

## Bushfire Threat Assessment

Part Lot 1131 DP 1057179, Black Hill Industrial Development, Black Hill

Prepared for

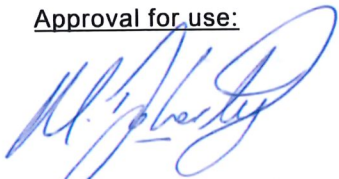
**Barr Property & Planning c/- Broaden Management Pty Ltd**

Final V2 / August 2018

## DOCUMENT STATUS

Project Particulars			
Project Name	Bushfire Threat Assessment: Part Lot 1131 DP 1057179 Black Hill Industrial Development, Black Hill		
Job Number	17032		
Client	Barr Property & Planning c/- Broaden Management Pty Ltd		
Status	Draft		
Version	Date	Prepared by	Details
V1	17-7-2018	PS/MD	Draft for client review
V2	14-8-2018	PS/MD	Final for submission

Approval for use:



**Matt Doherty - Director**

14 August 2018

---

### Disclaimer

*This document may only be used for the intended purpose for which it was commissioned by the client in accordance with the contract between MJD Environmental and client. This report has been prepared in response to an agreed scope and based on available data including that supplied by the client. This report, results and outcome are accurate at date of production and subject to change over time along with the legislative and policy framework under which it was prepared.*

*MJD Environmental Pty Limited accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report and its supporting material by any third party. Information provided is not intended to be a substitute for site specific assessment or legal advice in relation to any matter. Unauthorised use of this report in any form is prohibited.*

---

## EXECUTIVE SUMMARY

MJD Environmental has been engaged by Barr Property & Planning on behalf of Broaden Management Pty Ltd, to prepare a Bushfire Threat Assessment (BTA) to accompany an Environmental Impact Statement (EIS) seeking consent for an industrial development over Part Lot 1131 DP 1057179, Black Hill Rd, Black Hill NSW.

The assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to such a proposal, and to outline the minimum mitigative measures which would be required in accordance with the provisions of the Planning for Bush Fire Protection (PBP), 2006 that has been released and adopted through the *Environmental Planning & Assessment Amendment (Planning for Bush Fire Protection) Regulation 2007* & the *Rural Fires Amendment Regulation 2007*.

This assessment has been made based on the bushfire hazards in and around the site at the time of inspection and production (July 2018).

Secretary's Environmental Assessment Requirements (SEARs) have been issued for the EIS. In relation to hazard and risk the SEARs require, *'an assessment of the risk of bushfire, including addressing the requirements of Planning for Bushfire Protection 2006 (RFS)'*. This development type and buildings contained therein do not strictly trigger the criteria outlined with PBP (2006) for residential and/or Special Fire Protection Purpose (SFPP). In these instances, section 1.3(b) of PBP states that the provisions under the BCA for fire safety will be accepted for bushfire purposes where the aims and objectives outlined in section 1.1 of PBP (2006) can be met. The broad objectives are listed below:

- (i) afford occupants of any building adequate protection from exposure to a bushfire;
- (ii) provide for a defendable space to be located around buildings;
- (iii) provide appropriate separation between a hazard and buildings which, in combination with other measure, prevent direct flame contact and material ignition;
- (iv) ensure that safe operational assess and egress for emergency service personnel and residents is available;
- (v) provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the APZ; and
- (vi) ensure that utility services are adequate to meet the needs of fire fighters (and others assisting in bush fire fighting).

An appraisal against these objectives is provided in this BTA. Importantly, this appraisal only relates to industrial/ commercial development types that do not trigger the residential and/or SFPP provisions of PBP (2006). Wherever these development types are sought in the Industrial development area (eg child care), the required APZ (PBP 2006) and BAL (AS 3959-2009) must be assessed and provided.

Assessment against these objectives has determined the proposal is able to comply with the relevant provisions of PBP (2006).

***Finally, the implementation of the measures and recommendations forwarded within this report would contribute to the amelioration of the potential impact of any bushfire upon the development site, but they do not and cannot guarantee that the area will not be affected by bushfire at some time.***



## CONTENTS

1	Introduction .....	1
1.1	Aims & Objectives .....	1
1.2	Site Particulars.....	2
1.3	Description of Proposal .....	3
2	Bushfire Hazard Analysis .....	6
2.1	Vegetation Assessment.....	6
3	Bushfire Protection Measures .....	9
3.2	Access .....	9
3.3	Services – Water, Electricity, Gas .....	11
3.4	Landscaping & Fuel Management.....	13
3.5	Emergency Management .....	13
3.6	Appraisal for non SFPP or residential development areas on site.....	13
4	Conclusion & Recommendations .....	16
5	Bibliography .....	17

## LIST OF FIGURES

Figure 1	Site Location.....	4
Figure 2	Bushfire Prone Land Map .....	5
Figure 3	Vegetation Classification .....	8

## LIST OF TABLES

Table 1	Vegetation Classification .....	6
Table 2	Acceptable solutions for services (PBP 2006) .....	11
Table 3	Appraisal against Aims & Objectives for non SFPP or residential development areas on site.....	14

## APPENDICES

APPENDIX A	Plan of Proposal	
------------	------------------	--



## GLOSSARY OF TERMS AND ABBREVIATIONS

Term/ Abbreviation	Meaning
APZ	Asset Protection Zone
AS2419 -2005	Australian Standard – Fire Hydrant Installations
AS3959-2009	Australian Standard – Construction of Buildings in Bush Fire Prone Areas
BCA	Building Code of Australia
BC Act	NSW Biodiversity Act 2016
BMP	Bush Fire Management Plan
BPA	Bush Fire Prone Area (Also Bushfire Prone Land)
BPL	Bush Fire Prone Land
BPLM	Bush Fire Prone Land Map
BPM	Bush Fire Protection Measures
BTA	Bushfire Threat Assessment
DoE	Commonwealth Department of the Environment
DPI Water	NSW Department of Primary Industries – Water
EPA Act	NSW Environmental Planning and Assessment Act 1979
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
FDI	Fire Danger Index
FMP	Fuel Management Plan
ha	hectare
IPA	Inner Protection Area
LGA	Local Government Area
OPA	Outer Protection Area
OEH	NSW Office of Environment and Heritage
PBP or PBP (2006)	Planning for Bushfire Protection 2006
RF Act	Rural Fires Act 1997
RF Regulation	Rural Fires Regulation
RFS	NSW Rural Fire Service
TSC Act	NSW Threatened Species Conservation Act 1995 (as repealed)

# 1 Introduction

MJD Environmental has been engaged by Barr Property & Planning on behalf of Broaden Management Pty Ltd, to prepare a Bushfire Threat Assessment (BTA) to accompany an Environmental Impact Statement (EIS) seeking consent for an industrial development over Part Lot 1131 DP 1057179, Black Hill Rd, Black Hill NSW, hereafter referred to as the 'site' (**Figure 1**).

The assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to such a proposal, and to outline the minimum mitigative measures which would be required in accordance with the provisions of the Planning for Bush Fire Protection (PBP), 2006 that has been released and adopted through the *Environmental Planning & Assessment Amendment* (Planning for Bush Fire Protection) *Regulation 2007* & the *Rural Fires Amendment Regulation 2007*.

This assessment has been made based on the bushfire hazards in and around the site at the time of inspection and production (July 2018).

## 1.1 Aims & Objectives

Secretary's Environmental Assessment Requirements (SEARs) have been issued for the EIS. In relation to hazard and risk the SEARs require, '*an assessment of the risk of bushfire, including addressing the requirements of Planning for Bushfire Protection 2006 (RFS)*'. Regarding the NSW RFS referral response for input to the SEARs, the RFS mention the provision of asset protection zones in accordance with the requirements of Appendix 2 of PBP 2006. Consultation with Matt Apps, NSW RFS Development Assessment & Planning Officer, was undertaken on Monday 9<sup>th</sup> July to discuss that the development proposal type and land zoning is intended to facilitate industrial / commercial development. This development type and buildings contained therein do not strictly trigger the criteria outlined with PBP (2006) for residential and/or Special Fire Protection Purpose (SFPP). On this basis, it was agreed that APZs in accordance with Appendix 2 of PBP are not strictly required.

In these instances, section 1.3(b) of PBP states that the provisions under the BCA for fire safety will be accepted for bushfire purposes where the aims and objectives outlined in section 1.1 of PBP (2006) can be met. The broad objectives are listed below:

- (i) afford occupants of any building adequate protection from exposure to a bushfire;
- (ii) provide for a defensible space to be located around buildings;
- (iii) provide appropriate separation between a hazard and buildings which, in combination with other measure, prevent direct flame contact and material ignition;
- (iv) ensure that safe operational assess and egress for emergency service personnel and residents is available;
- (v) provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the APZ; and
- (vi) ensure that utility services are adequate to meet the needs of fire fighters (and others assisting in bush fire fighting).

An appraisal against these objectives is provided in **Chapter 3**. Importantly, this appraisal only relates to industrial/ commercial development types that do not trigger the residential and/or SFPP provisions of PBP (2006). Wherever these development types are sought in the Industrial development area (eg child care), the required APZ (PBP 2006) and BAL (AS 3959-2009) must be assessed and provided.



## 1.2 Site Particulars

<b>Locality</b>	The site is located in Black Hill
<b>Land Title</b>	Part Lot 1131 DP 1057179
<b>LGA</b>	Cessnock City Council
<b>Area</b>	The Site is approx. 216.5 ha comprised of the impact area (Project footprint) 175.6ha (approx.) and northern E2 Environmental Conservation zoned parcel 40.9ha (approx.).
<b>Zoning</b>	The site is currently zoned IN2 Light Industrial (NSW Planning & Environment 2018).
<b>Boundaries</b>	The site is bound by frontage to E2 Environmental Conservation zone land followed by John Renshaw Dr. To the immediate south, the site is bound by E4 Environmental Living zone land followed by Black Hill Rd. E4 Private parcels of land categorised as Environmental Living zone land bound the site to the west and IN2 Light Industrial zone lands to the east, with a 330 kV electricity line and associated easement running parallel to the eastern edge
<b>Current Land Use</b>	The entire site comprises remnants of an old chicken farm, containing at least 15 individual family farms, each with its own chicken sheds and house dwellings. These former farms and residences within the site have been demolished and the land is now vacant. The site is currently being used to support grazing beef cattle.
<b>Topography</b>	The highest point on the site is approximately 50 m AHD in the extreme southern and south-eastern portion. The lowest point of elevation throughout the site is in the extreme north in relation with Weakleys Flat Creek at an elevation of approximately 20 m AHD. The dominant drainage lines within the site lie in the north-east and consist of two major creeklines separated by a ridgeline, which is also oriented towards the north-east.
<b>Climate / Fire History</b>	The site lies within a geographical area with a Fire Danger Index (FDI) rating of 100. Extreme bushfire weather is therefore associated with long periods of drought, high temperatures, low humidity and gusty often north-westerly winds. The site is classified by Cessnock LGA as Bushfire Vegetation Buffer from Category 1 and Category 2 on the Bushfire Prone Land Map (DPE 2018). Refer to <b>Figure 2</b> .
<b>Environment</b>	The vegetation on site consists of fragmented patches of eucalypt woodland and riparian vegetation with a large portion of the site existing as cleared pastoral lands. The plant community type is Spotted Gum – Red Ironbark – Grey Gum shrub – grass open forest of the Lower Hunter. It is assumed that all native vegetation within the site will be cleared for industrial development. A search of the Commonwealth Protected Matters Tool and NSW BioNet (Atlas of Wildlife) was conducted on the 19 July 2018. These searches interrogate records of threatened species, populations and ecological communities listed under the <i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i> and <i>NSW Biodiversity Conservation Act 2016</i> . Environmental Assessments have been prepared to inform the proposal.
<b>Cultural Significance</b>	A search of the AHIMS register has been completed. A Cultural Heritage Assessment has been prepared to inform the proposal.



### 1.3 Description of Proposal

The proposed development seeks consent for the subdivision of Part Lot 1131 in Deposited Plan 1057179 to create 39 large industrial lots, as shown on the subdivision plan, which is included within **Appendix A**. Additionally, the proposal includes the remediation of the site to ensure that site is suitable for future occupation for industrial use.

This proposal constitutes stage 2 of a concept development application submitted to Cessnock City Council, pursuant to s.22 of the Environmental Planning and Assessment Act 1979 (refer to section 6.6.1). This stage of the concept development application includes:

- Creation of two signalised intersections to provide suitable access to the subdivision;
- The realignment of the existing watercourse that traverse the western portion of the site;
- Civil earthworks to provide a suitable foundation for future industrial development;
- Extension, augmentation and/ or adaptation of essential services (i.e. water, sewer & telecommunications) to cater for the future tenants of the industrial development;
- Construction of a 132/11kV substation and the relocation of the existing aboveground 132kV high voltage transmission line;
- Remediation of the site to ensure suitable occupation for industrial use;
- Subdivision of Part of Lot 1131 in Deposited Plan 1057179 to create 39- industrial lots and 1 environmental conservation lot; to be delivered in six stages;
- Construction of the ring-road network to provide suitable access to all proposed industrial lots, and
- Infrastructure to capture, detain and treat all stormwater collected on site.

Refer to **Appendix A** for plans of the proposal including clearing plan, subdivision and layout.

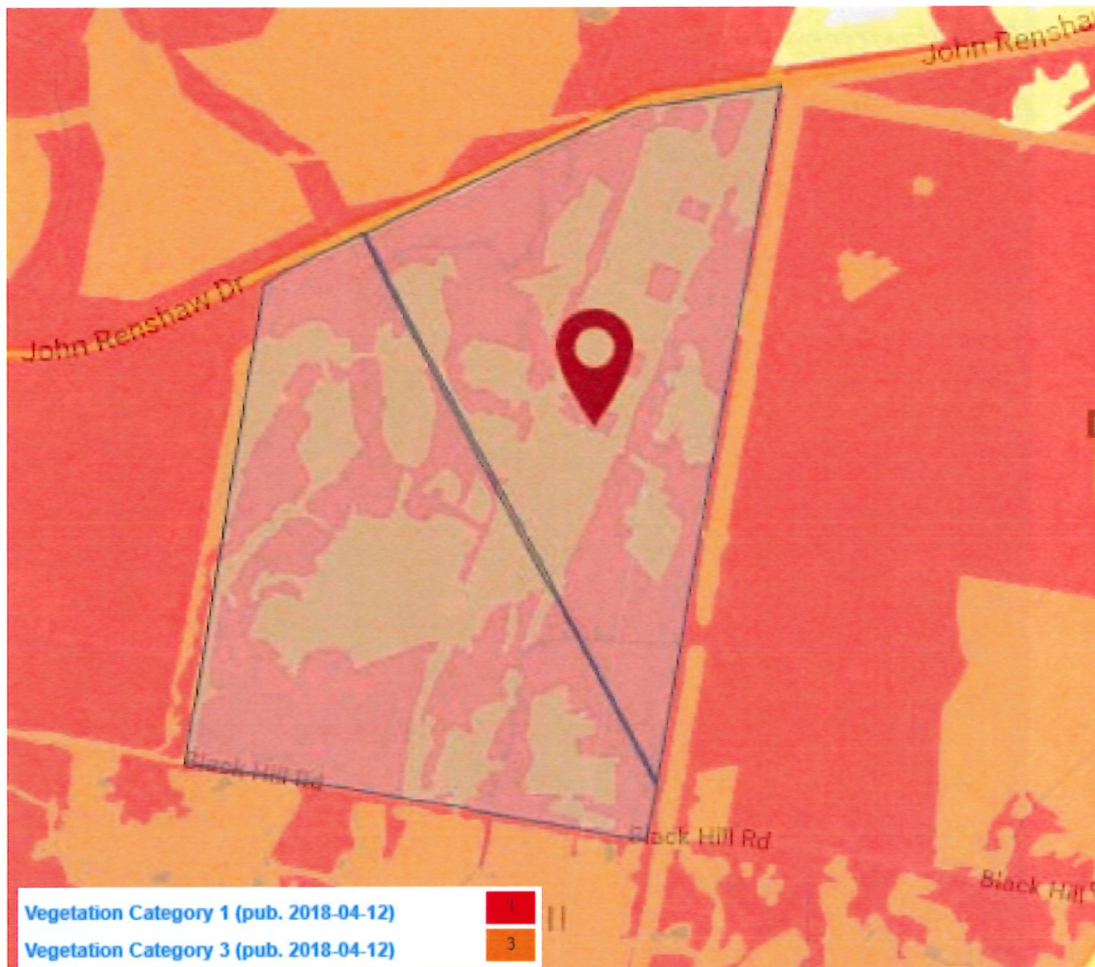


Figure 1 Site Location



Project Files\17032 - Lot 1131 DP 1057179 Black Hill Road, Black Hill\5. GIS\WOR\17032 Bushfire 03082018.WOR



**Figure 2 Bushfire Prone Land Map**

(Source: NSW Planning & Environment, 2018)



## 2 Bushfire Hazard Analysis

### 2.1 Vegetation Assessment

#### Methodology

The vegetation in and around the site, to a distance of 140m, has been assessed in accordance with PBP 2006. This assessment has been made via a combination:

- aerial photo interpretation;
- reference to regional community vegetation mapping and/or vegetation delineation based on ecological assessment on site; and
- on site vegetation classification.

These vegetation communities have been classified for bushfire purposes into structure and formation using the system adopted by Keith (2004) and using Table A2.1 of PBP (2006) with due regard to Addendum Appendix 3 (PBP 2006).

#### Vegetation Classification

Vegetation classification has been presented in **Table 1** below and **Figure 3**.

**Table 1 Vegetation Classification**

Direction	Description	Vegetation Classification
North	<ul style="list-style-type: none"> <li>▪ E2 Environmental Conservation zone land containing native vegetation and watercourse</li> <li>▪ John Renshaw Drive</li> <li>▪ Donaldson Coal – now in care and control</li> </ul>	Forest / Managed
North-east	<ul style="list-style-type: none"> <li>▪ A 330kV electrical powerline with associated easement followed by John Renshaw Dr followed by IN2 Light Industrial zone land containing native vegetation</li> <li>▪ Proposed intersections and site access</li> </ul>	No hazard / Forest
North-west	<ul style="list-style-type: none"> <li>▪ RU2 Rural Landscape zone lands containing native vegetation</li> <li>▪ Proposed intersections and site access</li> </ul>	Forest
East	<ul style="list-style-type: none"> <li>▪ A 330kV electrical powerline with associated easement followed by IN2 Light Industrial zone land containing native vegetation.</li> <li>▪ This land has been approved for an employment lands development as part of the Coal &amp; Allied Lower Hunter Lands – Black Hill site project (Major Project ref: MP10_0093)</li> </ul>	No Hazard / Forest * Hazard will be removed when site is developed in the future.
South	E4 Environmental Living zoned lands containing native vegetation interspersed with tracks, existing farm dwellings and paddocks.	Forest
West	RU2 Rural Landscape zone lands containing native vegetation	Forest

### Site Photos



**Photo 1** – Proposed intersection looking north east



**Photo 2** – Proposed entrance road looking north from site



**Photo 3** – Forest hazard looking west from site



**Photo 4** – Forest hazard looking east from site (looking toward easement)



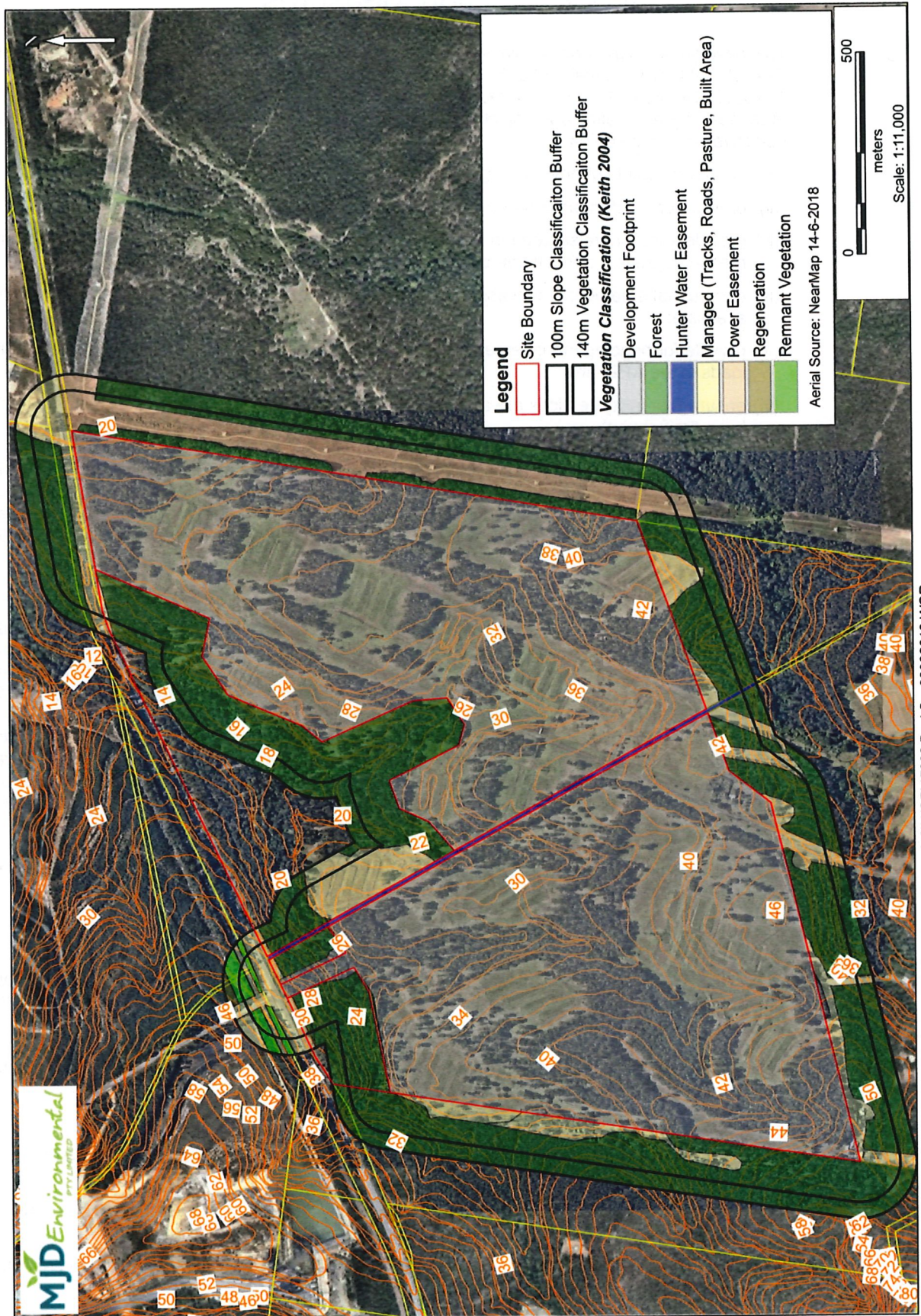
**Photo 5** – Forest hazard looking south west from site



**Photo 6** – Forest hazard looking south from site.



Figure 3 Vegetation Classification





### 3 Bushfire Protection Measures

This development type and buildings contained therein do not strictly trigger the criteria outlined with PBP (2006) for residential and/or Special Fire Protection Purpose (SFPP). In these instances, section 1.3(b) of PBP states that the provisions under the BCA for fire safety will be accepted for bushfire purposes where the aims and objectives outlined in section 1.1 of PBP (2006) can be met. The broad objectives are listed below:

- (i) afford occupants of any building adequate protection from exposure to a bushfire;
- (ii) provide for a defendable space to be located around buildings;
- (iii) provide appropriate separation between a hazard and buildings which, in combination with other measure, prevent direct flame contact and material ignition;
- (iv) ensure that safe operational assess and egress for emergency service personnel and residents is available;
- (v) provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the APZ; and
- (vi) ensure that utility services are adequate to meet the needs of fire fighters (and others assisting in bush fire fighting).

An appraisal against these objectives is provided in this chapter. Importantly, this appraisal only relates to industrial/ commercial development types that do not trigger the residential and/or SFPP provisions of PBP (2006). Wherever these development types are sought in the Industrial development area (eg child care), the required APZ (PBP 2006) and BAL (AS 3959-2009) must be assessed and provided.

#### 3.2 Access

In the event of a serious bushfire threat to the proposed development, it will be essential to ensure that adequate ingress/ egress and the provision of defendable space are afforded in the subdivision design. Direct access to the site will occur from John Renshaw Drive in the north. Two full intersections (ability to travel into and exist from intersection in both directions of travel) will be established as part of the development. The eastern intersection will be constructed as part of Stage 1 and 2 works and western intersection as part of Stage 4 Works. Following construction, the road network will be dedicated and form part of the public road network. With due consideration of the industrial / commercial development type, site access and roads throughout the site have been designed to cater for full length B-Double trucks. Each industrial site will provide separation between the boundary and industrial buildings to facilitate access around the site boundaries.

On this basis the proposal is considered to meet the acceptable solutions for property access set out in PBP (2006) as summarised below.

The following summarises the requirements of PBP (2006).

PBP (RFS, 2006) recommends a perimeter road be designed for any future residential development. A perimeter road forms part of the APZ and will provide a separation between the building and the boundary of the bush fire hazard.

Any **perimeter road** should be fully sealed and have a minimum road reserve width of 8m minimum kerb to kerb with the following design specifications:

- roads should be two wheel drive, all weather roads;
- roads should be two-way; i.e. at least two traffic lane widths with shoulders on each side, allowing traffic to pass in opposite directions;
- roads should be through roads where possible, any dead end roads should not be more than 200m in length with a 12m radius turning circle and clearly sign posted as such;
- the capacity of road surfaces and bridges should be sufficient to carry fully loaded fire fighting vehicles (approximately 28 tonnes or 8 tonnes per axle); and

- roads should be clearly sign posted and buildings clearly numbered.

According to PBP (2006), the design specifications for **internal public road** require that roads:

- be two-wheel drive all weather roads;
- non perimeter roads comply with Road widths for Category 1 Tanker (Table 4.1 PBP 2006);

Curve radius (inside edge) (metres)	Swept Path (metres width)	Single lane (metres width)	Two way (metres width)
<40	3.5	4.5	8.0
40-69	3.0	3.9	7.5
70-100	2.7	3.6	6.9
>100	2.5	3.5	6.5

- the perimeter road is linked to the internal road system at an interval of no greater than 500m in urban areas;
- not be hindered by an overuse of traffic calming devices such as speed humps and chicanes;
- public roads do not have a cross fall not exceeding 3 degrees;
- all roads are through roads, but if unavoidable then dead ends should be not more than 200m in length, incorporate a minimum 12m turning circle and should be clearly sign posted as dead ends;
- curves of roads (other than perimeter roads) are a minimum inner radius of 6 metres and minimal in number, to allow for rapid access and egress;
- the minimum distance between inner and outer curves is 6m;
- maximum grade for sealed roads does not exceed 15° and an average grade of not more than 10° of other gradient specified by road design standards, whichever is the lesser gradient;
- there is a minimum vertical clearance to a height of 4m above the road at all times;
- the capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles (approximately 15 tonnes for areas with reticulated water, 28 tonnes. Bridges clearly indicate load rating;
- public roads between 6.5m and 8m wide are no parking on one side with the services (hydrants) located on the side to ensure accessibility to reticulated water for suppression;
- one way public access roads are no less than 3.5m wide and provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression;
- parking bays are a minimum of 2.6m wide from kerb edge to road pavement. No services or hydrants are located within the parking bays; and
- public roads directly interfacing the bush fire hazard vegetation should provide roll top kerbing to the hazard side of the road.

According to PBP (2006), the design specifications for **property access roads** require that:

- at least one alternative property access is provided for individual dwellings (or group of dwellings) that are located more than 200m from a public through road;
- a minimum carriageway width of four metres for rural-residential areas, rural landholdings or urban area with a distance greater than 70 metres from the nearest hydrant point to the most external part of the proposed building;

Note: No specific access requirements apply in a urban area where a 70m unobstructed path can be demonstrated between the most distant part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency fighting vehicles (i.e. a hydrant or water supply).



- a minimum vertical clearance of four metres to any overhanging obstructions, including tree branches;
- on forest, woodland and heath situations, rural property access roads have passing bays every 200m that are 20 metres long by two metres wide;
- internal roads for rural properties have a loop road around any dwelling or incorporate a turning circle with a minimum 12 metre outer radius;
- curves have a minimum inner radius of six metres and are minimal in number to allow for rapid access and egress;
- the cross fall is not more than 10°;
- maximum grades for sealed roads do not exceed 15° and not more than 10° for unsealed roads; and
- access to a development comprising more than three dwellings have formalised access by dedication of a road and not by right of way.

The above road specifications are the acceptable solutions as detailed within PBP (RFS, 2006). Deviations from the above acceptable solutions for access may be considered (depending on the situation) through a performance-based assessment.

The proposed road layout is generally consistent with the requirements of PBP (2006).

Refer to **Appendix A** for Plan of Subdivision showing access and staging.

### 3.3 Services – Water, Electricity, Gas

The site is to be developed in accordance with the PBP (2006) acceptable solutions for services listed in **Table 2**.

The proposal is able to satisfy these requirements given:

- Reticulated is proposed to be connected to and augmented within the site. This includes hydrants as part of the public road network.
- Non-reticulated water supply is available based on roof capture from buildings within the site. Tanks generally to be located underground with suitable surface connections and form part of an ESFR sprinkler system for buildings.
- The site will be connected to a new Ausgrid substation to be established within the development, this shall be extended and augmented within the site.
- Any future gas connection will be installed in accordance with the provisions of PBP (2006).

**Table 2 Acceptable solutions for services (PBP 2006)**

Performance Criteria	Acceptable Solutions
The intent may be achieved where:	
<b>Reticulated water supplies</b> <ul style="list-style-type: none"> <li>▪ water supplies are easily accessible and located at regular intervals</li> </ul> <p>To note, if reticulated water supplies are considered inadequate or shall not be connected as part of the proposal, the PBP (2006) performance criteria for 'non-reticulated' water supply shall apply as detailed below.</p>	<ul style="list-style-type: none"> <li>▪ reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.</li> <li>▪ fire hydrant spacing, sizing and pressures comply with AS 2419.1 – 2005. Where this cannot be met, the RFS will require a test report of the water pressures anticipated by the relevant water supply authority. In such cases, the location, number and sizing of hydrants shall be determined using fire engineering principles.</li> <li>▪ hydrants are not located within any road carriageway</li> </ul>



Performance Criteria	Acceptable Solutions												
<p><b>Non-reticulated water supply areas</b></p> <ul style="list-style-type: none"> <li>for rural-residential and rural developments (or settlements) in bush fire prone areas, a water supply reserve dedicated to firefighting purposes is installed and maintained. The supply of water can be an amalgam of minimum quantities for each lot in the subdivision (community titled subdivisions), or held individually on each lot.</li> </ul> <table border="1"> <thead> <tr> <th>Development type</th><th>Water requirement</th></tr> </thead> <tbody> <tr> <td>Residential Lots (&lt;1,000m<sup>2</sup>)</td><td>5,000 l/lot</td></tr> <tr> <td>Rural-residential Lots (1,000 – 10,000m<sup>2</sup>)</td><td>10,000 l/lot</td></tr> <tr> <td>Large Rural/Lifestyle Lots (&gt;10,000 m<sup>2</sup>)</td><td>20,000 l/lot</td></tr> <tr> <td>Dual Occupancy</td><td>2,500 l/unit</td></tr> <tr> <td>Townhouse/Unit Style (eg Flats)</td><td>5,000 l/unit up to 20,000 l maximum.</td></tr> </tbody> </table> <p>Table 4.2 PBP 2006</p>	Development type	Water requirement	Residential Lots (<1,000m <sup>2</sup> )	5,000 l/lot	Rural-residential Lots (1,000 – 10,000m <sup>2</sup> )	10,000 l/lot	Large Rural/Lifestyle Lots (>10,000 m <sup>2</sup> )	20,000 l/lot	Dual Occupancy	2,500 l/unit	Townhouse/Unit Style (eg Flats)	5,000 l/unit up to 20,000 l maximum.	<ul style="list-style-type: none"> <li>all above ground water and gas service pipes external to the building are metal, including and up to any taps.</li> <li>the provisions of parking on public roads are met.</li> <li>the minimum dedicated water supply required for firefighting purposes for each occupied building excluding drenching systems, is provided in accordance with Table 4.2 (refer to insert on left).</li> <li>a suitable connection for firefighting purposes is made available and located within the IPA and away from the structure. A 65mm Storz outlet with a Gate or Ball valve is provided.</li> <li>Gate or Ball valve and pipes are adequate for water flow and are metal rather than plastic.</li> <li>underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank. A hardened ground surface for truck access is supplied within 4 metres of the access hole.</li> <li>above ground tanks are manufactured of concrete or metal and raised tanks have their stands protected. Plastic tanks are not used. Tanks on the hazard side of a building are provided with adequate shielding for the protection of fire fighters.</li> <li>all above ground water pipes external to the building are metal including and up to any taps. Pumps are shielded.</li> </ul>
Development type	Water requirement												
Residential Lots (<1,000m <sup>2</sup> )	5,000 l/lot												
Rural-residential Lots (1,000 – 10,000m <sup>2</sup> )	10,000 l/lot												
Large Rural/Lifestyle Lots (>10,000 m <sup>2</sup> )	20,000 l/lot												
Dual Occupancy	2,500 l/unit												
Townhouse/Unit Style (eg Flats)	5,000 l/unit up to 20,000 l maximum.												
<p><b>Electricity Services</b></p> <ul style="list-style-type: none"> <li>location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of buildings</li> <li>regular inspection of lines is undertaken to ensure they are not fouled by branches.</li> </ul>	<ul style="list-style-type: none"> <li>where practicable, electrical transmission lines are underground.</li> <li>where overhead electrical transmission lines are proposed: <ul style="list-style-type: none"> <li>lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and</li> <li>no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).</li> </ul> </li> </ul>												
<p><b>Gas services</b></p> <ul style="list-style-type: none"> <li>location of gas services will not lead to ignition of surrounding bushland or the fabric of buildings</li> </ul>	<ul style="list-style-type: none"> <li>reticulated or bottled gas is installed and maintained in accordance with AS 1596 and the requirements of relevant authorities. Metal piping is to be used.</li> <li>all fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation.</li> <li>if gas cylinders need to be kept close to the building, the release valves are directed away from the building and at least 2 metres away from any combustible material, so that they do not act as a catalyst to combustion. Connections to and from gas cylinders are metal.</li> <li>polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used.</li> </ul>												

### 3.4 Landscaping & Fuel Management

All future landscaping on the site should be designed and managed to minimise impact of bushfire based on the principles set out in PBP (2006) being:

- Prevent flame contact / direct ignition on the dwelling;
- Provide a defensible space for property protection;
- Reduce fire spread;
- Deflect and filter embers;
- Provide shelter from radiant heat; and
- Reduce wind speed.

In this manner, consideration should be given to species selection, planting location, flammability and size at maturity to ensure discontinuous canopy/ structure both vertically and horizontally to ensure the above principles are met.

Ongoing fuel management across the site as part of the maintenance regime should give due consideration to the RFS Standards for Asset Protection Zones (2005) which provides guidance on maintenance activities to assist in achieving the landscape principles.

### 3.5 Emergency Management

Any fire within the site would be attended in the first instance by the Benwerrin Volunteer Rural Fire Brigade or Fire and Rescue NSW Cessnock Fire Station branch of the NSW Fire Brigade.

To assist emergency response from the NSW RFS and/or NSW Fire and Rescue, site access is to comply with the provisions set out in PBP (2006) and all tanks including connection points be readily accessible and clearly marked. If pumps are to be made available, they must be regularly maintained and in good working order.

### 3.6 Appraisal for non SFPP or residential development areas on site

This development type and buildings contained therein do not strictly trigger the criteria outlined with PBP (2006) for residential and/or Special Fire Protection Purpose (SFPP).

In these instances, section 1.3(b) of PBP states that the provisions under the BCA for fire safety will be accepted for bushfire purposes where the aims and objectives outlined in section 1.1 of PBP (2006) can be met. The broad objectives are listed below and a comment on how they are achieved has been provided in **Table 3** below.



**Table 3 Appraisal against Aims & Objectives for non SFPP or residential development areas on site**

Objective (PBP 2006)	Comment
(i) afford occupants of any building adequate protection from exposure to a bushfire;	<ul style="list-style-type: none"> <li>Each lot with a common boundary to a bushfire hazard occurring on the site will contain separation from the boundary to a distance of 6m or greater to facilitate access and circulation around the buildings.</li> <li>In addition to the provision of a combination of bushfire mitigation measures including defensible space, vegetation management on industrial lots, access and circulation, water for firefighting purposes via provision of hydrants in the public road network, the nature of the large industrial sheds including materials used on external facades and roofing are considered to provide increased bushfire resilience outlined in AS3959-2009. Specifically, the structures are generally constructed based on a template of slab on ground with non-combustible wall materials and non-combustible roof structures (including concrete tilt slab design, metal frame super structure, metal cladding and roofing). The large logistics shed designs all contain internal ESFR sprinkler systems with on site water supply and booster pumps.</li> <li>Development delivery will be staged with each stage benefitting from an additional area of clearing and management to temporary APZ standard (Refer to <b>Appendix A</b>).</li> </ul> <p>This objective is satisfied.</p>
(ii) provide for a defensible space to be located around buildings;	<ul style="list-style-type: none"> <li>Defensible space in the form of managed areas, hardstand (eg roads, concrete) and managed batters will be established on all industrial lots.</li> <li>Each lot with a common boundary to a bushfire hazard occurring on the site will contain separation from the boundary to a distance of 6m or greater to facilitate access and circulation around the buildings.</li> <li>Development delivery will be staged with each stage benefitting from an additional area of clearing and management to temporary APZ standard (Refer to <b>Appendix A</b>).</li> </ul> <p>This objective is satisfied.</p>
(iii) provide appropriate separation between a hazard and buildings which, in combination with other measure, prevent direct flame contact and material ignition;	<ul style="list-style-type: none"> <li>Refer to responses for item (i) and (ii)</li> </ul> <p>This objective is satisfied.</p>

Objective (PBP 2006)	Comment
(iv) ensure that safe operational assess and egress for emergency service personnel and residents is available;	<ul style="list-style-type: none"> <li>Refer to Section 4.2. The proposal shall provide and maintain appropriate ingress/ egress to site for emergency vehicle access. All roads and intersections have been designed to cater for large trucks and logistics operations and will be dedicated as public roads.</li> <li>Each lot with a common boundary to a bushfire hazard occurring on the site will contain separation from the boundary to a distance of 6m or greater to facilitate access and circulation around the buildings.</li> <li>Development delivery will be staged with each stage benefitting from an additional area of clearing and management to temporary APZ standard (Refer to <b>Appendix A</b>).</li> </ul> <p>This objective is satisfied.</p>
(v) provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the APZ; and	<ul style="list-style-type: none"> <li>Refer to responses for item (i) and (ii)</li> <li>The site will be maintained for the life of operation.</li> </ul> <p>This objective is satisfied.</p>
(vi) ensure that utility services are adequate to meet the needs of fire fighters (and others assisting in bush fire fighting).	<ul style="list-style-type: none"> <li>Refer to Section 4.3. The proposal will provide reticulated water and hydrants in the public road network. Non-reticulated water supply will be available throughout the development in underground tanks recharged from roof water.</li> <li>Power and Gas connections will be in accordance with PBP (2006).</li> </ul> <p>This objective is satisfied.</p>



## 4 Conclusion & Recommendations

MJD Environmental has been engaged by Barr Property & Planning on behalf of Broaden Management Pty Ltd, to prepare a BTA to accompany an Environmental Impact Statement (EIS) seeking consent for an industrial development over Part Lot 1131 DP 1057179, Black Hill Rd, Black Hill NSW.

The assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to such a proposal, and to outline the minimum mitigative measures which would be required in accordance with the provisions of the Planning for Bush Fire Protection (PBP), 2006 that has been released and adopted through the *Environmental Planning & Assessment Amendment* (Planning for Bush Fire Protection) *Regulation 2007* & the *Rural Fires Amendment Regulation 2007*.

This assessment has been made based on the bushfire hazards in and around the site at the time of inspection and production (July 2018).

Secretary's Environmental Assessment Requirements (SEARs) have been issued for the EIS. In relation to hazard and risk the SEARs require, '*an assessment of the risk of bushfire, including addressing the requirements of Planning for Bushfire Protection 2006 (RFS)*'. This development type and buildings contained therein do not strictly trigger the criteria outlined with PBP (2006) for residential and/or Special Fire Protection Purpose (SFPP). In these instances, section 1.3(b) of PBP states that the provisions under the BCA for fire safety will be accepted for bushfire purposes where the aims and objectives outlined in section 1.1 of PBP (2006) can be met. The broad objectives are listed below:

- (i) afford occupants of any building adequate protection from exposure to a bushfire;
- (ii) provide for a defendable space to be located around buildings;
- (iii) provide appropriate separation between a hazard and buildings which, in combination with other measure, prevent direct flame contact and material ignition;
- (iv) ensure that safe operational assess and egress for emergency service personnel and residents is available;
- (v) provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the APZ; and
- (vi) ensure that utility services are adequate to meet the needs of fire fighters (and others assisting in bush fire fighting).

An appraisal against these objectives is provided in this BTA. Importantly, this appraisal only relates to industrial/ commercial development types that do not trigger the residential and/or SFPP provisions of PBP (2006). Wherever these development types are sought in the Industrial development area (eg child care), the required APZ (PBP 2006) and BAL (AS 3959-2009) must be assessed and provided.

Assessment against these objectives has determined the proposal is able to comply with the relevant provisions of PBP (2006).

***Finally, the implementation of the measures and recommendations forwarded within this report would contribute to the amelioration of the potential impact of any bushfire upon the development site, but they do not and cannot guarantee that the area will not be affected by bushfire at some time.***

## 5 Bibliography

Department of Bush Fire Services (undated). *Bush Fire Readiness Checklist*.

Keith D. (2004). *Ocean Shore to Desert Dunes*. Department of Environmental and Conservation. Sydney

NSW Planning & Environment (2018). *Planning Portal – Find a Property*. Accessed from:

[https://www.planningportal.nsw.gov.au/find-a-property/20501\\_John\\_Renshaw\\_Drive\\_1131\\_Black\\_Hill\\_DP1057179](https://www.planningportal.nsw.gov.au/find-a-property/20501_John_Renshaw_Drive_1131_Black_Hill_DP1057179)

NSW Rural Fire Service (1997). *Bush Fire Protection for New and Existing Rural Properties*. September 1997, NSW Government.

NSW Rural Fire Service (2006). *Planning for Bushfire Protection – A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners*.

NSW Rural Fire Service (2005). Standards for Asset Protection Zones. NSW Rural Fire Service.

NSW Rural Fire Service (2002). *Circular 16/2002: Amendments to the Rural Fires Act 1997 – hazard reduction and planning requirements*.

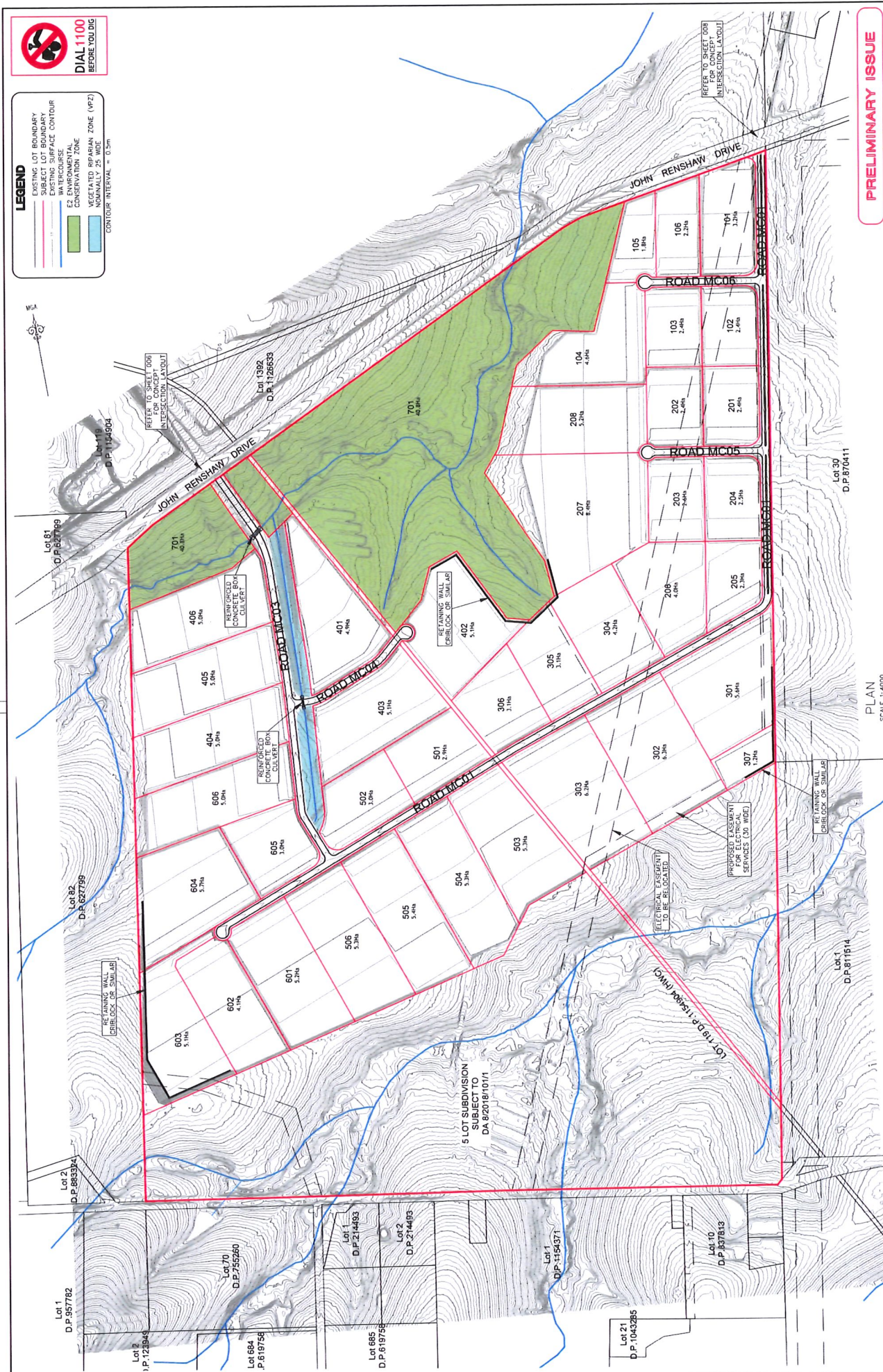
Ramsay, GC and Dawkins, D (1993). *Building in Bushfire-prone Areas – Information and Advice*. CSIRO and Standards Australia.


*Rural Fires and Environmental Assessment Legislation Amendment Act 2002*.

Standards Australia (2009). *AS 3959 – 2009: Construction of Buildings in Bushfire-prone Areas*.



## APPENDIX A      Plan of Proposal





DIAL 1100  
BEFORE YOU DIG

LEGEND

EXISTING LOT BOUNDARY

SUBJECT LOT BOUNDARY

EXISTING SURFACE CONTOUR

WATERCOURSE

E2 ENVIRONMENTAL CONSERVATION ZONE

CELTIC RAIN ZONE (V92)

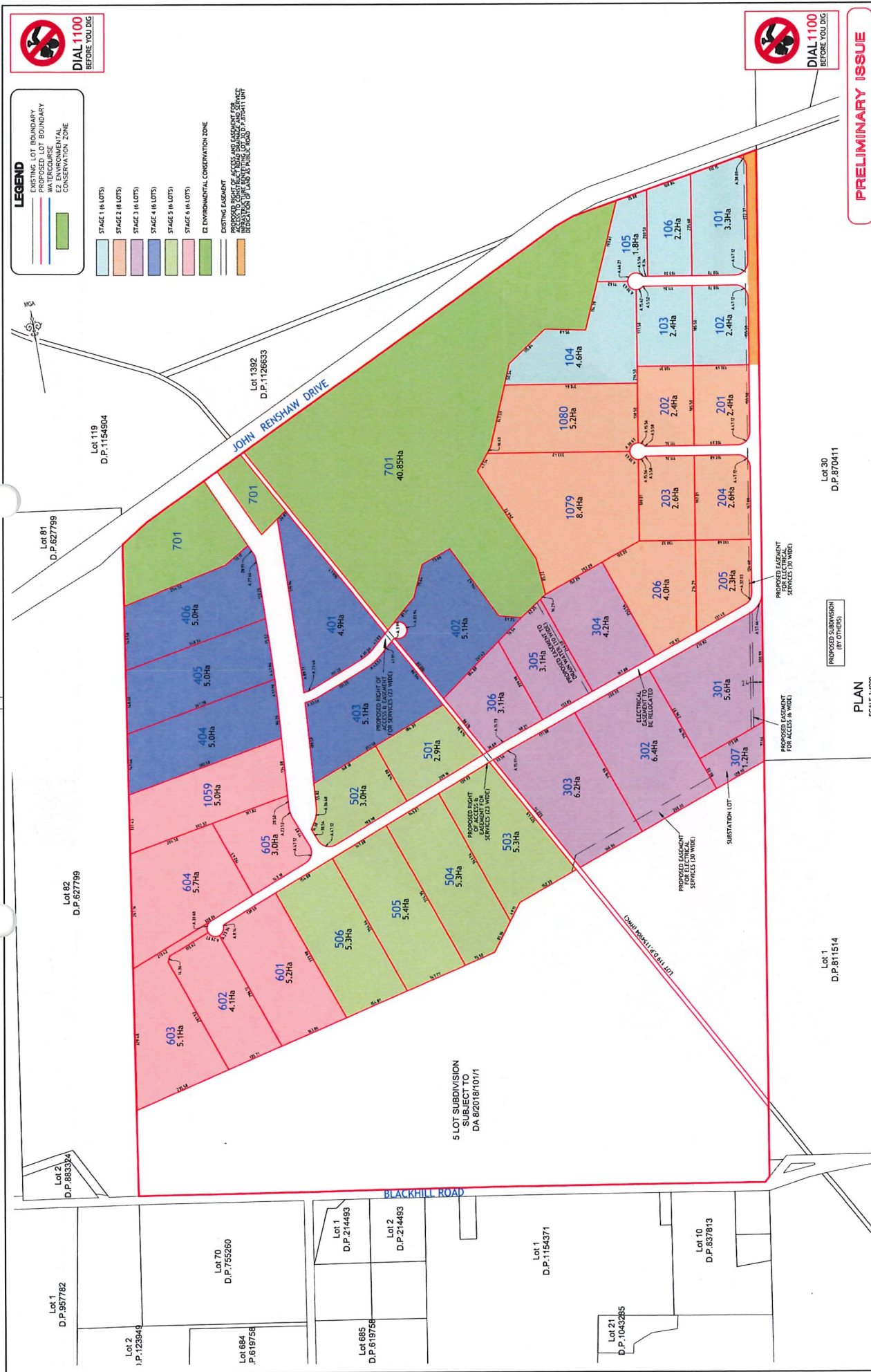
NOMINAL 25 MDS

CONTOUR INTERVAL = 0.5m

PRELIMINARY ISSUE

REV		DATE	AMENDMENT	DRAWN		CHECK	DESIGN	VERIFY	SCALE	CLINT		PROJECT		PLAN TITLE		PROJECT NO.		DISCIPLINE		NUMBER		REV	
A	01/02/2018	INITIAL ISSUE		E.C.	R.K.	Z.J.	R.K.	R.K.	0	Hunter Office		BLACK HILL SUBDIVISION		INDUSTRIAL SUBDIVISION		239590(1)		CENG		003		C	
B	10/08/2018	AMENDMENTS PER INSTRUCTION		Z.J.	R.K.	Z.J.	R.K.	R.K.	1:4000 / 1:5000	Broaden Management		BLACK HILL SUBDIVISION		JOHN RENSHAW DRIVE BLACK HILL		239590(1)		CENG		003		C	
C	14/08/2018	AMENDMENTS PER INSTRUCTION		E.C.	R.K.	Z.J.	R.K.	R.K.	1:4000 / 1:5000	adw johnson		INDUSTRIAL SUBDIVISION		JOHN RENSHAW DRIVE BLACK HILL		239590(1)		CENG		003		C	
DESIGN FILE: N:\239590\Design\239590.dwg										Plot Date: 14/08/18 - 17:01		Cad File: N:\239590\Drawings\Engineering\GHA\CONCEPT\239590.dwg		Plot By: elisabeth		All Dimensions are		10mm At Full Size		10mm At Full Size		10mm At Full Size	





**PRELIMINARY ISSUE**

11										SCALE 1:1000									
//																			







ITEM	SPOTTED GUM IRONBARK FOREST CLEARING AREA (ha)	GENERAL CLEARING AREA (ha)	TOTAL AREA (ha)
ROAD A	11.43	9.50	20.94
ROAD B	0.03	0.96	0.99
ROAD C	0.80	0.19	0.99
ROAD D	0.75	0.43	1.18
ROAD E	0.37	0.80	1.17
INF A	0.45	0.61	1.07
INF B	0.31	0.23	0.54
INF C	0.54	0.00	0.54
INF D	0.97	0.46	1.43
INF E	3.39	2.12	5.50
INF F	0.23	1.26	1.49
INF G	0.00	0.21	0.21
INF H	0.25	0.62	0.87
INF I	0.00	0.45	0.45
INF J	0.27	0.58	0.85
BUFF A	1.71	3.84	5.55
BUFF B	2.76	3.70	6.46
BUFF C	0.10	2.73	2.83
BUFF D	0.09	3.17	3.26
BUFF E	2.02	1.58	3.60
BUFF F	2.28	0.74	3.02
BUFF G	0.55	1.34	1.89
STAGE A	3.89	5.28	9.17
STAGE B	6.29	11.28	17.57
STAGE C	2.06	4.79	6.85
STAGE D	4.76	6.60	11.36
STAGE E	1.95	1.18	3.13
STAGE F	2.11	14.97	17.08
STAGE G	15.37	8.44	23.80
STAGE H	2.36	3.86	6.22
STAGE I	1.79	3.03	4.83
STAGE J	4.85	2.49	7.34
TOTAL	74.14	102.43	176.57

- ZONE BOUNDARY  
 LOWER HUNTER SPOTTED GUM  
 IRONBARK FOREST TO BE CLEARED  
 GENERAL SPARSE VEGETATION TO BE CLEARED  
 E2 ENVIRONMENTAL CONSERVATION ZONE  
 PROPOSED FUTURE ROAD  
 PROPOSED EASEMENT REALIGNMENT (45.7m WIDE)  
 EXISTING EASEMENT  
 HERITAGE ARTIFACT. CLEARING IN THESE AREAS TO BE  
 CARRIED OUT IN ACCORDANCE WITH AN APPROVED AHP

## NOTES:

1. CLEARED VEGETATION TO BE CHIPPED AND PLACED ON SITE.
2. DISTURBED AREAS TO BE STABILISED WITH MULCH OR SEEDED WITH NATIVE SEED MIX.



drawing title:

## CLEARING PLAN

location: Lot 1131, DP1057179,  
JOHN RENSHAW DRIVE,  
BLACK HILL

council: CESSNOCK

dwg ref: 239590-CON-002

client:

**BROADEN  
MANAGEMENT**



central coast office ph: (02) 4305 4300  
hunter office ph: (02) 4978 5100  
www.adwjohanson.com.au

ver.	date	comment	drawn	prn	level information	scale (A1 original size)	notes
C	21.02.18	UPDATED AREA CALCULATIONS	Z.J.	R.K.	DATUM: AHD CONTOUR INTERVAL: 1m	SCALE 1:400 (PLA1)	

working beyond expectations

