Ecological Assessment Report – Lower Hunter Lands

Black Hill

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Coal & Allied Industries Ltd

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Disclaimers

Executive Summary

INTRODUCTION

RPS Australia East Pty Ltd (RPS) has been commissioned by Coal & Allied Industries Limited (Coal & Allied) to undertake an Ecological Assessment Report (EAR) over land within Black Hill, for proposed industrial development and conservation offsets as outlined within the Lower Hunter Regional Strategy. The proposal is to be assessed under Part 3A of the *Environmental Planning and Assessment Act 1979*. Due recognition and consideration of the *Threatened Species Conservation Act 1995* and the *Fisheries Management Act 1994* has been made throughout this assessment. Director General's Environmental Assessment Requirements (DGEAR's) were issued for the site in August 2010.

This study is intended to investigate the potential ecological impacts of the proposal as required by the Part 3A DGEAR's. The primary impacts are likely to be associated with the removal of vegetation both in terms of direct impacts upon native stands of vegetation and to a lesser extent, upon habitat for native fauna within and directly adjacent to the Development Estates. To ensure completeness, ecological fieldwork and assessment has covered the full extent of the Coal & Allied surplus lands, including all development and Conservation Estates.

BACKGROUND

Harper Somers O'Sullivan (2005) has previously undertaken Preliminary Vegetation Mapping over various holdings administered by Coal & Allied in the Lower Hunter Valley / Central Coast Region. This preliminary mapping was undertaken to provide a baseline dataset pertaining to the broad-scale distribution of ecological communities throughout the land holdings. This assessment was largely undertaken at a desktop level relying on aerial photography combined with existing regional mapping datasets and limited ground-truthing.

In January 2007 – April 2010 additional ecological investigations were undertaken to inform the urban design and NSWG assessment process.

These investigations were intended to provide a brief assessment of the conservation status of previously delineated vegetation communities.

The report herewith builds on the existing dataset, and provides the necessary level of detailed information for the assessment of the proposals under relevant legislation.

METHODS

The DGEAR's stipulate assessment should have due regard to DECCW's Threatened Species Assessment Guidelines. These guidelines refer the user to consult the Threatened Biodiversity Survey and Assessment Guidelines – Working Draft (DEC 2004) and any relevant recovery plans and threat abatement plans for ecological assessment. To this end these documents have formed the core basis for ecological assessment over the site. In brief the methods employed to assess the ecological merit of the site involved the following (Note: Detailed assessment methods are presented within Section 3 of this report):

- Literature Review
- Preliminary (Desktop) Assessments
- Field Investigations

- Flora Assessment
  - Plant Identification and Vegetation Mapping
  - Floristic Structure Information
  - Targeted and Significant Flora Surveys
- Fauna Assessment
- Habitat Assessment and Mapping

RESULTS

Flora

A total of 208 flora species were identified over the Black Hill Development Estate during flora surveys. One Endangered Ecological Community was identified within the Black Hill Development Estate.

No threatened species were recorded within the Black Hill Development Estate, however four (4) threatened flora species were considered to have potential habitat. A further ten species (Section 4.1.6) were considered to have potential habitat within the site. *Diuris praecox* and *Caladenia tessellata* targeted searches were conducted during its flowering season and other cryptic orchids and *Tetratheca juncea* were searched for during these surveys.

One ROTAP listed species (Briggs and Leigh, 1996), being Macrozamia flexuosa, was recorded within LHSGIF within the Black Hill site.

Three (3) vegetation communities have been delineated and described for the Black Hill site, including one listed EEC which comprises approximately 72% of the study area:

- *Lower Hunter Spotted Gum Ironbark Forest*

This community dominates the eastern and western slopes of the site which flank the Viney Creek riparian corridor that bisects the study area from south to north. LHSGIF covers approximately 132.92 ha of which the majority is to be cleared for industrial subdivision. Lower Hunter Spotted Gum – Ironbark Forest is listed as an EEC under the TSC Act 1995. An equal area of this vegetation community is proposed to be retained as Conservation Estates (approx 131.46ha).

- *Alluvial Tall Moist Forest*

This vegetation community occurs as a relatively linear corridor of vegetation flanking the watercourses of Viney Creek. This vegetation community covers approximately 17.61ha of which the entirety is to be protected as core riparian zone vegetation to act as a buffer for Viney Creek.

- *Weeds and Cleared Areas*

This vegetation community occurs as infrastructure access ways around the periphery of the site and underneath power transmission lines traversing the site. Furthermore, there are some cleared areas as a consequence of previous land practices. This community encompasses approximately 32.97ha.

Fauna

A total of fifty-eight (58) threatened fauna species have been previously recorded within 10km (DECCW Wildlife Atlas 2010) of the Development Estate (as per existing records). Of these, twenty (20) species are considered highly unlikely to occur within the Development Estate due to the absence of suitable habitat. Of the remaining 38 species, four (4) threatened fauna species were recorded within the site during fauna surveys, those being *Ninox strenua* (Powerful Owl), *Tyto novaehollandiae* (Masked Owl), *Pteropus poliocephalus* (Grey-headed Flying-fox) and *Miniopterus australis* (Little Bentwing-bat).

A further 11 threatened fauna species are considered as having a moderate or greater opportunity of occurring within the site on at least an intermittent basis, due to the existence of potential habitat within the site.

Swift Parrot Target Survey Results

The widespread occurrence of *Corymbia maculata* (Spotted Gum) across large areas of both proposed Development and Conservation Estates suggests that these lands have the potential to attract Swift Parrots during those seasons when Spotted Gum is an important winter flowering species within the central to lower Hunter Valley. However, targeted survey during 2008 over the Development Estate did not result in any Swift Parrot observations.

Flora Habitat

The site occurs on elevated land occurring to the west of the Hexham Floodplain, and approximately 1.3 km to the southwest of Beresfield. The vegetation communities present throughout the site offer a number of suitable habitat types for a moderate array of native flora species.

The geomorphological influences underlying the site provide suitable conditions for two native vegetation communities, being Lower Hunter Spotted Gum Ironbark Forest (LHSGIF) and Alluvial Tall Moist Forest (ATMF). Apart from these naturally occurring vegetation communities there are areas within the site that have been cleared to facilitate energy infrastructure and its associated maintenance accessibility. The cleared areas are characterised by disturbed substrates and high levels of light, which provide opportunities for exotic weeds and colonists from adjacent native vegetation communities. The greatest areas for potential threatened flora species habitat are within the LHSGIF and ATMF.

LHSGIF elsewhere within the region is known to contain *Grevillea parviflora subsp. parviflora, Callistemon linearifolius, Rutidosis heterogama* and in some cases *Tetratheca juncea*. Threatened flora species known to be associated with ATMF are *Melaleuca biconvexa, Dendrobium melaleucaphilum* and *Syzygium paniculatum*. Despite the potential for these species to occur onsite no threatened flora species were recorded within the site.

One ROTAP species of *Macrozamia flexuosa* occurs within the Black Hill Development site and a further three listed ROTAP species are known to occur within LHSGIF, including *Grevillea montana* and *Eucalyptus fergusonii subsp. fergusonii*. ATMF in the region is known to contain the ROTAP listed *Callistemon shiressii*; however this species was not detected within the Black Hill Development Estate

Fauna Habitat

Vegetation communities within the site exhibit a relatively low diversity of introduced plant species apart from those areas where they are proximate to cleared areas.

The juxtaposition of wet (ATMF) and dry (LHSGIF) vegetation communities within the site provides opportunities for a moderate diversity of common native fauna and a number of locally occurring threatened fauna species. The site's vegetation communities have sufficient canopy diversity to continuously provide nectivorous and insectivorous fauna guilds, such as birds, bats, possums and gliders with resources throughout the year. Understorey complexity within the site is variable, but there are areas containing sufficient densities to provide habitat opportunities for small marsupials and native rodents. Forests within the site are continuous with extensive bushland areas to the northwest and therefore are easily accessible to those species that these extensive habitats support. The site represents both foraging and potential breeding opportunities for forest owls, although it is unlikely that it would support these species in isolation.

There are abundant habitat opportunities within the site for common reptile and amphibian species, but the site is unlikely to provide specific habitat attributes required for those threatened herpetile species that occur within the region.

CONSERVATION & DEVELOPMENT OUTCOMES

The Lower Hunter Region's vegetation is of bio-geographic significance as it supports a transition between the northern and southern NSW plant and animal assemblages. This north-south link is not evident elsewhere in the Hunter Valley. The Region also forms an east-west migratory pathway and a drought refuge for inland species.

The preservation of large vegetated areas (3300ha) that are linked to other similar areas has been recognised as fundamentally important to achieving long term regional biodiversity outcomes in the Lower Hunter region. The two most valued of these areas in the Lower Hunter contain large land areas owned and controlled by Coal & Allied. Firstly is the green corridor that links the Watagans and Yengo National Parks with the coastal plains of the Tomago Sandbeds, Stockton Bight and Port Stephens. Secondly, the Wallarah Peninsula lands provide a regionally significant break between urban areas, and contain areas of high biodiversity, scenic amenity and heritage value.

The Coal & Allied lands to be dedicated form both large vegetated areas in their own right, and complete linkage of identified regional corridors in key areas.

In addition to their important strategic location in a wider landscape context, the Conservation Estates contain valuable biodiversity resources. They contain and will conserve a range of important vegetation communities, including areas of Endangered Ecological Communities (EEC) and other vegetation types that have been depleted in the region. Several threatened plant species have been recorded within the Conservation Estates, including A*rthropteris palisotii, Tetratheca juncea* (Black-eyed Susan), *Grevillea parviflora subsp. parviflora, Eucalyptus nicholii, Rutidosis heterogama, Syzygium paniculatum* and *Callistemon linearifolius*. Two of the threatened flora species recorded in the Conservation Estates are considered to be planted specimens and not naturally occurring, being *Eucalyptus nicholii* and *Syzygium paniculatum*, although *S. paniculatum* may have been transported to its position in a disturbed area by natural means. In addition to these threatened species two rare (ROTAP) species *Callistemon shiressii* and *Eucalyptus fergusonii subsp. dorsiventralis* were also identified within the Conservation Estates. Refer to Table 5-1 for a complete breakdown of the vegetation retention and removal within both the Development Estates and the Conservation Estates.

The diverse nature of both the landform settings, varying from coastal ranges forests and woodlands to coastal heath to wetlands, provides a diverse array of habitats and resources for native fauna. The Conservation Estates are known to contain important populations of numerous threatened fauna species, including birds, mammals and herpetofauna. The conservation of these lands will provide secure regional biodiversity gene pools, and also through linkages facilitate valuable genetic material exchange and other key processes associated with sustainable ecological population dynamics.

In summary, the Coal & Allied conservation dedications provide outcomes that contribute to meeting the Environmental Protection goals outlined in the Sustainability Criteria contained within the Lower Hunter Regional Strategy. Such includes:

- Outcomes consistent with the Lower Hunter Regional Conservation Plan;
- Maintains/improves areas of regionally significant biodiversity; Maintains environmental areas for air & water quality; and
- Protects areas of Aboriginal cultural heritage value and historical heritage value.

These outcomes:

- Conserve in perpetuity key strategic parcels of land that complete long sought after regional biodiversity conservation corridors and buffer areas;
- Provide large intact areas of conserved habitat that will function as regional biodiversity gene pools;
- Protect an important array of vegetation communities, flora and fauna species, and natural landscape assets, including threatened species and EEC's; and
- Contribute significantly to the successful implementation of the Lower Hunter Regional Conservation Plan.
- Achieve additional conservation benefits within Development Estates via appropriate urban design and management practices.

CONCLUSION & RECOMMENDATIONS

The detailed studies undertaken herewith have confirmed that development of a small portion of Coal & Allied land identified will provide a mechanism for adequate ecological outcomes within the proposed Conservation Estates for the vast majority of species and communities contained therein. The quantum of the offset lands, when viewed holistically with proximate existing and proposed conservation reserve areas, provides a robust long-term outcome for all species and communities. Furthermore, suitable actions are proposed to minimise potentially deleterious permanent and ongoing impacts to the Conservation Estates.

The field and desktop studies have recorded the following parameters of ecological significance within both the Conservation and the Development Estate:

- native vegetation commensurate with those listed as EEC's;
- threatened flora species recorded within and adjacent to the proposed development;
- threatened fauna species recorded within and adjacent to the proposed development;
- habitat for threatened flora and fauna species known from within and adjacent to the proposed development; and
- other areas containing native vegetation with varying degrees of modification / degradation.

With these potential ecological issues noted, a series of recommendations have been outlined within this report, to aid in the reduction of potential impacts associated with the proposal.

Given that measures have been taken to avoid ecological impacts where native vegetation may be affected, efforts have been made to avoid particularly sensitive areas where practical, it is considered unlikely that any significant impacts would occur upon threatened species, communities

or populations. The large areas of Conservation Estates at Stockrington and Tank Paddock that will be set aside as part of the Coal & Allied proposed developments in the Lower Hunter provide sound ecological outcomes across the Northern Lands. The Stockrington Conservation Estates will contribute a large portion of land to conservation in perpetuity, which will in essence formalise the Watagan to Stockton Corridor. The importance of the conservation of Tank Paddock as part of the Conservation Estates will maintain and conserve a vegetation corridor from Hexham Swamp and the Hunter Estuary to the Watagan Mountains and the Sugarloaf Range. This large tract of native vegetation will provide habitat for a wide variety of native flora and fauna.

Therefore, due to the location of the proposed Development Estate within more disturbed portions of the Northern Estates and the dedication of much larger tracts of vegetation within strategic regional corridors, it has been concluded that the proposed development should not significantly impact upon threatened or regionally significant flora and fauna, ecological communities or populations. The implementation of operative environmental management practices and the detailed design phase of the project should also ensure that the ecological impact of the project is minimised.

The following recommendations have been outlined to ensure that the ecological impact by the proposed Development is minimised as far as possible.

- Foremost, the management of the Development is critical to ensure that no direct or indirect impacts occur in the short and long term on dedicated Conservation Estates. As such, appropriate management plans should be prepared and implemented within the development framework in consultation with the NSW NPWS. Such management will involve;
  - The implementation of nutrient and sediment control works in a buffer surrounding the development areas and within the development estates, to protect the flowlines within the conservation estates;
  - Weed control of the conservation estates in accordance with NSW National Parks and Wildlife Service (NSW NPWS) Policies; and
  - The preparation of a Plan of Management for the Conservation Estates in accordance with NSW NPWS Policy for the long term management of the area including bush fire, threatened species and recreation management. If a Plan of Management cannot be prepared for the Conservation Estates within a reasonable period of time, a SIMI (Statement of Interim Management Intent) must be prepared in accordance with NSW NPWS Policies.
- Mature and / or hollow-bearing trees should be retained wherever feasible within the development framework.
- Pre-clearing inspections should be undertaken by an ecologist in wooded areas where threatened fauna species have been recorded or are considered likely to occur. This is particularly important in areas where threatened fauna have been noted during recent surveys either breeding or nest-building. No breeding attempts should be disrupted during the course of the project, particularly by threatened fauna.
- During the construction phase, for any tree removal within forested areas, and in particular where hollow-bearing trees may be removed, all works should be supervised by an ecologist to recover any native fauna that are potentially displaced. Furthermore, where such risks occur, site-specific ecological advice should be sought to minimise impacts during the entire process. A clearing protocol should be adopted for the removal of trees containing suitable habitat hollows as follows (this is considered as a guideline, variations on the methods employed may be required to accommodate site specific factors):

- All hollow bearing trees are to be flagged by an ecologist prior to the commencement of works on the Development Estate.
- Underscrubbing of the entire Development Estate should be carried out by a 4x4 tractor with a slashing deck, this will minimise the establishment of degradation processes and leave a layer of mulch to aid in soil retention in the event of adverse weather. At this time felling of non habitat trees can take place, however a matrix of trees must be maintained to allow animal movement into offsite habitat.
- After a period of two weeks, clearing of habitat trees should commence. Clearing must be carried out moving from the fringe of the matrix towards the refuge area. Trees should be 'soft felled' and inspected immediately by an ecologist for displaced fauna. All trees must be left for a minimum of two nights prior to being moved to a stockpile, to allow resident fauna to vacate tree hollows

Note: Clearing should ideally take place outside of the dominant breeding seasons of resident fauna, preferably during late autumn and winter.

- Species selection for future landscaping works and seed stock for revegetation should be limited to locally occurring native species to maintain local genetic diversity. Regionally significant species and preferred Swift Parrot foraging habitat trees should be incorporated into future landscaping design where possible.
- Where possible, earthworks (and certainly all works in the vicinity of drainage lines) should be undertaken during appropriate (i.e. dry) weather conditions. This will ensure that any potential erosion events will be intercepted and that downstream impacts are minimised within any of the drainage lines. This will help to maintain existing habitat characteristics for native fauna in those areas, including those for threatened species.
- Nutrient and sediment control devices should be erected pre-clearing and post-construction works in sensitive areas where degradation processes may be triggered such as areas adjacent to watercourses until suitable rehabilitation has occurred to maintain surface integrity. Furthermore, stockpiles should be subject to individual sediment and nutrient control devices.

Terms & Abbreviations

Abbreviation	Meaning
aff.	Affinity
CEEC	Critically Endangered Ecological Community
CMA	Catchment Management Authority
Coal & Allied	Coal & Allied Industries Ltd
Conservation OR Offset Lands	Land proposed for dedication to NSW Government
Development Estate	Proposed Development Lands
DBH	Diameter (centimetres) at Breast Height
DECCW	NSW 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
EEC	Endangered Ecological Community
EMP	Environmental Management Plan
EPA Act	*NSW Environmental Planning and Assessment Act 1979*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
FM Act	NSW *Fisheries Management Act1994*
ha	hectare
HBOC	Hunter Bird Observers Club
Hwy	Highway
LGA	Local Government Area
LHCCREMS	Lower Hunter and Central Coast Regional Biodiversity Strategy(NPWS 2000; House 2003)
LHRCP	Lower Hunter Regional Conservation Plan
LHRS	Lower Hunter Regional Strategy
NPWS	NSW National Parks and Wildlife Service
NSWG	NSW Government
PFC	Projected Foliage Cover
RPS	RPS Australia East Pty Ltd
ROTAP	Rare or Threatened Australian Plants (Briggs & Leigh 1995) ROTAP Codes are as follows:- 2 = Geographic Range in Australia is less than 100 km R = Rare C = Conserved - = Reserved population unknown
Ssp. or subsp.	Subspecies
Sp	Singular Species
Spp	Multiple Species
SSS	State Significant Site
TSC Act	NSW *Threatened Species Conservation Act 1995*
Var.	Variety

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Qualifications of Personnel

APPENDIX 7

EPBC Act Determination

1 Introduction

RPS Australia East Pty Ltd (RPS) has been commissioned by Coal & Allied Industries Limited (Coal & Allied) to undertake an *Ecological Assessment Report (EAR)* over land within Black Hill. The proposal is to be assessed under Part 3A of the *Environmental Planning and Assessment Act 1979*. Due recognition and consideration of the *Threatened Species Conservation Act 1995, Water Management Act 2000* and the *Fisheries Management Act 1994* have been made throughout this assessment

1.1 Background

Harper Somers O'Sullivan (2005) has previously undertaken Preliminary Vegetation Mapping over various holdings administered by Coal & Allied in the Lower Hunter Valley / Central Coast Region. This preliminary mapping was undertaken to provide a baseline dataset pertaining to the broad-scale distribution of ecological communities throughout the land holdings. This assessment was largely undertaken at a desktop level relying on aerial photography combined with existing regional mapping datasets and limited ground-truthing.

In January 2007 – April 2010 additional ecological investigations were undertaken to inform the urban design and NSWG assessment process.

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The report herewith builds on the existing dataset, and provides the necessary level of detailed information for the assessment of the proposals under relevant legislation.

1.2 Site Particulars

Locality – The site is approximately 1.5km to the south west of the township of Beresfield and 5km to the north 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.

Title(s) – LOT 30 DP 870411.

Area – The area of the proposed development site is approximately 183ha.

Zoning – Zone 7 (c) Environmental Investigation.

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 former poultry 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 occupied 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.

Soils and Geology – There are three different categories of soils across the site according to Soils Landscapes of the Newcastle region (Matthei 2005).

The majority of the soil across the site is classified as Killingworth. This soil type is typical across the rolling hills around Minmi. This type of soil has low to very low fertility and high erosion potential. The topsoils of this classification are typically brownish black sand or silt loams and the subsoils are usually sand or silt clays.

A small area on the eastern side of the site closest to the Minmi and Fletcher area has two different soil types. These are the Beresfield and Bobs Farm classification.

The Beresfield soil type is typically low in fertility, highly acidic and has a high foundation hazard potential due to the shrink-swell nature of the subsoil.

The Bobs Farm classification is the soil type associated with the estuarine flats of the Tomago region. These soils generally have a high foundation hazard potential due to localised waterlogging and shrink-swell subsoils.

The majority of the Development Estate is underlain by the Newcastle Coal Measures of Permian Age with the northern section including Tank Paddock is underlain by the Tomago Coal Measures of Permian Age.

1.3 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 in the Lower Hunter, has been collectively classified into ‘Southern Lands’ and ‘Northern Lands’ (Refer to Figure 1-1). The Northern Lands encompass the Black Hill and Minmi Link Road Development Estates and the Tank Paddock and Stockrington Conservation Estates. Refer to Figures 1-1, 1-2 and 1-3.

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

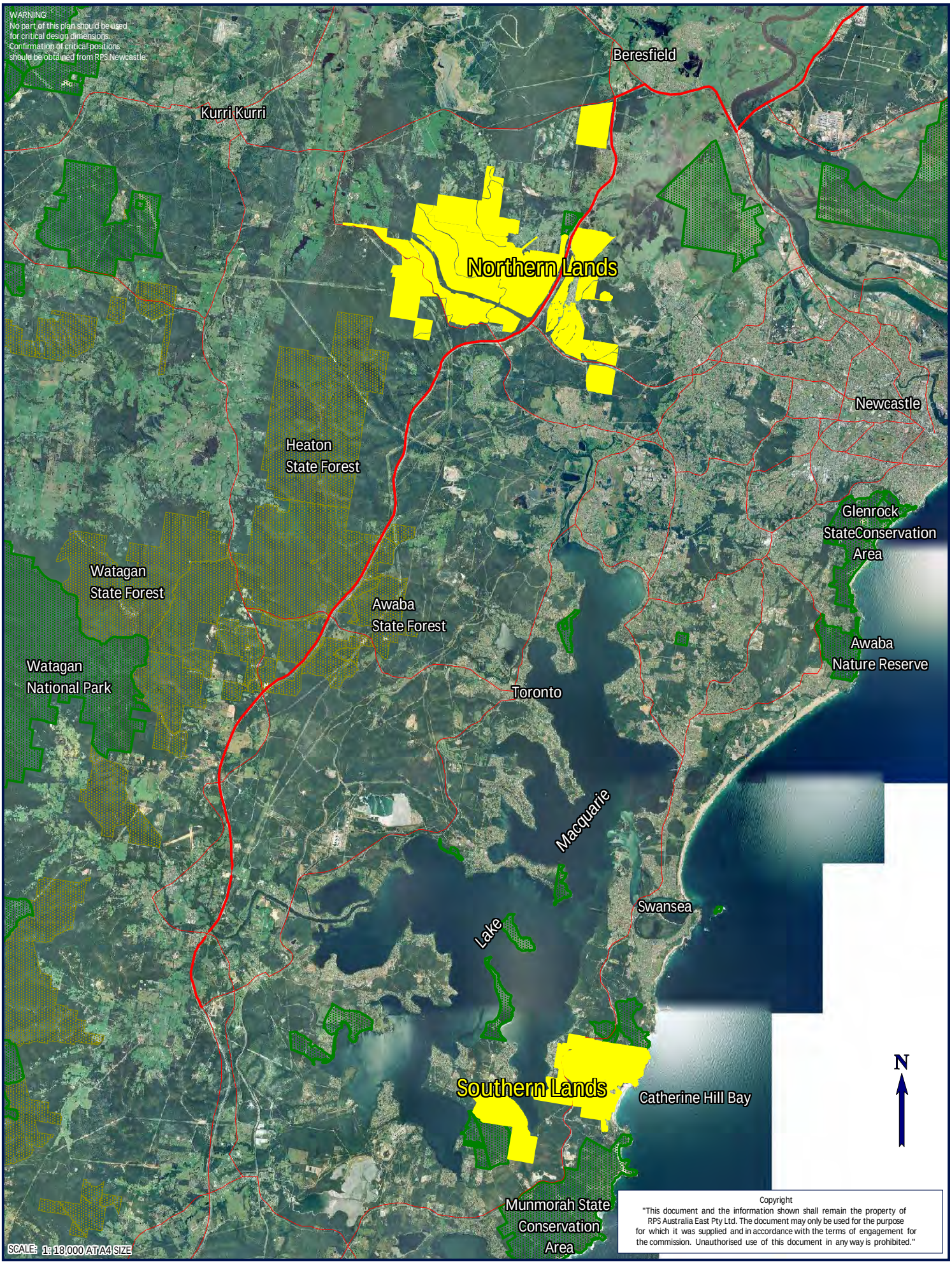
- Dedication of approx 545ha of conservation land to the New South Wales Government (NSWG) that is identified in the Lower Hunter Regional Strategy and Lower Hunter Regional Conservation Plan, comprising 100% of the Tank Paddock site.
- Use of the 183ha Black Hill site as 'employment lands' for a range 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 or road 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). Notably the Conservation Estates are identified in the LHRCP prepared by the DECCW and make significant contributions toward meeting conservation goals indentified in the LHRCP. Refer to Figure 1-4.

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 1-5.



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:\JOBS\24k\24530 Hunter Valley\2010 Works\Drafting VERSION (PLAN BY): C (A.P-M.D)

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

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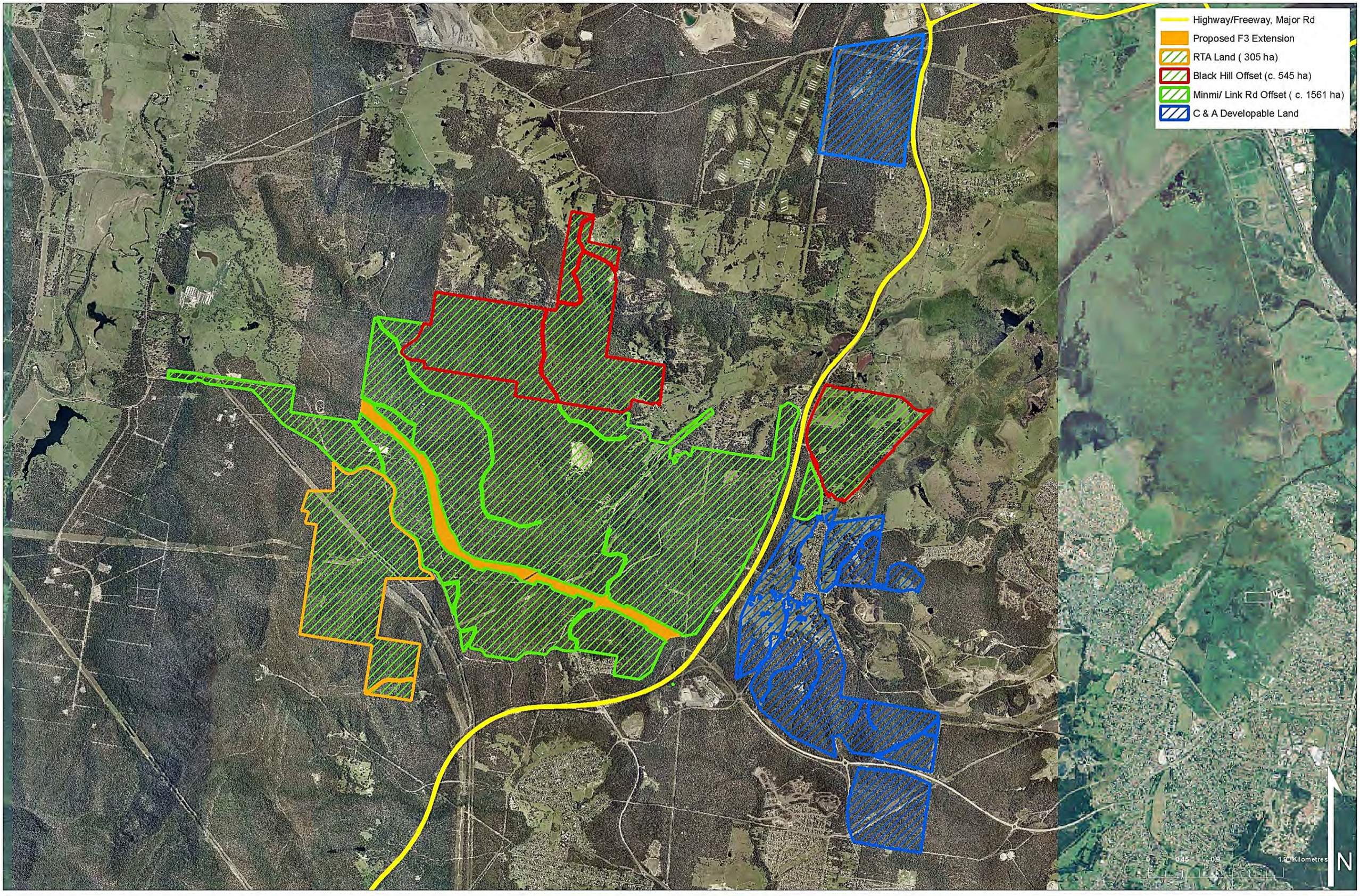

NORTHERN AREA- FINAL DEVELOPMENT AND CONSERVATION AREAS

COAL & ALLIED

urbis

TITLE: FIGURE 1-3 SITE LOCATION

LOCATION: BLACK HILL

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

DATE: 18/10/2010
PURPOSE: EAR

LAYOUT REF: J:\JOBS\24k\24530 Hunter Valley\2010 Works \Drafting\Ecology\Northern Lands\BH \Figure 1-3 Site Location B A4
VERSION (PLAN BY): B (A.P-M.D)

CLIENT: COAL & ALLIED OPERATIONS
JOB REF: 24530-2

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RPS

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

Hawks Nest
Nelson Bay
Maitland
Raymond Terrace
Kurri Kurri
Cessnock
NORTHERN LANDS
Newcastle
Morisset
SOUTHERN LANDS

Important Wildlife Corridors
Main Towns
Local Government Areas
National Park Estate
State Forest Estate
Marine Park (Approximate Boundary)
State Forest FMZ 2 and 3a transfer to Flora Reserves

High Priority Conservation Lands

Private Land
Government Land (Lower Hunter Reservations Bill 2006)

N

SCALE: 1: 330000 AT A3 SIZE

TITLE: FIGURE 1-4 LOWER HUNTER REGIONAL CONSERVATION PLAN
LOCATION: HUNTER REGION
DATUM: N/A
PROJECTION: MGA ZONE 56 (GDA 94)
DATE: 7/02/2011
PURPOSE: EAR
24530\DRAFTING\ECOLOGY\SOUTHERN\ALLWORKSPACES
LAYOUT REF: 2010TEMPLATE\FIGURE 1-4 LHRCP 2010 C A3
VERSION (PLAN BY): C A3 (A.P-M.D)

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

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LEGEND

- Site Boundary
- Existing Creek Line
- Existing Hunter Water Pipeline
- Existing Residential
- Existing Industrial
- Indicative Stancheon 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

24391-03
Indicative Concept Plan

Scale: 1:5000 @A1

50 0 50 100 150 200 250 300 350 400 450 500 550 600m