



# Bushfire Threat Assessment – Lower Hunter Lands

## **Black Hill**

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Prepared for:

**Coal & Allied Industries Ltd**

(REF: Coal & Allied-LHL-001)

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## Executive Summary

RPS Australia East Pty Ltd (RPS) has been engaged by Coal & Allied Industries Limited (Coal & Allied) to undertake a Bushfire Threat Assessment (BTA) over land at Black Hill. The Major Project Application seeks development consent for a Concept Plan to allow the development of employment lands at Black Hill. The use of the Black Hill site as 'employment lands' is for a range of employment generating activities, including light industrial; warehouse and distribution centre; depots; freight transport facilities; truck depot; neighbourhood shops; office premises; information and education facilities; food and drink premises; hotel accommodation; childcare centre; petrol stations etc.

The main landuse will be for light industrial and warehouse, this type of development is classified as Industrial development. Industrial development is not captured under Section 79BA of the *Environmental Planning and Assessment Act 1979 (EP&A Act)* or Section 100B of the *Rural Fires Acts 1997 (RFS Act 1997)*. As such it will not require referral or consultation with the Rural Fire Service (RFS). Additionally, the guidelines for residential development, documented within *Planning for Bushfire Protection* (Rural Fire Service 2001), do not apply.

The assessment and recommendations contained within this report are based on Industrial Development, inclusion of residential developments or developments captured under Special Fire Protection Purposes will require further assessment to establish appropriate protection measures as per PBP (2006).

However, Council should consider bushfire as a hazard in any assessment under section 79C of the *EP&A Act 1979*. Section 79C (1) states:

*In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application*

- *the likely impacts of the development; and*
- *the suitability of a site for development.*

It is however recommended that a precautionary approach be undertaken and where possible 20m APZ's be installed around any proposed buildings. Assuming that the majority of vegetation will be removed from within the site, APZ's will apply to the southern boundary of the site that directly adjoins vegetation. Internal setbacks are unlikely to be required on the northern, eastern and western boundaries due to the presence of John Renshaw Drive and a transmission line easement.

Vegetation occurs immediately to the south and west of the proposed development site. The vegetation assemblage occurring on these lands is consistent with 'Forest' in accordance with PBP 2006.

In summary, the following key design recommendations have been generated to enable the proposed development to meet with PBP 2006:

- 20m Asset Protection Zones (APZs) are recommended between the proposed industrial development and the Open Forest to the South and East of the site. These will be established within the site.
- To the west of the site a cleared power easement occurs, 60m fuel free zone. Therefore, no APZs need to be established in this direction.
- To the north John Renshaw Drive occurs, a 20m fuel free zone. Therefore, no APZs need to be established in this direction.
- An APZ of 20m will need to be established abutting the watercourse and associated riparian zone.
- Any vegetation within the subject site should be managed in accordance with specifications for an IPA as listed in Section 4.1.

In conclusion, should the recommendations above be duly considered and incorporated, the fire hazard present should be reduced to a level considered necessary to provide an adequate level of protection to life and property of the study area.

The assessment and recommendations contained within this report are based on Industrial Development, inclusion of residential developments or developments captured under Special Fire Protection Purposes will require further assessment to establish appropriate protection measures as per PBP (2006).

## Terms & Abbreviations

Abbreviation	Meaning
APZ	Asset Protection Zone
AS2419.1-2005	Australian Standard – Fire Hydrant Installations
AS3959-2009	Australian Standard – Construction of Buildings in Bush Fire Prone Areas
BCA	Building Code of Australia
BFPA	Bushfire Prone Area
BFPL	Bushfire Prone Land
BFPLM	Bushfire Prone Land Map
BFPA	Bushfire Prone Areas
BFPB	Bushfire Protection Measures
Coal & Allied	Coal & Allied Industries Limited
Conservation OR Offset Lands	Land proposed for dedication to NSW Government
Development Estate	Proposed Development Lands
DECCW	Department of Environment, Climate Change and Water
DGEAR's	Director General's Environmental Assessment Requirements
DoP	NSW Department of Planning
EA	Environmental Assessment
EAR	Ecological Assessment Report
EMP	Environmental Management Plan
EPA Act	<i>NSW Environmental Planning and Assessment Act 1979</i>
ha	hectare
IPA	Inner Protection Area
LGA	Local Government Area
LHRS	Lower Hunter Regional Strategy
LMCC	Lake Macquarie City Council
NSWG	NSW Government
OPA	Outer Protection Area
PBP	Planning for Bushfire Protection 2006
RF Amendment Regulation	Rural Fire Amendment Regulation 2007
RPS	RPS Australia East Pty Ltd
SSS	State Significant Site

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# I Introduction

RPS has been engaged by Coal & Allied to undertake a Bushfire Threat Assessment (BTA) has been undertaken at a site within Lot 30 of DP 870411, within Newcastle LGA. The Major Project Application seeks development consent for a Concept Plan to allow the development of employment lands at Black Hill. The use of the Black Hill site as 'employment lands' is for a range of employment generating activities, including light industrial; warehouse and distribution centre; depots; freight transport facilities; truck depot; neighbourhood shops; office premises; information and education facilities; food and drink premises; hotel accommodation; childcare centre and petrol stations.

The main landuse will be for light industrial and warehouse, this type of development is classified as Industrial development. Industrial development is not captured under Section 79BA of the *Environmental Planning and Assessment Act 1979 (EP&A Act)* or Section 100B of the *Rural Fires Acts 1997 (RFS Act 1997)*. As such it will not require referral or consultation with the Rural Fire Service (RFS). Additionally, the guidelines for residential development, documented within *Planning for Bushfire Protection* (Rural Fire Service 2001), do not apply.

The assessment and recommendations contained within this report are based on Industrial Development, inclusion of residential developments or developments captured under Special Fire Protection Purposes will require further assessment to establish appropriate protection measures as per PBP (2006).

However, Council should consider bushfire as a hazard in any assessment under section 79C of the *EP&A Act 1979*. Section 79C (1) states:

*In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application*

- *the likely impacts of the development; and*
- *the suitability of a site for development.*

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, 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 development estate at the time of the site inspection (June 2007 – July 2008). The aim of PBP is to use the NSW development assessment system to provide for the protection of human life (including fire-fighters) and to minimise impacts on property from the threat of bush fire, while having due regard to development potential, on site amenity and protection for the environment.



More specifically, the objectives are to:

- Afford occupants of any building adequate protection from exposure to a bush fire;
- Provide for a defensible space to be located around buildings;
- Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;
- Ensure that safe operational access and egress for emergency service personnel and residents is available;
- Provide for ongoing management and maintenance of bush fire protection measures, including fuel loads in the asset protection zone (APZ); and
- Ensure that utility services are adequate to meet the needs of fire fighters (and others assisting in bush fire fighting).

In circumstances where the aim and objectives as detailed are not met, then the construction requirements for bushfire protection will need to be considered. Some of the proposed future uses for the site will require referral to Rural Fire Services at DA stage. Child care or a hotel/motel are defined as special fire protection purposes and as such will need to be assessed under Planning for Bushfire Protection 2006 (NSW Rural Fire Service, 2006) (hereafter referred to as 'PBP 2006').

In order to determine whether the proposed development is bushfire-prone, and if so, which setbacks and other relevant Bush Fire Protection Measures (BFPM) will be appropriate, this assessment adheres to the methodology and procedures outlined in PBP 2006.

## 1.1 Description of the Proposal

It is proposed that the entire Coal & Allied owned Black Hill and Tank Paddock sites be rezoned/listed as a 'State Significant Site' (SSS) in Schedule 3 of State Environmental Planning Policy (Major Development). A draft Schedule 3 listing will be prepared with the Concept Plan Application.

The development and conservation of the Coal & Allied land holdings, has been collectively classified into 'Southern Lands' and 'Northern Lands'. The Northern Lands encompass the Black Hill and Minmi Link Road Development Estates and the Tank Paddock and Stockrington Conservation Estates. Refer to Figure 1-1 and Figure 1-2.

The Concept Plan will apply to the entire 183ha Black Hill and approx 545ha Stockrington/Tank Paddock conservation sites. The key parameters for the proposed development of the sites are as follows:

- Dedication of 545ha of conservation land to the New South Wales Government (NSWG) that is identified in the Lower Hunter Regional Strategy and Lower Hunter Regional Conservation Plan, comprising 100% of the Tank Paddock site.
- Use of the 183ha Black Hill site as 'employment lands' for a range of employment generating activities.

- Indicative development staging. The number of lots and extent of staging for release areas will be largely dictated by the service infrastructure requirements as well as responding to market forces.
- The provision of associated infrastructure.

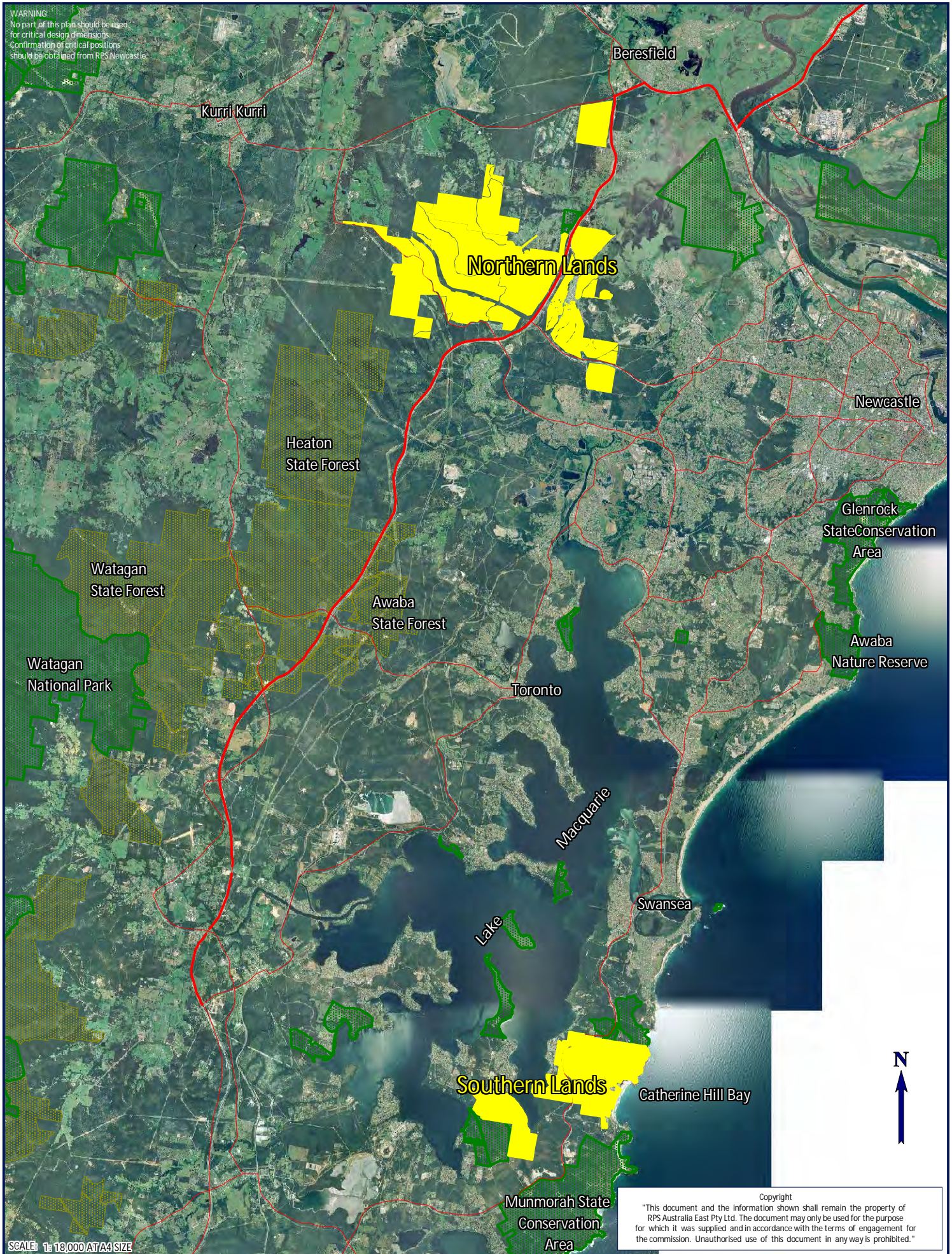
Approval will not be sought under the Concept Plan for a specific lot layout. An indicative super-lot layout will be prepared, which will indicate how subdivision could be achieved that will enable a range of industrial and ancillary activities to be undertaken.

An existing mining consent under the Black Hill site will defer development on the site until post June 2013. Accordingly, a detailed built form layout has not been prepared at this stage. Approval is not sought under the Concept Plan for subdivision or for individual buildings on the site. Urban Design Guidelines will be prepared to inform the Concept Plan in respect of urban form, built form, open space and landscape, access and movement and visual impact for the site.

It is proposed to dedicate land for conservation purposes as part of the Major Project Application via a Voluntary Planning Agreement (VPA) between Coal & Allied and the NSWG in accordance with s.93F of the Environmental Planning & Assessment Act, 1979 (EP&A Act).

A Concept Plan has been prepared for Black Hill which will enable key site parameters associated with land use, infrastructure delivery and timing, and environmental conservation to be resolved up front, with subsequent detailed stages being submitted for approval progressively. Refer to Figure 1-3.





**TITLE:** FIGURE 1-1 COAL & ALLIED SURPLUS LANDS

**LOCATION:** HUNTER REGION

**DATUM:** N/A  
**PROJECTION:** MGA ZONE 56 (GDA 94)

**DATE:** 7/02/2011  
**PURPOSE:** EAR

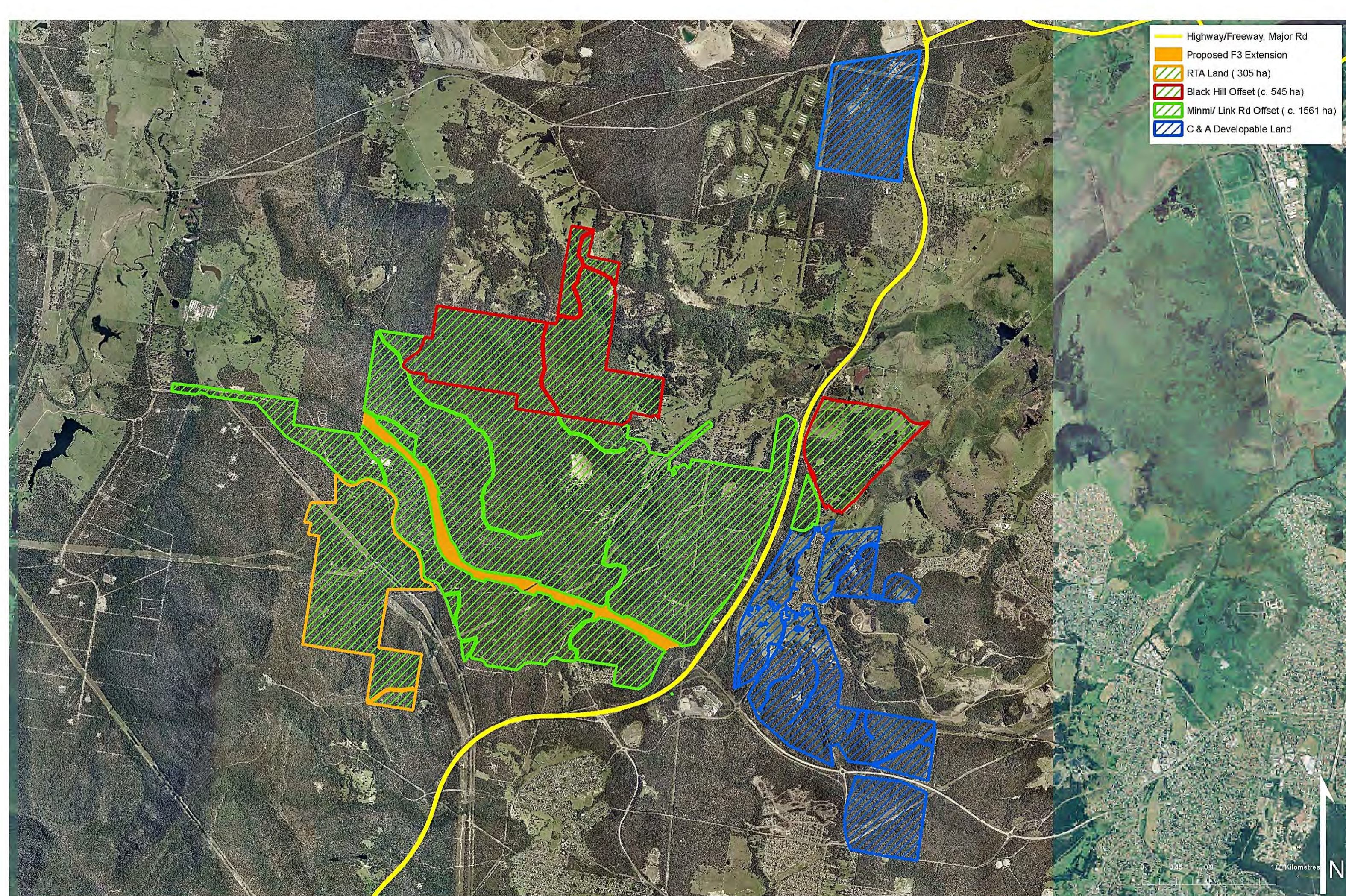
**LAYOUT REF:** J:\UOBS\24k\24530 Hunter Valley\  
**VERSION (PLAN BY):** C (A.P.-M.D)

**CLIENT:** COAL & ALLIED INDUSTRIES PTY LTD  
**JOB REF:** 24530-2

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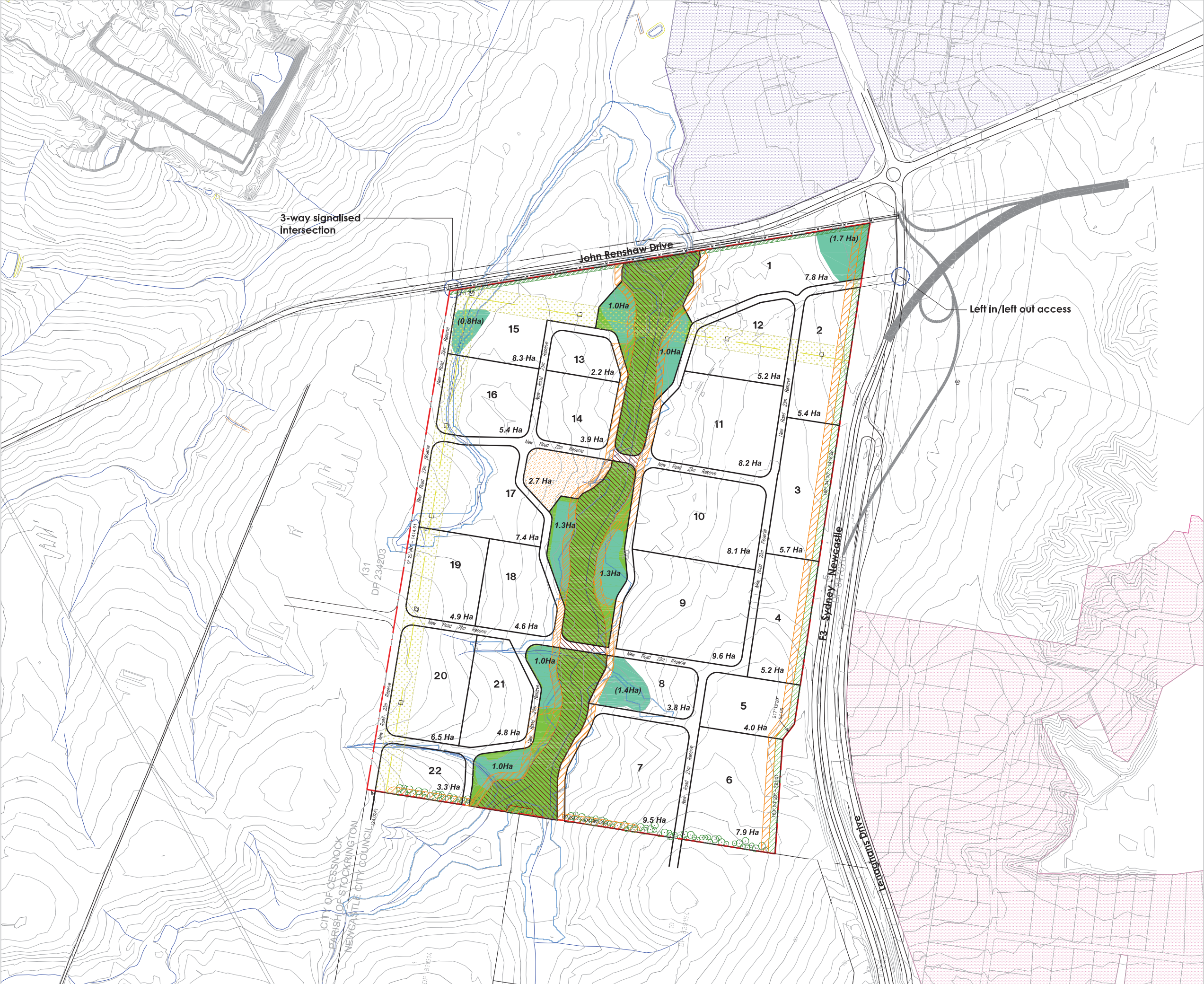
**RPS**





NORTHERN AREA- FINAL DEVELOPMENT AND CONSERVATION AREAS





- LEGEND**
- Site Boundary
  - Existing Creek Line
  - Existing Hunter Water Pipeline
  - Existing Residential
  - Existing Industrial
  - Indicative Stanchion Locations
  - Proposed Powerline Easement
  - Proposed Detention Basin
  - Indicative Proposed Riparian Zone
  - Indicative Proposed APZ - 20m
  - Proposed 20m wide Green Buffer Zone (as required under Newcastle - Lake Macquarie Western Corridor Planning Strategy)
  - Indicative Proposed F3 Freeway - Raymond Terrace Interchange
  - Proposed Indicative Site Entries
  - Proposed Visual Buffer
  - Proposed 10m wide Visual Buffer to John Renshaw Drive.
  - 100 Year ARI
  - Support Facilities
  - Public Open Space

**Land Budget**  
26ha Proposed Public Open Space  
157ha Developable Land incl. Lots, Road, Easements, Buffers, APZ's, Detention basins



## 1.2 Scope and Purpose

The scope and purpose of this BTA is to review the overall bushfire threat to the development estate and to review the capability of the development estate to provide a safe environment. This assessment will include information on ability of the development estate to comply with the requirements of PBP (RFS, 2006).

- assessment of all vegetation on and within 140 metres of the site boundary;
- assessment of the effective slope on site and to a distance of 100m;
- Adequacy of public roads in the vicinity to handle increased traffic in a bushfire emergency;
- Recommendations for appropriate setback (APZ) distances from the identified bushfire hazards;
- Information on water supply for fire fighting purposes; and
- Review of the Concept Plan for the development estate

At the state level, the proposal is to be assessed pursuant to Part 3A of the EPA Act. To this end, in August 2010, the DGEARs were issued for the site (Appendix 1).

The assessment requirements for bushfire investigations required under the DGEARs are:

- Provide an assessment against the current version of Planning for Bush Fire Protection 2006 and identify the ongoing management arrangements of proposed Asset Protection Zones (APZ), including negotiation with relevant agencies where APZs are proposed on land proposed to be transferred to public ownership.

## 1.3 Development Estate Particulars

**Locality** – The development estate occurs west of the Sydney to Newcastle F3 freeway and south of John Renshaw Drive. The site is approximately 1.5km to the south west of the township of Beresfield and 3km to the west of Minmi. East Maitland lies over 7km to the north with an open cut coal mine operated by Donaldson Coal located approximately 1km to the north-west.

**LGA** – Newcastle City Council

**Site Title(s) Entire Land Holdings** – Lot 30 DP 870411

**Area** – The site is 183ha of which all is proposed for industrial development.

**Zoning** – Zone 7 (c) Environmental Investigation.

**Bushfire Prone Land Zoning** - Category 1 & 2 (Newcastle City Council). Refer to Figure 1-4.

**Boundaries** – The site is bounded to the east by the Sydney-Newcastle F3 Freeway and to the north by John Renshaw Drive. To the west is a chicken farm with a horse riding school located to the south of the property.

**Current Land Use** – The north eastern portion of the site is currently occupied by Boral Asphalt for the production of bitumen. An electricity easement runs in a north–south direction along the western boundary with another easement running east–west direction in the northern section of the site. The remainder of the site is represented by natural bushland communities.

**Topography** – The site is situated on flat to gently sloping hills which drain into Viney Creek. This creek is situated within the centre of the site and drains to the north and eventually discharges into Woodberry Swamp. The soils of the site are composed of the residual Beresfield soil landscape (Matthei, 1995). The site is underlain by Permian Tomago Coal Measures.



# LEGEND

- Vegetation Category 1
- Vegetation Category 2
- Vegetation Buffer - 100 metre and 30 metre

## Newcastle City Council Bush Fire Prone Land Mapping

Map 1

Disclaimer: The Newcastle Bush Fire Prone Land Mapping is a map of the City of Newcastle and is not a guarantee of fire risk. It is a map of the City of Newcastle and is not a guarantee of fire risk. It is a map of the City of Newcastle and is not a guarantee of fire risk.



NORTH  
Scale: 1:10000



## 1.4 Legislative Requirements

### **Environmental Planning and Assessment Act 1979**

This report is specifically aimed at addressing the proposed development in terms of the threat from bushfire under the Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act). Particularly with regard to the following:

- Section 79C(1) of the EPA Act 1979

In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

the likely impacts of the development; and  
the suitability of a site for development.

### **Rural Fires Act 1997 (Amended)**

Section 63 (1) and 63 (2) require public authorities and owners / occupiers of land to take all practicable steps to prevent the occurrence of bushfires on, and to minimise the danger of spread of bushfires on or from that land.

### **Planning for Bushfire Protection 2006 (PBP) (NSW RFS, 2006)**

PBP is a joint publication prepared by Planning and Environment Services, NSW Rural Fire Service in co-operation with the Department of Planning. This document provides bushfire protection measures for residential development, such as minimum width setbacks, and landscaping. These measures are provided as part of a strategy to address bushfire threat, with the aim of reducing risk to life and property.

This substantially revised 2006 edition of Planning for Bush Fire Protection 2006 is intended for use by councils, town planners, NSW fire authorities, developers, planning and bush fire consultants, surveyors, and building practitioners (including accredited certifiers). The new document is more user friendly and incorporates clearer legislative provisions and performance criteria, together with more options for achieving compliance when building in a bush fire prone area.

Planning for Bush Fire Protection 2006 provides the necessary planning framework for developments in rural and urban areas close to land likely to be affected by bush fire. It is also applicable to the subdivision of land for residential and rural-residential purposes and those developments, which are considered a special fire protection purpose.

PBP expands the considerations for infill developments - a dwelling within an existing allotment - and for the first time establishes the bush fire planning objectives for industrial, commercial and warehousing types of development.

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The general principles underlying Planning for Bush Fire Protection 2006 are:

- protection measures are governed by the degree of threat posed to a development;
- a minimum setback from a hazard is always required, i.e. a defensible space;
- the greater the setback from the hazard, the lower the subsequent bush fire protection construction standards required;
- the smaller the interface a development has fronting the bush fire threat, the less the opportunity for bush fire to threaten the development;
- bush fire protection measures are contained within the 'overall' development and not on adjoining lands, other than in exceptional circumstances and
- no development in a bush fire prone area can be guaranteed to be entirely safe from bush fires.

## 2 Vegetation Assessment

The vegetation in and around the development estate boundaries, to a distance of 140m, has been assessed in accordance with PBP 2006. This assessment has been made via a combination of aerial photo interpretation and ground truthing exercises.

The vegetation communities were delineated using the following regional vegetation community mapping package

- Lower Hunter and Central Coast Regional Biodiversity Strategy (NPWS 2000; House 2002);

Three vegetation communities were identified within the development estate and within 140m of the development estate as follows;

1. Alluvial Tall Moist Forest
2. Coastal Foothills Spotted Gum – Ironbark Forest
3. Lower Hunter Spotted Gum – Ironbark Forest

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 within PBP (RFS, 2006). Refer to Table 2-1 below. The vegetation type adjacent to the proposed development estate in all directions is Open Forest (Refer to Figure 2-1). Refer to Appendix 2 for photographs of the vegetation formations

**Table 2-1: Vegetation Classification**

<b>Vegetation Community</b>	<b>Classification of Vegetation Formations</b>
Alluvial Tall Moist Forest	<b>Open Forest</b>
Coastal Foothills Spotted Gum – Ironbark Forest	<b>Open Forest</b>
Lower Hunter Spotted Gum – Ironbark Forest	<b>Open Forest</b>

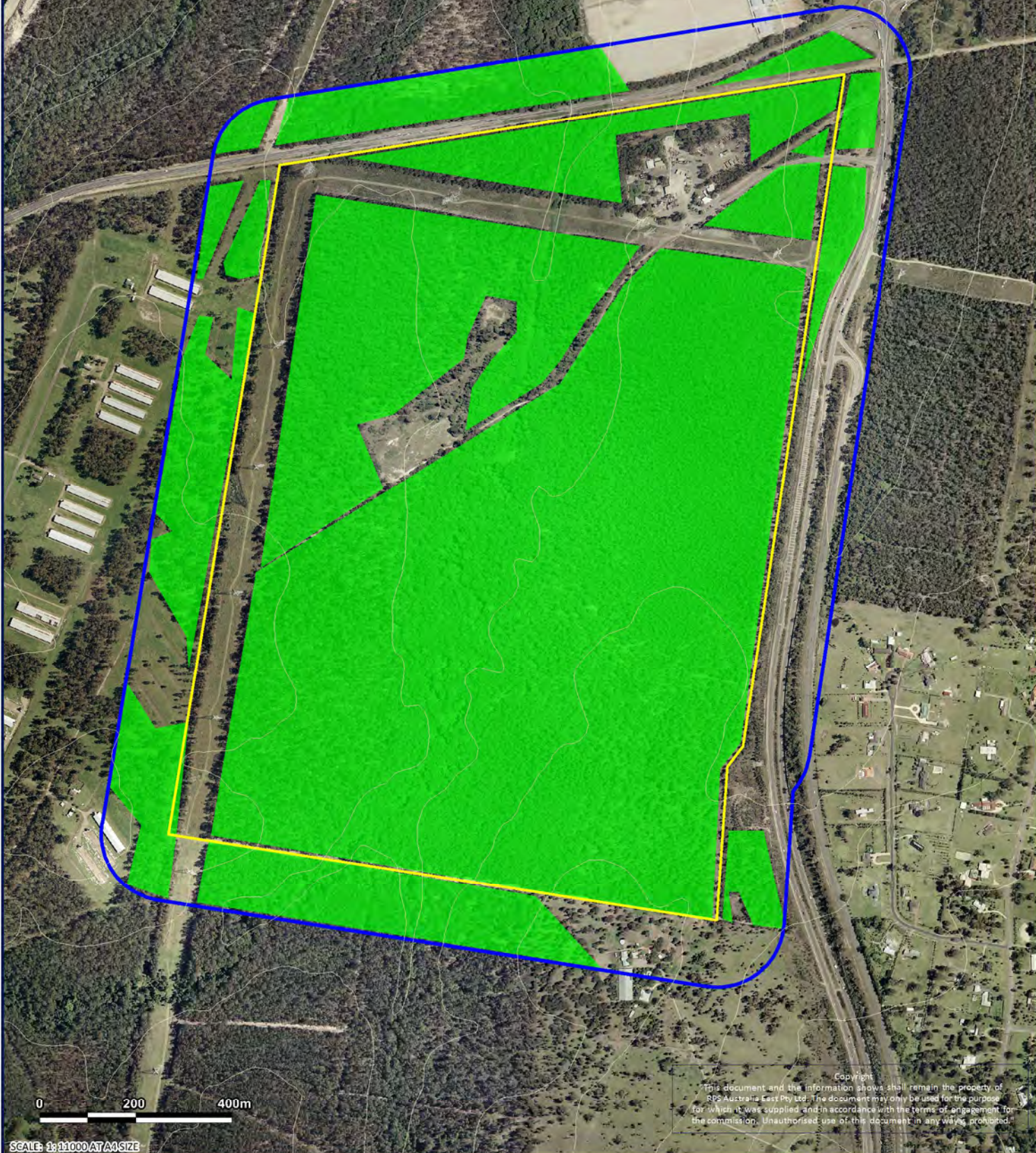
Note: For the purposes of this BTA, it has been assumed that vegetation within the development estate will be removed or managed as an APZ (with the exception of drainage lines / creeklines) as per the Concept Plan (Figure 1-3).



**WARNING**  
 No part of this plan should be used for critical design dimensions. Confirmation of critical positions should be obtained from RPS Newcastle.  
 Note that this Vegetation Community Map depicts clearly defined boundaries between vegetation communities that are the product of individual interpretation and are not distinguished by clearly defined boundaries on the ground. Therefore, this map should only be treated as an indication of approximate peripheries between delineated vegetation communities. Caution should therefore be exercised when using this data for purposes requiring high levels of accuracy. Furthermore, no account for intergrading areas between delineated vegetation communities has been made.

# LEGEND

- Development Estate
- 140m Buffer
- Open Forest



TITLE: FIGURE 2-1 VEGETATION  
 WITHIN 140M OF THE  
 DEVELOPMENT ESTATE

LOCATION: BLACK HILL

DATUM: N/A  
 PROJECTION: MGA ZONE 56 (GDA 94)

DATE: 19/10/2010  
 PURPOSE: BTA

LAYOUT REF: Bushfire Northern Lands (B/L) 24530-2  
 VERSION (PLAN BY): B (A.P.M.D-N.W)

CLIENT: Coal & Allied Industries Ltd  
 JOB REF: 24530-2

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### 3 Slope Assessment

In accordance with PBP (2006), an assessment of the slope throughout the development estate and for 100m around was undertaken to identify both the average slope and by identifying the maximum slopes present. These values help determine the level of gradient which will most significantly influence fire behaviour on the development estate.

Elevation across the development estate ranges from 30AHD in the south east and western corner of the development estate to 10 AHD in the middle where the development estate slopes into Viney Creek. The slope of vegetation surrounding the development estate to 100m is documented in the below Table 3 –1.

**Table 3-1: Slope Class Assessment**

Direction of vegetation from development estate	Slope classes
North	Cross-slope
South	Cross-slope
East	Cross-slope
West	Cross-slope

## 4 Determining Appropriate Setbacks

The proposed development is for employment lands; this type of development is classified as Industrial development. With buildings classified within this type of development as Class 5 - 8 within the BCA. Therefore, the provisions of PBP 2006 do not strictly apply. The site is however within an area that is classified as Bushfire Prone, and the surrounding vegetation represents a potential threat to the proposed development.

As a precautionary approach 20m APZ's should be installed around the proposed industrial development (Refer to Figure 4-1). This 20m setback should be maintained in accordance with the specifications for an IPA as detailed in Section 4.1 below. The proposed 20m APZ will be established within the site itself. The cleared easement running along the western boundary is a 60m fuel free zone and therefore no APZ will be required.

The John Renshaw Drive to the north of the site, is a 20m Fuel Free Zone and therefore, no APZs need to be established within the site from these directions.

According to the *Water Management Act, 2000* where there is a defined channel where water flows intermittently, the required riparian corridor should be maintained in a natural state and thus APZs should be established outside this zone.

### 4.1 Requirements of an IPA

The IPA ensures that the presence of fuels are minimised close to a development, thereby minimising the impact of direct flame contact and radiant heat. The performance of the IPA must be such that:

- there is minimal fine fuel at ground level which could be set alight by a bushfire; and
- any vegetation in the IPA does not provide a path for the transfer of fire to the development – that is, the fuels are discontinuous.

The presence of a few shrubs or trees in the IPA is acceptable provided that they:

- do not touch or overhang any buildings;
- are well spread out and do not form a continuous canopy;
- are not species that retain dead material or deposit excessive quantities of ground fuel in a short period or in a danger period; and
- are located far enough away from any building so that they will not ignite the dwelling by direct flame contact or radiant heat emission.

Woodpiles, wooden sheds, combustible material storage areas, large areas / quantities of garden mulch, stacked flammable building materials etc. should not be permitted in the IPA, although the IPA can include lawns, discontinuous gardens, fire-trails, perimeter roads, access roads and driveways.

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## 4.2 Outer Protection Area (OPA)

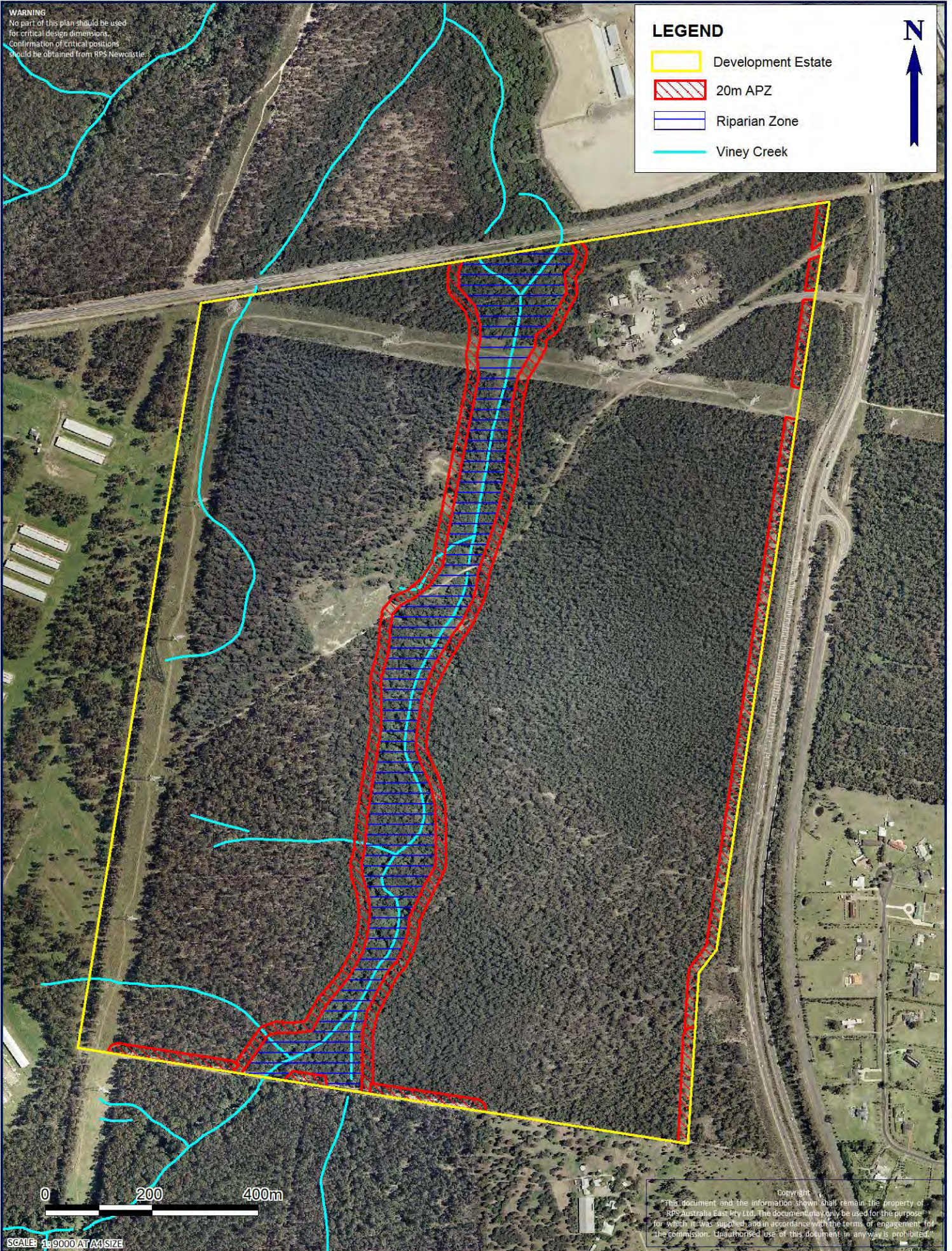
The OPA is located adjacent to the hazard. Within the OPA any trees and shrubs should be maintained in a manner such that the vegetation is not continuous. Fine fuel loadings should be kept to a level where the fire intensity expected will not impact on adjacent developments.



**WARNING**  
No part of this plan should be used  
for critical design dimensions.  
Confirmation of critical positions  
should be obtained from RPS Newcastle

# **LEGEND**

- Development Estate
- 20m APZ
- Riparian Zone
- Viney Creek



TITLE: FIGURE 4-1 APZ MAP

LOCATION: BLACK HILL

DATUM: N/A  
PROJECTION: MGA ZONE 56 (GDA 94)

DATE: 19/10/2010  
PURPOSE: BTA

LAYOUT REF: J:\0085\24\24530 Hunter Valley\2010 Works\Draft...  
BUSHFIRE\Northern Lands\BH\24530-2  
Figure 4-1 APZ Map BH B A4  
VERSION (PLAN BY): B (A.P-M.D-N-W)

CLIENT: Coal & Allied Industries Ltd  
JOB REF: 24530-2

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**RPS**



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## 5 Water Supply

Associated with any kind of development upon the land, it is expected that water mains will be extended into the development estate as per Cardno Concept Plan Infrastructure Report. Provision of access to this supply should be provided for fire-crews in the form of readily accessible and easily located fire hydrants. Fire hydrant spacing, sizing and pressure should 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. Hydrants are not to be located within any road carriageway.

## 6 Access / Egress (Evacuation)

In the event of a serious bushfire threat in the future to possible development, it will be essential to ensure that adequate evacuation routes are provided and that access to all areas of retained adjacent vegetation (both on-site and adjacent) is feasible. Therefore it is recommended that multiple access / egress routes be provided for any proposed development upon this site, and that all internal roads be designed to the specifications outlined below during the subsequent design stages.

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

- Public roads are two-wheel drive, all weather roads;
- Urban perimeter roads are two-way, that is, at least two traffic lane widths (carriageway eight metres minimum kerb to kerb);
- The perimeter road is linked to the internal road system at an interval of no greater than 500 metres in urban areas;
- Public roads have a cross-fall not exceeding 3°;
- All roads are through roads. Where dead end roads are unavoidable, dead ends are both more than 200 metres in length and incorporates minimum 12 metres outer radius turning circle and are clearly signposted as a dead end;
- Curves of roads (other than perimeter roads) are a minimum inner radius of six metres;
- Maximum grades for sealed roads do not exceed 15° and an average grade of not more than 10°;
- There is a minimum vertical clearance to a height of four metres above the road at all times;
- The capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles (15 tonnes for areas with reticulated water, 28 tonnes for all other areas);
- Public roads greater than 6.5 metres wide to locate hydrants outside of parking reserves;
- Public roads between 6.5m and 8 metres wide are No Parking on one side with the hydrants located on this side;
- Parking bays are a minimum of 2.6 metres wide from kerb edge to road pavement; and
- Public roads directly interfacing the bush fire hazard vegetation provide roll top kerbing to the hazard side of the road.

A perimeter road exists to the east of the Black Hill Development site in the form of the Sydney to Newcastle freeway and to the north in the form of John Renshaw Drive. Allotments situated in the southern section of the development site will require a high level of access, as per the above, to allow for defendable space between the allotments and vegetation to the south. This should be formally addressed at a DA level.

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## 7 Fire Fighting Capability

Any fire within the development estate would be attended in the first instance by the Minmi NSW Fire Brigade.

Consideration must be given to the provision of adequate turning circles for any fire tanker that services the development estate.

To facilitate quick and efficient action by the Fire Brigade upon arrival, it is recommended that all necessary connections / pumps etc be clearly marked and visible, and in good working order.

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## 8 Building Design and Construction

The Building Code of Australia (BCA) does not provide for any bush fire specific performance requirements and as such AS 3959 does not apply as a set of 'deemed to satisfy' provisions. The general fire safety construction provisions are taken as acceptable solutions, but the aim and objectives of PBP apply in relation to other matters such as access, water and services, emergency planning and landscaping/ vegetation management. These matters have been addressed in this report.

## 9 Fuel Management

Given that fuel reduction resulting from initial clearing and development of the site will greatly reduce the risk to a large proportion of the site, careful thought must be given to the type and physical location of any proposed site landscaping. Inappropriately selected and positioned vegetation has the potential to 'replace' the previously removed fuel load.

Once an appropriate APZ to the satisfaction of the RFS has been created, ongoing maintenance is required to ensure that re-growth and fuel load replacement does not occur.

Bearing in mind the desired aesthetic and environment sought by site landscaping, some basic principles have been recommended to help minimise the chance of such works contributing to the potential hazard on site.

Whilst it is recognised that fire-retardant plant species are not always the most aesthetically pleasing choice for site landscaping, the need for adequate protection of life and property requires that a suitable balance between visual and safety concerns be considered. The areas of the development estate occurring within the extent of the APZ should avoid landscaping with highly flammable species and dense, connected plantings of species.

It is reiterated that it is essential that any landscaped areas and surrounds are subject to ongoing fuel management and reduction to ensure that fine fuels do not build up.

Ongoing management of APZs will be the role and responsibility of the end user, depending on location this may be Council and/ or the land owner. Where APZs adjoin riparian areas, buffers or council reserves, these are to be managed by Newcastle City Council. Any APZs occurring within private land holdings are to be managed and maintained by the land holder.

## 10 Conclusion and Recommendations

It is clear from this investigation and assessment that the Black Hill Development constitutes BFPL. Therefore, the proposed future development estate will have to be carried out in accordance with the specifications contained within PBP 2006 as assessed and presented within this report.

If the recommendations contained within this report are duly considered and incorporated, it is considered that the fire hazard present is containable to a level considered necessary to provide an adequate level of protection to life and property on the development estate.

In summary, the following key recommendations have been generated to enable the development estate to meet the relevant legislative requirements:

- 20m Asset Protection Zones (APZs) are recommended between the proposed Industrial buildings and the Open Forest to the South and East of the site. These will be established within the site.
- To the west of the site a cleared easement occurs at a width of approximately 60m of fuel free zone. Therefore, no APZs need to be established in this direction.
- To the north John Renshaw Drive occurs, a 20m fuel free zone. Therefore, no APZs need to be established in this direction.
- An APZ of 20m will need to be established abutting the watercourse and associated riparian zone.
- Any vegetation within the subject site should be managed in accordance with specifications for an IPA as listed in Section 4.1
- The assessment and recommendations contained within this report are based on Industrial Development, inclusion of residential developments or developments captured under Special Fire Protection Purposes will require further assessment to establish appropriate protection measures as per PBP (2006).

In conclusion, should the recommendations above be duly considered and incorporated, the fire hazard present should be reduced to a level considered necessary to provide an adequate level of protection to life and property of the study area.

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

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## Appendix I

### DGEAR's



**CONCEPT PLAN – BLACK HILL – MP10\_0093**  
**ENVIRONMENTAL ASSESSMENT REQUIREMENTS UNDER PART 3A OF THE**  
**ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979**

<b>Project Description</b>	Proposed concept plan for employment lands at Black Hill located in the Newcastle Local Government Area
<b>Site</b>	Black Hill (Lot 30 DP 870411) and Tank Paddock (Lot 1 DP 1007615).
<b>Proponent</b>	Coal and Allied Industries Ltd.
<b>Date of Issue</b>	19 August 2010
<b>Date of Expiration</b>	19 August 2012
<b>General requirements</b>	<p>The Environmental Assessment (EA) for the <b>Concept Plan</b> must include:</p> <ol style="list-style-type: none"> <li>(1) an executive summary;</li> <li>(2) a description of the project including: <ol style="list-style-type: none"> <li>(a) need for the project;</li> <li>(b) alternatives considered;</li> <li>(c) various components and staging of the project; and</li> <li>(d) plan indicating the footprint of the proposed work at A3 size,</li> </ol> </li> <li>(3) a thorough site analysis and description of the existing environment;</li> <li>(4) justification of the project, taking into consideration the environmental impacts of the proposal, the suitability of the site and whether or not the project is in the public interest;</li> <li>(5) a consideration of all relevant statutory and non-statutory provisions and identification of any non-compliance with such provisions (especially the <i>SEPP (Major Development) 2005</i>, <i>SEPP 33 – Hazardous and Offensive Development</i>, <i>SEPP 44 – Koala habitat Protection</i>, <i>SEPP 55 – Remediation of Land</i>, <i>SEPP (Infrastructure) 2007</i>, <i>SEPP (Mining, Petroleum Production &amp; Extractive Industries)</i>, <i>Newcastle LEP 2003</i>, <i>Lower Hunter Regional Strategy 2006</i>, and <i>Lower Hunter Regional Conservation Plan (DECCW, 2009)</i>).</li> <li>(6) a draft Statement of Commitments outlining commitments to public benefits including State and Local infrastructure provision (or associated contributions), environmental management, mitigation and monitoring measures (especially in relation to flooding, biodiversity and stormwater) to be established on site and clear identification of timing and who is responsible for these measures;</li> <li>(7) a signed statement from the author of the EA certifying that the information contained in the report is neither false nor misleading; and</li> <li>(8) A report from a quantity surveyor identifying the capital investment value of the Concept Plan including the estimated cost of future development.</li> </ol>
<b>Key Assessment Requirements</b>	<p><b>Urban design, development controls and land uses</b></p> <ol style="list-style-type: none"> <li>(1) Describe future land uses within the employment lands and outline any proposed development controls for the site based on a comprehensive site analysis of constraints and opportunities. The resulting development controls should satisfy the objects of the <i>Environmental Planning and Assessment Act 1979</i> and the aims and objectives of relevant planning instruments. Consideration should also be given to development controls outlined in Council's existing and draft Local Environmental Plans and Development Control Plans;</li> <li>(2) Assess how the development controls will complement surrounding existing land uses and any conservational lands for dedication;</li> <li>(3) Assess the visual impact of the proposal, particularly from the F3 Freeway, John Renshaw Drive and adjoining employment lands;</li> <li>(4) Consider <i>Freight Hub Hunter Part 1- Executive Summary Report, October 2008</i> (NSW Department of Premier and Cabinet) within the context of the proposed concept plan;</li> <li>(5) Provide justification for any proposed non-industrial land uses, including how the proposed uses would be compatible with employment/industrial land use</li> </ol>

zones and would not constitute a commercial/retail stand alone centre. Consideration should be given to the *Draft Centres Policy Planning for Retail and Commercial Development* (Department of Planning, April 2009); and

- (6) Address the principles of Crime Prevention through Environmental Design.

**Staging**

- (1) Prepare an outline of staging for the completion of the project and release of industrial land and timing for delivery for supporting infrastructure. This includes how the release of industrial land would align with proposed and future access arrangements to the site; and
- (2) Identify the extent, locations and timing of dedication of proposed conservation lands with commitments to managing ongoing management of edge effects and need for any buffer zones.
- (3) The staging of the proposed development and the timing of implementation of identified road network infrastructure upgrades;

**Biodiversity**

- (1) Provide an assessment on impacts on flora and fauna in accordance the with *draft Guidelines for Threatened Species Assessment (DEC, July 2005)*;
- (2) Consider the corridor values or connective importance of any vegetation on the site and the likely cumulative impacts of proposed development on biodiversity;
- (3) Describe the actions that would be taken to avoid or mitigate impacts on biodiversity or compensate for unavoidable impacts of the project on threatened species and their habitat. This should include an assessment on the effectiveness and reliability of the measures and any residual impacts after these measures are implemented; and
- (4) Demonstrate that biodiversity impacts can be appropriately offset in accordance with the NSW Government's policy for 'improvement or maintenance' of biodiversity values.

**Transport and Accessibility**

- (1) Detail and justify the site access arrangements for the site, including how the proposed development will proceed and alternatives to the proposed access onto the F3 Freeway.
- (2) Include a traffic study prepared in accordance with the *RTA Guide to Traffic Generating Developments*, which addresses:
  - (a) All relevant vehicular traffic routes and intersections for access to/from the subject area;
  - (b) Current traffic counts for all of the above traffic routes and intersections;
  - (c) Anticipated additional vehicular traffic generated from the proposed development and associated trip distribution on the road network;
  - (d) Consideration of the traffic impacts on existing and proposed intersections and the capacity of the local and classified road network to safely and efficiently cater for the additional vehicle traffic generated by the proposed development. The traffic impact shall also include the cumulative traffic impact of other proposed developments in the area;
  - (e) Details of the necessary road network infrastructure upgrades that are required to maintain existing levels of service on both the local and classified road network;
  - (f) Intersection analysis as well as a micro simulation model shall be submitted to determine the need for intersection and mid-block capacity upgrades, as well as ensure traffic signal co-ordination,
  - (g) Consideration of impacts on existing property access.
  - (h) Impact of Hunter Expressway and the proposed F3 to Raymond Terrace link;
  - (i) Impacts on regional road networks during construction and operation. Assessment should be based on expected level of employment generation;
  - (j) Traffic management and proposed access from the wider road network as well the opportunities and constraints of alternative vehicular access points;
  - (k) Measures to introduce and promote public transport usage and mode share including pedestrian and cycle access within and to the site that connects to all relevant transport services and key off-site locations, having regard to the NSW Planning Guidelines for Walking and Cycling (2004) and the NSW

- Bike Plan (2010); and
- (l) Road design to cater for heavy vehicles associated with freight movement.
- (3) Assess the proposal against the objectives of the Integrating Land Use and Transport Policy packages.

#### **Flooding, Stormwater and Water Quality Management**

- (1) Assess any potential impact of the proposed development on hydrology and hydrogeology of the site and adjacent areas in terms of impact on water balance and water quality (including groundwater) on any natural watercourse or groundwater source in keeping with the *Australian Guidelines for Water Quality Monitoring and Reporting (2000)*;
- (2) Identify drainage and stormwater management measures to be incorporated on the site, including riparian areas that respect creeks and the topography of the site, on site detention of stormwater, water sensitive urban design (WSUD), and drainage infrastructure;
- (3) Provide management arrangements for proposed stormwater infrastructure, and water quality and ecosystem health during construction and the life of the development, including the formation of buffer zones;
- (4) Develop suitable Flood Planning Levels for the development and demonstrate consistency with the *NSW Floodplain Development Manual: The management of flood liable land (2005)* and the *DECC Floodplain Risk Management Guideline – Practical Consideration of Climate Change (2007)*.

#### **Riparian Corridors**

- (1) Identify riparian corridors based on an assessment of the hydrology of the area, existing water courses and topography of the land and provide an assessment of how impacts on riparian corridors will be avoided, mitigated and managed. This should be undertaken with consideration to guidelines prepared by the former Department of Water and Energy (now the Office of Water); and
- (2) Location of all local bio-retention/detention basins are to be justified and assessed where these are not 'off-line' and outside the core riparian zone and an assessment of the construction works associated with the proposed precinct scale bio-retention/detention basin should be quantified and assessed.

#### **Ownership/Maintenance of Public Domain**

- (1) Provide details of proposed ownership and management arrangements (through negotiation with State and local government agencies) for riparian areas, roads, asset protection zones, etc.

#### **Soils, Contamination and Geotechnical**

- (1) Assess the capability of the land for the proposed development with regard to erosion potential, slope stability, salinity and the presence of potential and actual acid sulphate soils if any;
- (2) Provide an assessment of contamination in accordance with SEPP 55 and relevant DECCW guidelines if any contaminated soils are identified and likely to be disturbed, detail what actions, management and mitigation measures will be required; and
- (3) Identify the potential for subsidence, hazards associated with subterranean gases and other associated risks for development. Outline required actions, management and mitigation measures.

#### **Mining**

- (1) Identify the impacts of the development of the proposal and conservation offsets on the future recovery of resources of coal and coal-seam methane below the site and outline required actions, management and mitigation measures; and
- (2) Identify the potential for future mine subsidence which may cause tilts and strains, affect flooding and stormwater conveyance and damage any surface structures.

#### **Air Quality**

- (1) Assess the potential air quality impacts associated with the proposed development on the site; and

	<p>(2) Assess the odour and air quality impacts of the nearby existing development including the adjoining poultry farm, any proposed sewerage treatment plant on the site and in light of potential coal mining and coal-bed methane extraction on the subject land. The assessment must be consistent with the <i>Technical Framework Assessment and management of odour from stationary sources in NSW (DECC November 2006)</i> and the <i>Technical Notes Assessment and management of odour from stationary sources in NSW (DECC November 2006)</i>.</p> <p><b>Noise</b></p> <p>(1) Provide an assessment in accordance with <i>Environmental Criteria for Road Traffic Noise</i> (1999) and <i>Industrial Noise Policy</i> (2000). Outline how any impacts would be mitigated and/or managed; and</p> <p>(2) Consideration should also be given to the impact of external noise which may have an impact on the development proposed on the site.</p> <p><b>Heritage</b></p> <p>(1) Provide an assessment in accordance with the <i>Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC, 2005)</i> and measure to avoid, mitigate and/or manage any impacts during construction and operation.</p> <p><b>Bushfire Risk Assessment</b></p> <p>(1) Provide an assessment against the current version of <i>Planning for Bush Fire Protection 2006</i> and identify the ongoing management arrangements of proposed Asset Protection Zones (APZ), including negotiation with relevant agencies where APZs are proposed on land proposed to be transferred to public ownership.</p> <p><b>Sustainability</b></p> <p>(1) The EA should outline commitments to sustainability including water reuse, waste minimisation, the minimisation of energy use and car dependency etc.</p> <p><b>Developer contributions</b></p> <p>(1) Provide the likely scope of developer contributions between:</p> <ul style="list-style-type: none"> <li>(a) the Proponent and Newcastle City Council for local infrastructure; and</li> <li>(b) the Proponent and State Government agencies for the provision of State Infrastructure in accordance with Planning Circular PS 07-018 (Infrastructure Contributions).</li> </ul> <p><b>Utilities</b></p> <p>(1) Prepare a utilities infrastructure servicing report and plan for the site that demonstrates that the site can be adequately serviced in terms of water supply, sewerage services, stormwater management, gas, electricity, communication services and fire suppression facilities.</p>
<b>Consultation Requirements</b>	<p>During the preparation of the EA, the proponent must undertake an appropriate and justifiable level of consultation with relevant parties. If consultation has already been undertaken, this needs to be documented. Relevant agencies should include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• Newcastle City Council;</li> <li>• Industry and Investment NSW;</li> <li>• Department of Environment, Climate Change and Water;</li> <li>• NSW Office of Water</li> <li>• Roads and Traffic Authority;</li> <li>• Transport NSW;</li> <li>• Mine Subsidence Board;</li> <li>• Hunter-Central Rivers Catchment Management Authority;</li> <li>• Hunter Water;</li> <li>• Department of Environment, Water, Heritage and the Arts;</li> <li>• The Local Aboriginal Land Council;</li> <li>• Utility and infrastructure providers including the Ambulance Service of NSW, the Rural Fire Service and NSW Fire Brigades;</li> </ul>

	<ul style="list-style-type: none"><li>• AGL (SG) Operations Pty Limited (holder of Petroleum Exploration Licence 267); and</li><li>• Donaldson Coal Company Pty Ltd (holder of Exploration Licence EL 5497 and Mining Lease 1618).</li></ul>
<b>Deemed refusal period</b>	60 days

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## Appendix 2

### Black Hill Vegetation Formations



Cleared Easement – Managed Land





Lower Hunter Spotted Gum Ironbark Forest – Open Forest