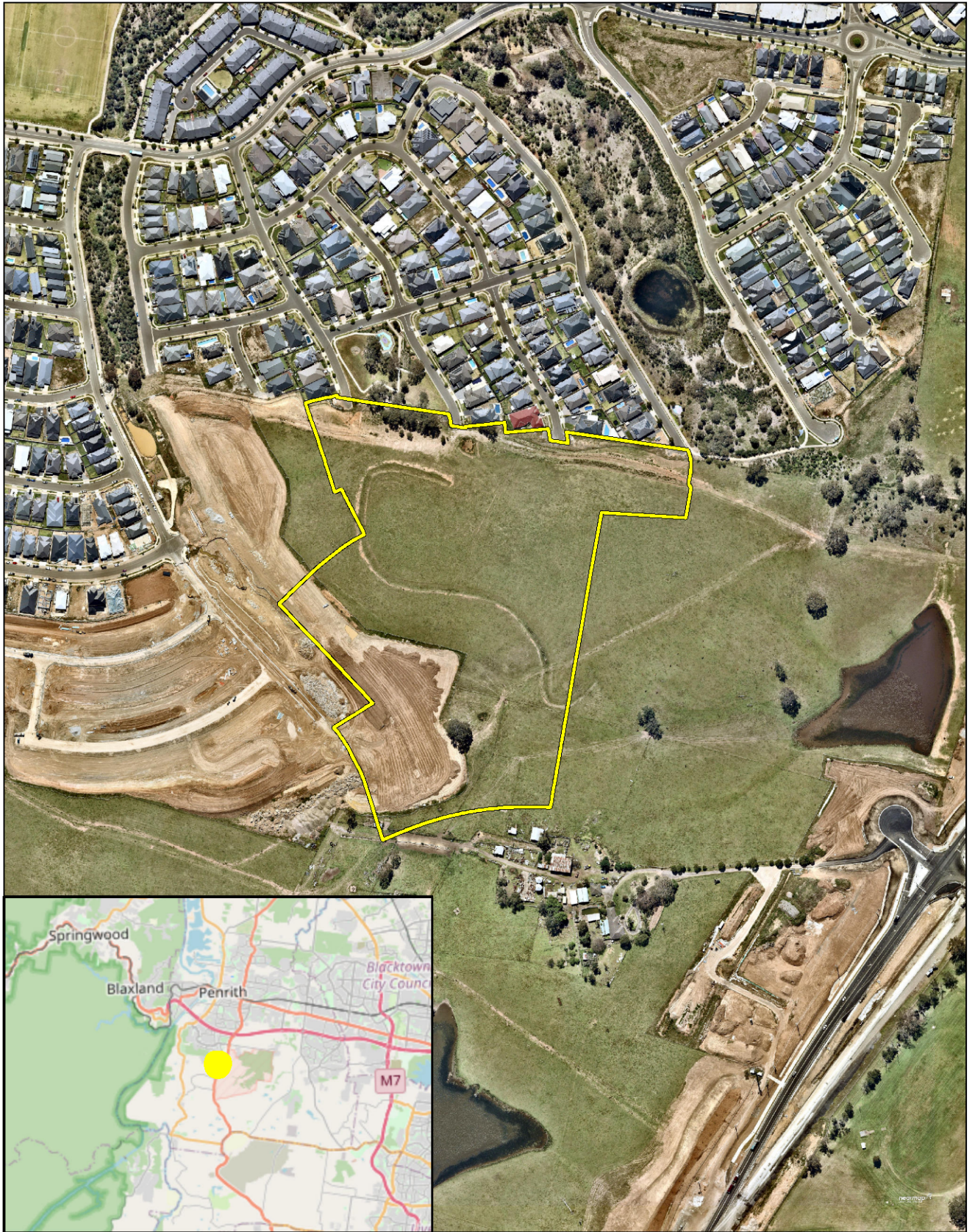
## 1.2 Location and description of proposal

The subject land consists of Stages 7-9 of the Highland Views residential development located at Glenmore Park as shown on Figure 1. The subject land can be accessed at multiple locations from earlier stages of the Highland Views development and Mulgoa Rise on the northern boundary of the subject land.

The proposal consists of subdivision of the subject land into low density residential lots, public roads and a continuation of a riparian corridor. The plan of subdivision is included as Figure 2.

## 1.3 Assessment requirements

The subject land is identified as 'bush fire prone land' as shown on Figure 3. Section 4.46 of the *Environmental Planning and Assessment Act 1979* requires a bushfire assessment of residential subdivision proposals on bush fire prone land following the process and methodology set out within Section 100B of the *Rural Fires Act 1997*, Clause 44 of the *Rural Fires Regulation 2013* and the NSW Rural Fire Service (RFS) document *Planning for Bush Fire Protection 2019* (referred to as 'PBP' throughout this report).



**Legend**

 Subject Land



 DKGIS

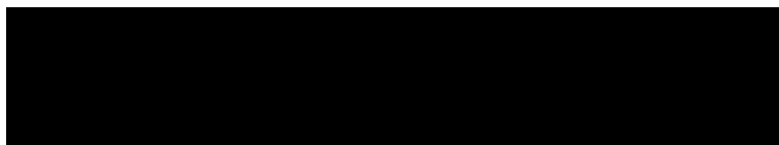
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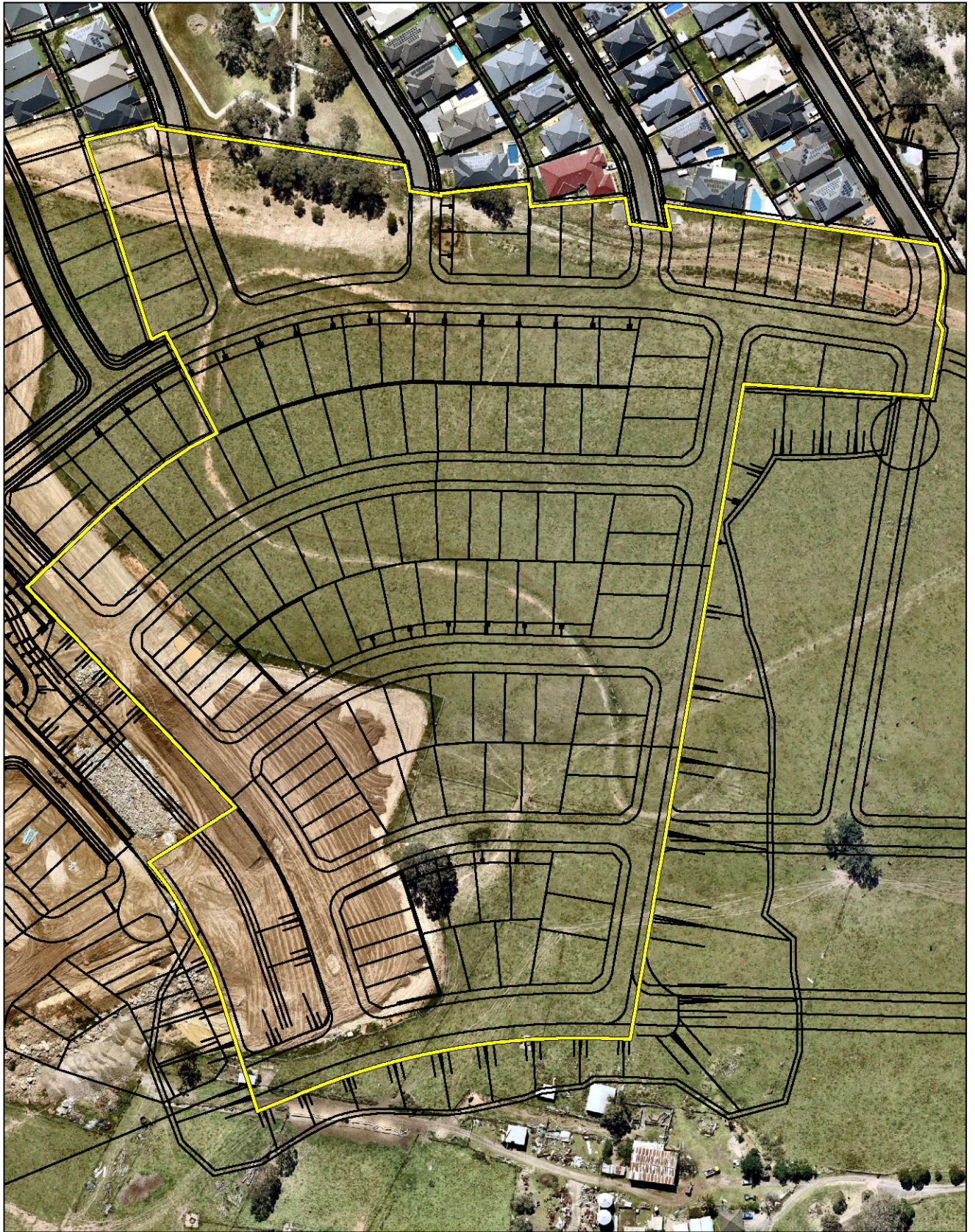
0 125 250  
Metres

**Figure 1: The Location of the Subject Land**

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap





**Legend**

 Subject Land



 DKGIS

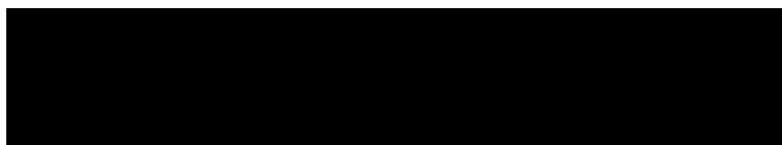
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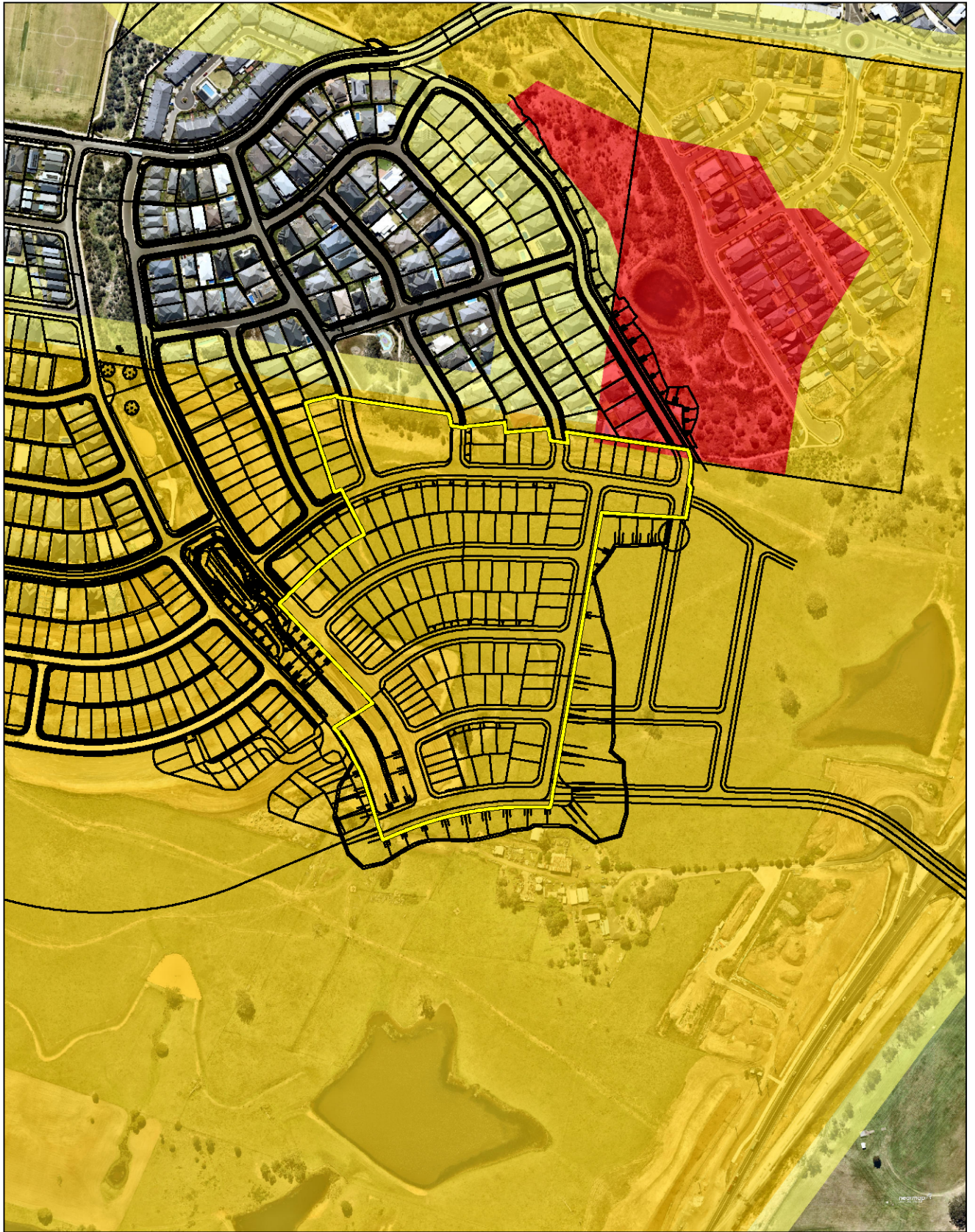
0 25 50  
Metres

**Figure 2: The Proposal**

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap





**Legend**

- Subject Land
- Vegetation Category 2
- Bushfire Prone Land**
- Vegetation Category 3
- Vegetation Buffer
- Vegetation Category 1

**Figure 3: Bushfire Prone Land**



**DKGIS**  
Date: 11/11/2020

0 125 250  
Metres

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap



## 2 Bushfire hazard

An assessment of the bushfire hazard is necessary to determine the application of bushfire protection measures such as Asset Protection Zone (APZ) location and dimension. The following sub-sections provide a detailed account of the vegetation communities (bushfire fuels) and the topography (effective slope) that combine to create the bushfire hazard that may affect bushfire behaviour at the site.

### 2.1 Predominant vegetation

The vegetation within 140 m of the subject land has been assessed in accordance with the methodology specified within PBP. As discussed below and mapped on Figure 4, there are three hazards that will adjoin the subdivision:

**Woodland to the north-east:** An existing riparian corridor approximately 95 m wide exists to the north-east of the subdivision opposite the extension of Greenlink Drive. The corridor has been revegetated with Cumberland Plain Woodland species and therefore classified by PBP as 'woodland' for the determination of Asset Protection Zones (APZ).

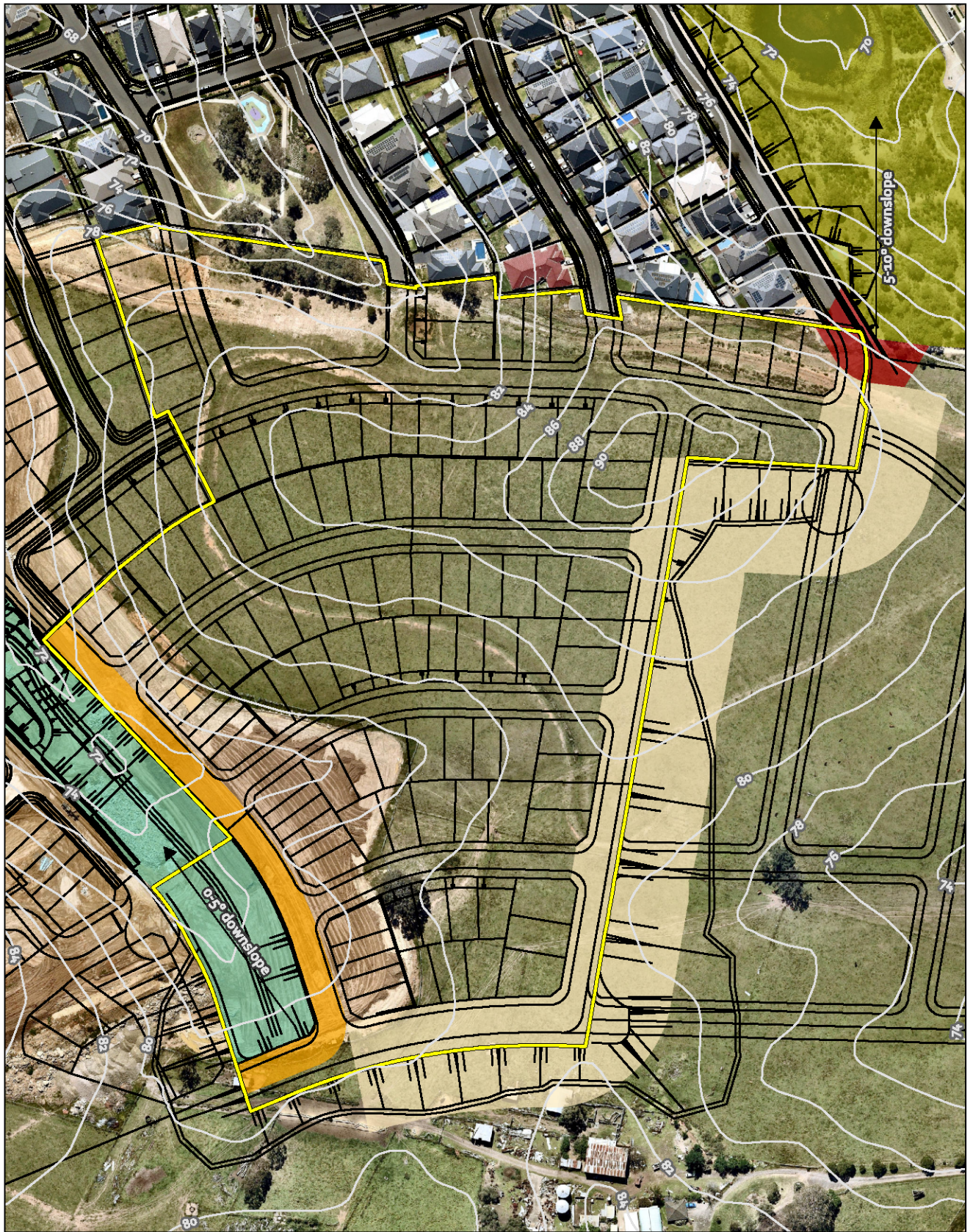
**Riparian corridor to the south-west:** The existing Highland Views riparian corridor will be extended southwards as part of Stages 7-9. This will see an addition of approximately 90 m of revegetated corridor at 40 m wide. Consistent with the existing portion of the corridor, it has been classified 'low hazard' vegetation as it is not wider than 50 m.

**Grassland to the east and south:** The paddocks within future stages of Highland Views adjacent to the east and south have the potential to act as a grassland hazard until such time that the grassland is removed with the construction of adjacent subdivisions.

### 2.2 Effective slope

The 'effective slope' influencing fire behaviour has been assessed in accordance with the methodology specified within PBP. This is conducted by measuring the slope that would most significantly influence fire behaviour where the hazard occurs within 100 m of the subject land boundary. The slope was determined using a 2 m contour layer as shown on Figure 4.

The slope underneath the woodland hazard to the north-east is within the PBP slope class of 'downslope 5-10 degrees', whilst the low hazard corridor and grassland hazard are within the slope class of 'downslope 0-5 degrees'.



**Legend**

Contour - 2m

Subject Land

**Vegetation Formation**

Low Hazard - Riparian Corridor

Woodland

**Asset Protection Zone**

Asset Protection Zone - 14m

Asset Protection Zone - 20m

Asset Protection Zone - 50m Temporary



Date: 11/11/2020

0 25 50

Metres

**Figure 4: Bushfire Hazard Analysis and Asset Protection Zone**

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap



### 3 Bushfire protection measures

PBP requires the assessment of a suite of bushfire protection measures that in total provide an adequate level of protection for residential subdivision. The measures required to be assessed are listed in Table 1 below and are discussed in detail in the remainder of this section.

**Table 1: PBP bushfire protection measures**

Measures	Considerations
Asset Protection Zones (APZ)	Location and dimension of APZ building setbacks from vegetation including prescriptions of vegetation management within the APZ.
Access	Assessment to include access and egress, perimeter access and design standards of public roads.
Water supply and other utilities	List requirements for reticulated water supply and hydrant provisions, and any static water supplies for fire-fighting.

#### 3.1 Asset Protection Zones (APZ)

Using the vegetation and slope information presented in Section 2 and mapped on Figure 4, Asset Protection Zones (APZ) suitable for residential subdivision have been calculated. The APZ determination is listed in Table 2 below and the resulting APZ is mapped on Figure 4.

All required APZs are accommodated within the subdivision layout. Proposed Lot 718 will require a building setback within the lot to ensure the 20 m APZ is achieved. The 20 m APZ is measured from the outside (eastern) edge of the pathway along Greenlink Drive.

A temporary 50 m APZ is proposed to the east and south into adjoining future stages of Highland Views. This APZ can be removed once earthworks commence for future stages. The temporary APZ will ensure unnecessary BAL compliance for future dwellings within Stages 7-9.

**Table 2: APZ determination**

Location <sup>1</sup>	Vegetation <sup>2</sup>	Slope <sup>3</sup>	Required APZ <sup>4</sup>	APZ provided <sup>5</sup>	How will the APZ be accommodated
North-east	Woodland	Downslope 5-10°	20 m	20 m	Greenlink Drive and building setback within Lot 718
East and south	Grassland	Downslope 0-5°	12 m	50 m	Road and adjoining future stages as temporary APZ
South-west	Low hazard	Downslope 0-5°	14 m	>14 m	Perimeter road

<sup>1</sup> Direction of assessment from boundary of subject land. Refer to Figure 4.

<sup>2</sup> Predominant vegetation classification over 140 m from boundary of subject land.

<sup>3</sup> Effective slope assessed over 100 m from boundary of subject land where the bushfire hazard occurs.

<sup>4</sup> APZ required by Table A1.12.2 of Planning for Bush Fire Protection 2019.

<sup>5</sup> APZ provided by existing surrounding management or proposed measures.

### 3.2 Vegetation management

Trees or vegetation do not need to be removed to comply with PBP. The construction of the subdivision will ensure the subject land complies with the performance objectives of an Inner Protection Area (IPA) as described by PBP.

Any landscaping proposed across the subdivision is to achieve the principles listed in Appendix 4 of *Planning for Bush Fire Protection 2019*.

The 50 m temporary APZ is to be regularly mown/slashed to ensure a grassland hazard does not eventuate.

### 3.3 Access

#### ***Alternate access and egress***

PBP requires an access design that enables safe evacuation whilst facilitating adequate emergency and operational response. All bushfire prone areas should have an alternate access or egress option depending on the bushfire risk, the density of the development, and the chances of the road being cut by fire for a prolonged period.

The subdivision design provides a logical public road layout that will provide multiple access points to the north and east.

The subdivision layout satisfies PBP access objectives in relation to access and egress.

#### ***Perimeter access***

A perimeter subdivision road has been placed between all identified hazards and proposed lots.

The subdivision layout satisfies PBP access objectives in relation to perimeter access.

#### ***Design and construction standards***

The public roads are to be designed in accordance with the PBP Acceptable Solutions for the design and construction of roads for residential subdivision as required by PBP Table 5.3b. The requirements are repeated below.

#### **PBP design standards for roads servicing residential subdivision:**

- *Property access roads are two-wheel drive, all weather roads.*
- *Perimeter roads are provided for residential subdivisions of three or more allotments.*
- *Subdivisions of three or more allotments have more than one access in an out of the development.*
- *Traffic management devices are constructed to not prohibit access by emergency service vehicles.*

- *Maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient.*
- *All roads are through roads. Dead end roads are not recommended, but if unavoidable, dead ends are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end.*
- *Where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road.*
- *Where access/egress can only be achieved through forest, woodland or heath vegetation, secondary access shall be provided to an alternate point on the existing public road system.*
- *The capacity of perimeter and non-perimeter road surfaces and any bridges and causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); Bridges/causeways to clearly indicate load rating.*
- *Hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression.*
- *Hydrants are provided in accordance with AS 2419.1:2005.*
- *There is suitable access for a Category 1 fire appliance to within 4 m of the static water supply where no reticulated supply is available.*
- *Perimeter roads are:*
  - *two-way sealed roads;*
  - *8 m carriageway width kerb to kerb;*
  - *parking is provided outside of the carriageway width;*
  - *hydrants are located clear of parking reserves;*
  - *there are through roads, and these are linked to the internal road system at an interval of no greater than 500 m;*
  - *curves of roads have a minimum inner radius of 6 m;*
  - *the maximum road grade is 15° and average grade is 10°;*
  - *the road crossfall does not exceed 3°;*
  - *a minimum vertical clearance of 4 m to any overhanging obstruction, including tree branches, is provided.*

- **Non-perimeter roads are:**
  - *Minimum 5.5 m width kerb to kerb;*
  - *parking is provided outside of the carriageway width;*
  - *hydrants are located clear of parking reserves;*
  - *there are through roads, and these are linked to the internal road system at an interval of no greater than 500 m;*
  - *curves of roads have a minimum inner radius of 6 m;*
  - *the road crossfall does not exceed 3°;*
  - *a minimum vertical clearance of 4 m to any overhanging obstruction, including tree branches, is provided.*

### **3.4 Water supply and utilities**

#### ***Water supply***

The development will require fire hydrants to be installed to comply with *AS 2419.1 – 2005 Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419) so that all sides of a building envelope are within 70 m of a hydrant by lay of the hose (or 90 m with a tanker parked in-line maximum 20 m from the hydrant).

#### ***Electricity supply***

The electricity supply will be provided underground and will therefore comply with PBP.

#### ***Gas supply***

Any gas services are to be installed and maintained in accordance with *AS/NZS 1596-2014 The storage and handling of LP gas*.

## 4 Conclusion and recommendations

### 4.1 Summary

The proposal consists of the next stage of the Highland Views residential development in Glenmore Park. The bushfire hazard consists of a woodland riparian corridor within Mulgoa Rise to the north-east, a continuation of the low hazard riparian corridor throughout Highland Views and the potential for grassland hazard within adjoining future stages. The required APZs are accommodated within the subdivision layout.

### 4.2 Conclusion

This report presents an assessment of a residential subdivision at Stages 7-9 Highland Views, Glenmore Park. The assessment demonstrates that the proposal, together with the recommendations (see below), complies with s100B *Rural Fires Act 1997*, Clause 44 of the *Rural Fires Regulation 2013* and *Planning for Bush Fire Protection 2019* (refer to Section 3 – Bushfire Protection Measures).

### 4.3 Recommendations

The recommendations made within this assessment are repeated below:

1. Proposed Lot 718 requires a building setback to ensure compliance with a 20 m APZ from the woodland corridor to the north-east as mapped on Figure 4.
2. A 50 m temporary APZ is to be managed to the east and south from the proposed lots into adjoining future stages of Highland Views. The APZ is to be regularly slashed/mown to ensure a grassland hazard does not eventuate until such time that the adjoining lands are developed within the affected 50 m area.
3. Any landscaping proposed across the subdivision is to achieve the principles listed in Appendix 4 of *Planning for Bush Fire Protection 2019*.
4. The public roads are to be designed in accordance with the PBP Acceptable Solutions for the design and construction of roads for residential subdivision as required by PBP Table 5.3b. The requirements are repeated below.
5. The subdivision will require fire hydrants to be installed to comply with AS 2419.1 – 2005 *Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419).
6. Any gas services are to be installed and maintained in accordance with AS/NZS 1596-2014 *The storage and handling of LP gas*.



David Peterson



# References

NSW Rural Fire Service (RFS). 2019. *Planning for Bush Fire Protection: A Guide for Councils, Planners, Fire Authorities and Developers*. State of New South Wales through the NSW Rural Fire Service.

Standards Australia. 2005. *Fire hydrant installations - System design, installation and commissioning*, AS2419.1, Fourth edition 2005, Standards Australia International Ltd, Sydney.

Standards Australia. 2014. *The storage and handling of LP Gas*, AS/NZS 1596-2014, Standards Australia International Ltd, Sydney.

