



Bushfire Threat Assessment – Lower Hunter Lands

Catherine Hill Bay (Middle Camp)

Prepared by:

RPS

PO Box 428
Hamilton NSW 2303

T: 02 4940 4200

F: 02 4961 6794

E: newcastle@rpsgroup.com.au

W: rpsgroup.com.au

Prepared for:

Coal & Allied Industries Ltd

(REF: Coal & Allied-LHL-001)

Report No: 24530-1

Version/Date: Final, September 2010

Document Status

<i>Version</i>	<i>Purpose of Document</i>	<i>Orig</i>	<i>Review</i>	<i>Review Date</i>	<i>Format Review</i>	<i>Approval</i>	<i>Issue Date</i>
<i>Final</i>	<i>Final for Submission</i>	<i>SC/ MD</i>	<i>MD</i>	<i>8-10-10</i>	<i>JH 12-10-10</i>	<i>MD</i>	<i>12-10-10</i>

Disclaimers

This document is and shall remain the property of RPS. The document may only be used for the purposes for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised copying or use of this document in any form whatsoever is prohibited.

Executive Summary

INTRODUCTION

RPS Harper Somers O'Sullivan (RPS HSO) has been engaged by Coal & Allied Industries Limited (Coal & Allied) to undertake a Bushfire Threat Assessment (BTA) over land at Middle Camp on the Wallarah Peninsula. The Catherine Hill Bay area comprises two separate development estates (referred to in this report as Development Estates) that collectively encompass an area of 28.2ha within the Lake Macquarie LGA. The Development Estates and the Conservation Lands are defined in this report as 'Entire Land Holdings'.

This BTA report will assist in the concept planning phase for the site, taking into consideration the surrounding bushfire threats. This assessment will inform an Environmental Assessment (EA) submission and provides information on measures that will enable the development to comply with 'Planning for Bushfire Protection' (RFS, 2006) (hereafter referred to as 'PBP') and Australian Standard 3959 – Construction of Buildings in Bush Fire Prone Areas. This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to this proposal, and to outline the mitigative measures that would be required in accordance with the provisions of the *Environmental Planning and Assessment Amendment (Planning for Bush Fire Protection) Regulation 2007* and the *Rural Fires Amendment Regulation 2007 (RF Amendment Regulation, 2007)*. This assessment has been made based on the bushfire hazards in and adjacent to the development estates.

VEGETATION

The vegetation in and around the two development estates (being Parcel A and B), to a distance of 140m, has been assessed in accordance with PBP (RFS, 2006).

Development Estate A

Development Estate A consists of Open Forest in the northern, eastern and part of the southern section of the site. The remainder of the Development Estate has been cleared for residential development.

To the north, east and south of Development Estate Open Forest occurs. Open Forest also occurs to the west of the development estate beyond Flowers Drive.

Development Estate B

Development Estate B contains a mixture of Open Forest and managed land. The managed land is currently cleared land and is grazed by horses. Cleared land occurs to the north of the Development Estate followed by Open Forest. Open Forest occurs to the north, west and south of the Development Estate. Open Forest also occurs to the east of the Development Estate beyond Flowers Drive.

SLOPE

Development Estate A

The Open Forest to the north and east of Development Estate occurs either upslope or cross-slope. The Open Forest to the south of the Development Estate occurs cross-slope and the Open Forest to the west of the development estate occurs downslope.

Development Estate B

The Open Forest to the north of the Development Estate occurs cross-slope. To the south of the Development Estate the Open Forest occurs downslope. The Open Forest to the west of the Development Estate occur either upslope or cross-slope. The vegetation to the East of the Development Estate is cleared managed land and therefore is not considered a bushfire hazard.

ASSET PROTECTION ZONES

Development Estate A

Asset Protection Zone's (APZ's) from 20 metres to 35 metres will be required from vegetation external to the development estate. Assessment of the Concept Plan shows that the layout provides for the required APZ's within Development Estate A.

Development Estate B

APZ's from 20 metres to 500 metres will be required from vegetation external to the development estate. The Concept Plan indicates that proposed roadways provide a buffer between the adjacent vegetation and the development estate and vegetation to be retained within the site, including foreshore parks, riparian buffers and vegetation buffers. The proposed perimeter and public roads within the development estate are therefore likely to provide either the entire or majority of the required APZs, with the remainder of the APZ being able to be accommodated within the allotments if required.

WATER SUPPLY

Following any kind of development upon the land, it is expected that water mains will be extended into the site. 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. All above ground water and gas service pipes external to the building are metal, including and up to any taps.

ACCESS/EGRESS

The Concept Plan indicates that perimeter roads will be developed around Development Estate B. The perimeter roads comply with the design specifications in accordance with PBP (RFS, 2006). The exception is Development Estate A, where a perimeter road is not present along the eastern boundary. The presence of three east-west running culs-de-sac will enable adequate access to vegetation on the eastern boundary and provide multiple access points. The culs-de-sac are less than 200m in length and therefore comply with PBP (RFS, 2006).

All proposed internal public roads within the two Development Estates comply with the internal public road design specifications in accordance with PBP (RFS, 2006).

DWELLING DESIGN AND CONSTRUCTION

Assessment of the proposed Concept Plan in accordance with AS3959- 2009 Construction of Buildings in Bushfire-prone Areas (AS3959-2009) has indicated that future dwellings within the proposed allotments will be able to comply with this standard if the required APZs are established.

SUMMARY OF RECOMMENDATIONS

In summary, the following key recommendations have been incorporated into the Concept Plan for the development estate to enable the proposal to meet the relevant legislative requirements:

- APZ's from 20 metres to 50 metres will be required from vegetation external to the site. Perimeter roads have been implemented between bushfire hazards and future dwellings, these will form all or part of the required APZ's. Any remaining part of the APZ will be established within allotments if required.
- Any proposed development should be linked to mains pressure water supply and suitable hydrants clearly marked and provided for the purposes of bushfire protection. Fire hydrant spacing, sizing and pressure should comply with AS2419.1, 2005.
- Roads should be constructed in accordance with section 4.1.3 (1), PBP 2006 as outlined in section 6 of this report. Any lessening of these requirements will need a performance-based assessment to be undertaken.
- Any future dwelling within the proposed development estates should have due regard to the specific considerations given in the Building Code of Australia (BCA), which makes specific reference to the Australian Standard (AS3959 – 2009) construction of buildings in bushfire prone areas. Assessment of the concept plan in accordance with AS3959-2009 has shown that any future dwelling within the development estate will comply with the BCA.
- It is recommended that a Fuel Management Plan (FMP) be prepared for the development estate. This plan will detail the required strategies to create the required APZ's and management of these APZ's in such a manner as to preserve the natural and cultural features of the development estate, while reducing the risk of bushfire.

Terms & Abbreviations

Abbreviation	Meaning
APZ	Asset Protection Zone
AS2419.1-2005	Australian Standard – Fire Hydrant Installations
AS3959-1999	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
CRZ	Core Riparian Zone
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>
FMP	Fuel Management Plan
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

Contents

EXECUTIVE SUMMARY	I
TERMS & ABBREVIATIONS	IV
1 INTRODUCTION	1
1.1 Description of the Proposal	2
1.2 Scope and Purpose	8
1.3 Aims and Objectives	8
1.4 Development Estate Particulars	9
2 VEGETATION ASSESSMENT	11
3 SLOPE ASSESSMENT	14
3.1 Slope Classes	14
3.2 Slope by Degrees	16
4 ASSET PROTECTION ZONES	18
4.1 Definitions	18
4.1.1 APZs	18
4.1.2 Inner Protection Area (IPA)	18
4.1.3 Outer Protection Area (OPA)	19
4.2 Determining APZs	19
5 WATER SUPPLY	22
6 ACCESS / EGRESS (EVACUATION)	23
7 FIRE FIGHTING CAPABILITY	26
8 DWELLING DESIGN AND CONSTRUCTION	27
9 CONCLUSION AND RECOMMENDATIONS	31
10 BIBLIOGRAPHY	32

Figures

Figure 1-1: Coal & Allied Surplus Lands	4
Figure 1-2: Southern Lands	5
Figure 1-3: Concept Plan	6
Figure 1-4: Land Transfer Plan	7
Figure 1-5: Lake Macquarie LGA Bushfire Prone Land Map	10
Figure 2-1: Vegetation within 140m of the Development Estate	13
Figure 3-1: Slope Class Map	15
Figure 3-2: Slope Degree Map for Development Estates A & B	17
Figure 4-1: APZ Map	21

Tables

Table 2-1: Vegetation Classification	12
Table 3-1: Slope Class Assessment	14
Table 3-2: Slope Class Assessment	14
Table 3-3: Slope Degree Assessment for Development Estate A	16
Table 3-4: Slope Degree Assessment Development Estate B	16
Table 4-1: APZ Widths for Development Estate A	19
Table 4-2: APZ Widths for Development Estate B	20
Table 6-1: Minimum widths for fire fighting access of non-perimeter public roads	23
Table 8-1: Recommended Construction Standards for Development Estate A	29
Table 8-2: Recommended Construction Standards for Development Estate B	30

Appendices

APPENDIX 1

DGEAR's

APPENDIX 2

Vegetation Formations

I Introduction

RPS has been engaged by Coal & Allied Industries Limited (Coal & Allied) to undertake a Bushfire Threat Assessment (BTA) over land at Middle Camp; on the Wallarah Peninsula. The Catherine Hill Bay area comprises two separate development estates (referred to in this report as Development Estates) that collectively encompass an area of 28.2ha within the Lake Macquarie LGA (Figure 1-1). The Development Estates and the Conservation Lands are defined in this report as 'Entire Land Holdings'. The proposal is for residential subdivision and conservation land dedication. The proposal is to be assessed under Part 3A of the *Environmental Planning and Assessment Act 1979*.

This BTA report will assist in the concept planning phase for the site, taking into consideration the surrounding bushfire threats. This assessment will inform an Environmental Assessment (EA) submission and provides information on measures that will enable the development to comply with 'Planning for Bushfire Protection' (RFS, 2006) (hereafter referred to as 'PBP') and Australian Standard 3959 – Construction of Buildings in Bush Fire Prone Areas (BFPA).

This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to this proposal, and to outline the mitigative measures that would be required in accordance with the provisions of the *Environmental Planning and Assessment Amendment (Planning for Bush Fire Protection) Regulation 2007* and the *Rural Fires Amendment Regulation 2007 (RF Amendment Regulation, 2007)*. This assessment has been made based on the bushfire hazards in and adjacent to the development estate at the time of the site inspection (June 2007). 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 Catherine Hill Bay (Middle Camp) site 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 Southern Lands encompass the Catherine Hill Bay (Middle Camp), Nords Wharf and Gwandalan Development Estates and associated Conservation Estates. Refer to Figure 1-1: Coal & Allied Surplus Lands and Figure 1-2: Southern Lands.

The Concept Plan for a residential subdivision and conservation land transfer of the Catherine Hill Bay (Middle Camp) site will apply to the entire 569ha Catherine Hill Bay (Middle Camp) site. The key parameters for the proposed development of the site are as follows:

- Dedication of 526.58ha 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 approximately 93% of the Catherine Hill Bay (Middle Camp) site.
- Maximum dwelling yield of 222 dwellings (including 57 integrated housing lots) and 3 super lots over 28.2ha.
- Two developable areas are identified under the Concept Plan located to the north of the Middle Camp heritage township,:
 - » Developable area A (northeast) = 7.32ha;
 - » Developable area B (northwest) = 20.88ha.
- 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.

- Torrens title subdivision of the Catherine Hill Bay (Middle Camp) site. The Torrens title subdivision and boundary realignment of Coal & Allied land will enable the following:
 - » transfer of land 526.58ha in area that is owned by Coal & Allied to be excised and to be dedicated to NSWG for conservation land.
 - » transfer of land 1.6ha in area that is owned by Coal & Allied, located between the cemetery and the oval and including the adjacent car park to Lake Macquarie City Council.
 - » enable land 12.38ha in area that is owned by Coal & Allied comprising four houses north west of Northwood Road and land 0.17ha east of Flowers Drive, to be retained by Coal & Allied post transfer of the conservation land.

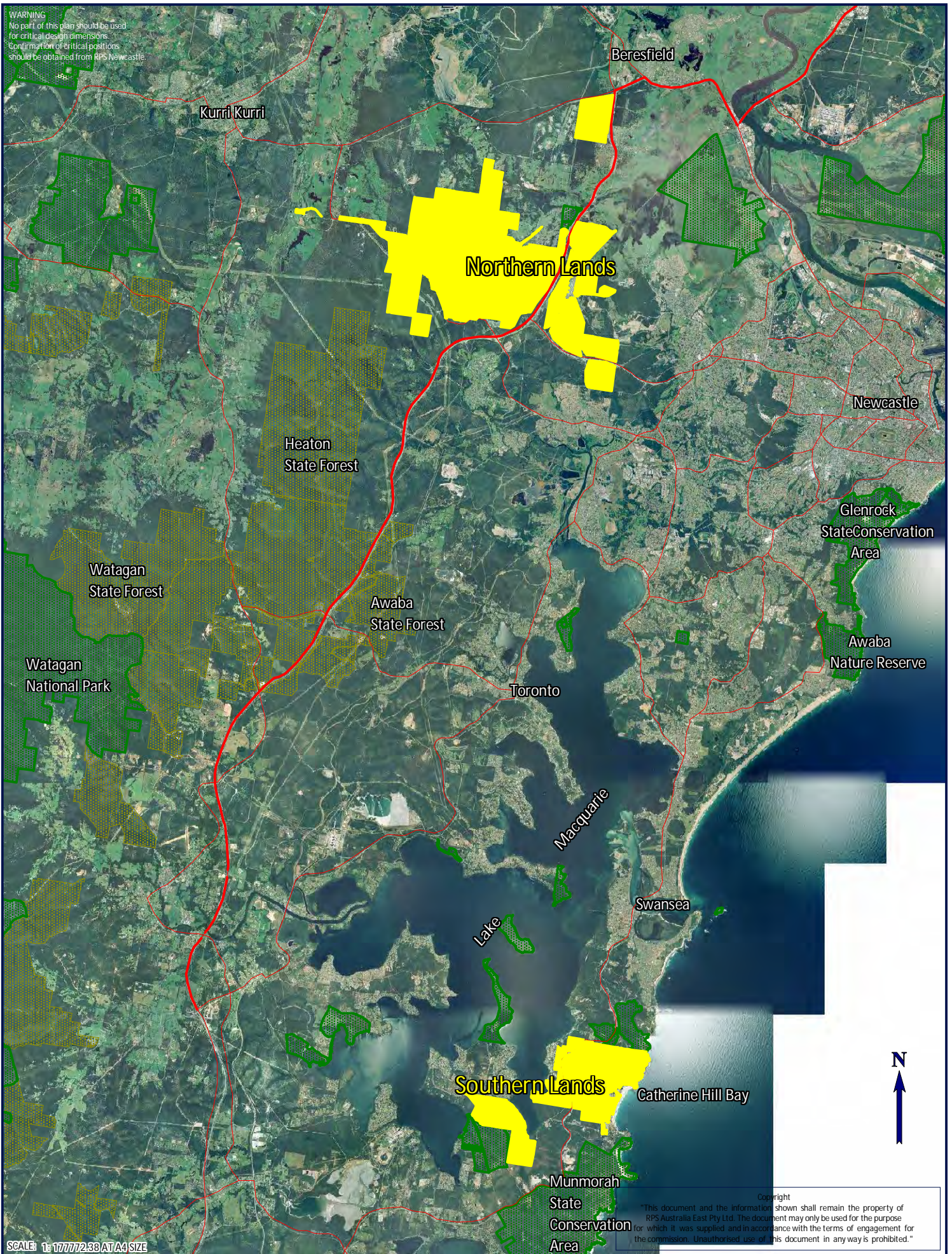
Approval will not be sought under the Concept Plan for a specific lot or road layout. An indicative lot layout will indicate how the dwelling yield of 222 dwellings could be achieved on the site.

Similarly, approval will not be sought under the Concept Plan for subdivision or construction of individual houses. However, the desired future character of the proposed concept plan will be included in Urban Design Guidelines. 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 Catherine Hill Bay (Middle Camp) 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: Concept Plan and Figure 1-4: Land Transfer Plan.

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



TITLE: FIGURE 1-1 C & A SURPLUS LANDS

LOCATION: HUNTER REGION

DATUM: DATUM
PROJECTION: MGA ZONE 56 (GDA 94)

DATE: 8/3/2010
PURPOSE: EAR

24\DRAWING\ECOLOGY\SOUTHERN LANDS\ALL WORKSPACES\2010
LAYOUT REF: 24530 FIG 1-1 SURPLUS LANDS
VERSION (PLAN BY): A (A.P.-M.D)

CLIENT: COAL & ALLIED INDUSTRIES LTD
JOB REF: 24530

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

RPS