



# Bushfire Threat Assessment – Lower Hunter Lands

**Gwandalan**

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# Executive Summary

## INTRODUCTION

RPS Australia East Pty Ltd (RPS) has been engaged by Coal & Allied Industries Limited (Coal & Allied) to undertake a Bushfire Threat Assessment (BTA) over Gwandalan, being part Lot 2 DP 1043151 (referred to as the Development Estate). The Development Estate plus the conservation lands are referred to in this report as 'Entire Land Holdings'. The Gwandalan area comprises a single developable estate of land that encompasses an area of 62.24 ha within the Wyong (LGA). The proposal encompasses a subdivision that includes residential development and land proposed for conservation dedication. The proposal is to be assessed under Part 3A of the *Environmental Planning and Assessment Act 1979* as amended by the *Environmental Planning and Assessment Act 1997*.

This BTA report will assist in the concept planning phase of the development estate, 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 – Building 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 estate.

## VEGETATION

The vegetation in and around the development estate boundaries, to a distance of 140m, has been assessed in accordance with PBP (RFS, 2006). The vegetation to the east of the development estate is classified as Open Forest as evidenced by a prominent layer of hard leaved shrubs and an upper stratum with an overlapping canopy. The remaining vegetation is classified as Woodland with a dominant layer of grasses and a sparse distribution of shrubs and trees.

Slope

Elevation across the development estate ranges from 28m AHD in the west of the development estate to 2m AHD in the east where the development estate adjoins the foreshore reserve of Lake Macquarie. The Open Forest to the east of the development estate occurs on either flat land or downslope from the development estate at 0 – 4°. The Woodland to the west of the development estate occurs cross-slope or upslope at 0 – 4°.

## **ASSET PROTECTION ZONES**

Asset Protection Zones (APZs) from 10 metres to 25 metres will be required from vegetation external to the development estate and future residential development. The Concept Plan indicates that proposed roadways are directly adjacent to vegetation surrounding the development estate and vegetation to be retained within the development estate. The proposed perimeter and public roads and managed parklands within the development estate are therefore likely to provide either the entire or majority of the required APZ's, 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 development estate. 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 conducted 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.

## **ACCESS/EGRESS**

PBP (RFS, 2006) recommends a perimeter road be designed for any future residential development. The Concept Plan indicates that a perimeter road will be developed around the proposed development estate. The perimeter road will be located between bushfire hazards and the boundary of allotments and therefore can form part of the APZ. This perimeter road will also provide fire fighters easy access to a defensible space between any dwellings and the hazard. Any perimeter road should be fully sealed and have a minimum road reserve width of 8m minimum kerb to kerb.

The Concept Plan provides for a number of internal public roads within the development estate. All proposed internal public roads are through roads thereby providing two points of access/ egress for both fire-fighters and residents evacuating their dwelling. The proposed design of the road network will comply with the requirements of PBP (RFS, 2006).

## **DWELLING DESIGN AND CONSTRUCTION**

Assessment in accordance with AS3959-2009 Construction of Buildings in Bush-fire Prone Areas has shown that future dwellings will be able to comply with PBP.

## 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 10 metres to 25 metres will be required from vegetation external to the allotments. The Concept Plan indicates that proposed roadways are directly adjacent to vegetation surrounding the development estate and vegetation to be retained within the development estate. The proposed perimeter and public roads within the development estate are therefore likely to provide either the entire or majority 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 the existing mains pressure water supply and that suitable hydrants be 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 as outlined in section 6 of this report.
- Any future dwelling within the proposed Development Estate should have due regard to the specific considerations given in the BCA, which makes specific reference to the Australian Standard (AS3959 – 2009) Construction of Buildings in Bush Fire Prone Areas (BFPA). Assessment of the Concept Plan in accordance with AS3959-2009 has shown that future dwellings within the development estate will be able to comply with this standard.
- 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 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
AS3959-2009	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>
FMP	Fuel Management Plan
ha	hectare
IPA	Inner Protection Area
LGA	Local Government Area
LHRS	Lower Hunter Regional Strategy
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
WSC	Wyong Shire Council

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# I Introduction

RPS has been engaged by Coal & Allied Industries Limited (Coal & Allied) to undertake a Bushfire Threat Assessment (BTA) over land at Gwandalan, being Lot 2 DP 1043151 and Lot 57 DP 755266. The Gwandalan site is a single developable estate of land that encompasses an area of 62.24 ha within the Wyong (LGA) hereafter referred to as the 'Development Estate'. The Development Estate plus the conservation lands is referred to in this report as 'Entire Land Holdings'. The proposal encompasses a residential subdivision and conservation land transfer.

This BTA report will assist in the concept planning phase of the Development Estate, 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 PBP 2006 and Australian Standard 3959 – Building in Bush Fire Prone Areas (AS3959 –2009).

This 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 *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 around 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 defendable 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 Gwandalan 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 Gwandalan site will apply to the entire 268ha Gwandalan site (Refer to Figure 1-3: Concept Plan and Figure 1-4: Land Transfer Plan). The key parameters for the future development of the site are as follows:

- Dedication of 205.75ha 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 77% of the Gwandalan site.
- Maximum dwelling yield of 623 dwellings over 62.24ha.
- 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 Gwandalan site. The Torrens title subdivision and boundary realignment of Coal & Allied land will enable land 205.75ha in area that is owned by Coal & Allied to be excised and dedicated to NSWG for 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 maximum dwelling yield of 623 dwellings could be achieved on the site.

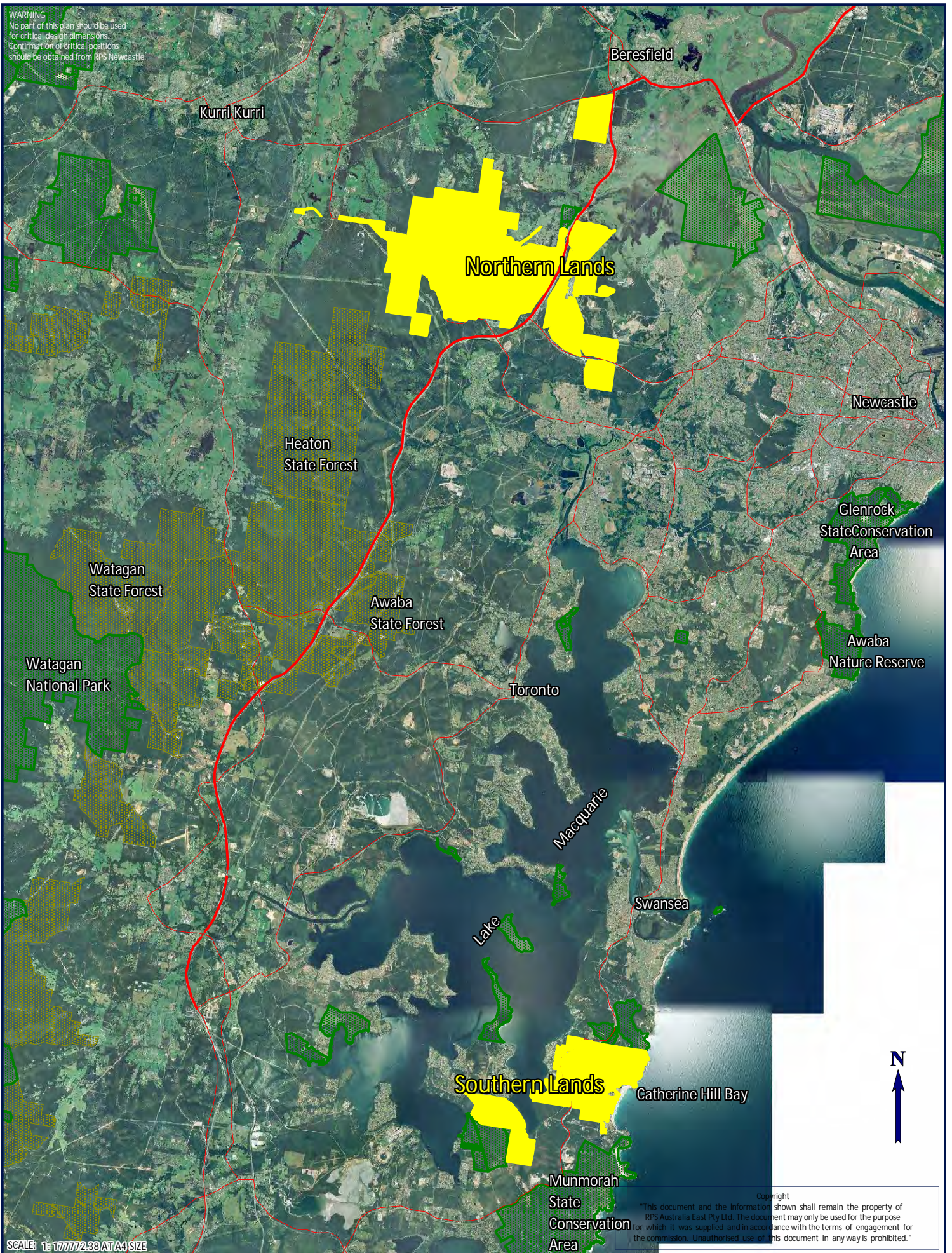
Similarly, approval will not be sought under the Concept Plan for subdivision or construction of individual houses. However, the desired future character of the proposed concept plan will be included in Urban Design Guidelines. Urban Design Guidelines will be prepared to inform the Concept Plan in respect 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 Gwandalan 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.



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TITLE: FIGURE 1-2 SOUTHERN LANDS

LOCATION: SOUTHERN LAND HOLDINGS

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

DATE: 10/3/2010  
PURPOSE: EAR

J:\JOBS\24K\24530 HUNTER VALLEY\DRAWING\ECOLOGY\SOUTHERN LANDS  
LAYOUT REF: VALL WORKSPACES\2010 NEW TEMPLATE WORKSPACES\FIG 3-1 STH LAND  
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Figure A1.3.1 Gwandalan Indicative Lot Layout







## 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 outcome on the development estate. This assessment will include information on ability of the development estate to comply with PBP (RFS, 2006). This will be achieved by providing/undertaking:

- An assessment of all vegetation on and adjacent to the subject property within 140 metres from all elevations from the development estate boundary;
- An assessment of topography (slope) on and adjacent to the subject property to a distance of 140 metres from the development estate boundary;
- 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;
- Review of the Concept Plan for the development estate; and
- Access – Ingress and Egress.

At the state level, the proposal is to be assessed pursuant to Part 3A of the EPA Act. To this end, on 19<sup>th</sup> August 2010, the DGEAR's were issued for the site (Appendix 1).

The 'Key' Assessment requirements for investigations required under the DGEARs are:

- Identify how the proposed concept plan addresses the requirements of Planning for Bush Fire Protection and Australian Standard 3959 (Building in Bush Fire Prone Areas).
- Outline ongoing management arrangements of any proposed APZs, including through negotiation with relevant agencies where APZs are proposed to be located on land to be dedicated for a public purpose.

## 1.3 Aims and Objectives

This assessment has been undertaken in accordance with clause 46 of the RF Regulation 2007. This BTA also addresses the six key Bush Fire Protection Measures (BFPMs) in a development assessment context being:

- The provision of clear separation of buildings and bush fire hazards, in the form of fuel-reduced APZ (and their components being Inner Protection Areas and Outer Protection Areas);
- Construction standards and design;