

CARBOROUGH DOWNS JOINT VENTURE

CARBOROUGH DOWNS MINE EXPANSION PROJECT

INITIAL ADVICE STATEMENT

AUGUST 2006

Initial Advice Statement – Carborough Downs Mine Expansion Project

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Prepared By: Maria Neuhold
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Matrix+ Consulting Pty Limited

Level 4, 127 Creek Street
 Brisbane, Qld 4000
 PO Box 10502, Adelaide Street Post Office
 Brisbane, Qld 4001

TABLE OF CONTENTS

1	INTRODUCTION.....	1
1.1	PROJECT OVERVIEW.....	1
1.2	PURPOSE AND SCOPE OF DOCUMENT.....	1
1.3	THE PROPONENT.....	1
1.4	IAS OUTCOME	2
2	PROJECT DESCRIPTION	5
2.1	PROJECT SITE	5
2.2	MINING METHOD	7
2.3	COAL PROCESSING AND HANDLING FACILITIES	7
2.4	TRANSPORT ACTIVITIES	7
2.5	SUPPORT ACTIVITIES	7
2.6	NOTIFIABLE ACTIVITIES	7
2.7	SUBSIDENCE	8
3	COMMUNITY CONSULTATION	9
4	ENVIRONMENTAL VALUES AND POTENTIAL IMPACTS	11
4.1	FLORA AND FAUNA.....	11
4.1.1	Flora.....	11
4.1.2	Fauna	14
4.1.3	Potential Impacts	14
4.2	SURFACE WATER.....	14
4.2.1	Potential Impacts	15
4.3	GROUNDWATER	15
4.3.1	Potential Impacts	15
4.4	REHABILITATION AND POST-MINING LANDFORM.....	15
4.4.1	Surface rehabilitation.....	16
4.4.2	Potential Impacts	16
4.5	NOISE/VIBRATION.....	17
4.6	AIR QUALITY	19
4.7	VISUAL ENVIRONMENT	19
4.8	NATIVE TITLE	19
4.9	ABORIGINAL AND CULTURAL HERITAGE.....	19
5	EIS TRIGGERS AND THE CARBOROUGH DOWNS EXPANSION PROJECT	21
5.1	EIS ASSESSMENT CRITERIA.....	21
6	REFERENCES.....	22

TABLE OF FIGURES

Figure 1 – Project Location	3
Figure 2 – Project Location and Proposed Expansion.....	4
Figure 3 – Tenements and Leases	6
Figure 4 – Vegetation Communities	12
Figure 5 – Vegetation Management Status	13
Figure 6 – Soils Map.....	18
Figure 7 – Native Title Claims	20

TABLE OF TABLES

Table 1: Property Ownership Details.....	5
Table 2: Proposed Consultation Activities	9
Table 3: Conservation Status of Carborough Downs REs	11
Table 4: Proximity of Residences to the Mine	17
Table 5: EIS Trigger Criteria	21

1 INTRODUCTION

1.1 PROJECT OVERVIEW

The Carborough Downs Mine (CDM) is an existing underground coal mine located in Central Queensland approximately 15 km east of the township of Moranbah along the Peak Downs Highway and 150 km south west of Mackay as illustrated in **Figure 1**.

The existing CDM is covered by two mining leases (MLs), the Annandale ML (ML 70340) and the Carborough Downs ML (ML 70339). The Annandale ML is located north of (and includes) the Peak Downs Highway and the Carborough Downs ML is located to the south of the Peak Downs Highway. The Coal Handling and Preparation Plant (CHPP) and rail loop are located within ML 70340. Coal is hauled from ML 70339 to ML 70340 via a haul road that passes beneath the Peak Downs Highway.

The Carborough Downs Mine is operated as an unincorporated joint venture with Carborough Downs Coal Management Pty Ltd being the management company responsible for all operations undertaken at the mine on behalf of its joint venture participants (**see section 1.3**). For the sake of simplicity, the term Carborough Downs Joint Venture (CDJV) is used throughout this document in lieu of Carborough Downs Coal Management Pty Ltd and or the individual joint venture participants.

The CDM has an approved production rate of 1.9 million tonnes per annum (Mtpa) run of mine (ROM) coal. Carborough Downs Joint Venture (CDJV) is proposing to increase the rate of mining to approximately 5 Mtpa ROM and extend ML 70340 to the north-east and ML 70339 to the south (refer **Figure 2**). The extensions to ML70340 and ML70339 are referred to as the “expansion areas”. The proposed expansion areas are located outside of the current MLs but within Mineral Development Lease (MDL) 354. Two additional MLs are required for these areas.

Increasing the rate of production will be achieved either through a continuation of the existing mining method as described in **Section 2.2** or, subject to further evaluation, the introduction of longwall mining techniques. Modifications to the CHPP will be required to accommodate the increased mine production. Alterations to other infrastructure may be required, subject to further investigation.

The project is referred to as the CDM Expansion Project (CDMEP).

1.2 PURPOSE AND SCOPE OF DOCUMENT

This Initial Advice Statement (IAS) has been prepared for the Environmental Protection Agency (EPA) to accompany an application for a voluntary Environmental Impact Statement (EIS).

1.3 THE PROPONENT

Ownership of the mine is via the Carborough Downs Joint Venture which is an unincorporated joint venture with the following existing participants:

- 75% by AMCI (CQ) Pty Ltd;
- 5% Nebo Central Coal Pty Ltd;
- 5% Kalimati Coal Company Pty Ltd (KCC) (India);
- 5% NS Carborough Downs Pty Ltd (NSCD) (Japan);
- 5% POS-CD Pty Ltd (Korea);
- 2.5% JS Carborough Downs Pty Ltd (JSCD) (Japan); and
- 2.5% JFE Steel Australia (CD) Pty Ltd (JFECD) (Japan).

The MLs are currently held by Nebo Central Coal Pty Ltd (25%) and AMCI (CQ) Pty Ltd (75%), however, an assignment of a 20% interest from Nebo Central Coal to each of KCC, NSCD, POS-CD, JSCD and JFECD in the above proportions is underway.

The CDJV is managed by Carborough Downs Coal Management Pty Ltd (CDCM) on behalf of the participants.

1.4 IAS OUTCOME

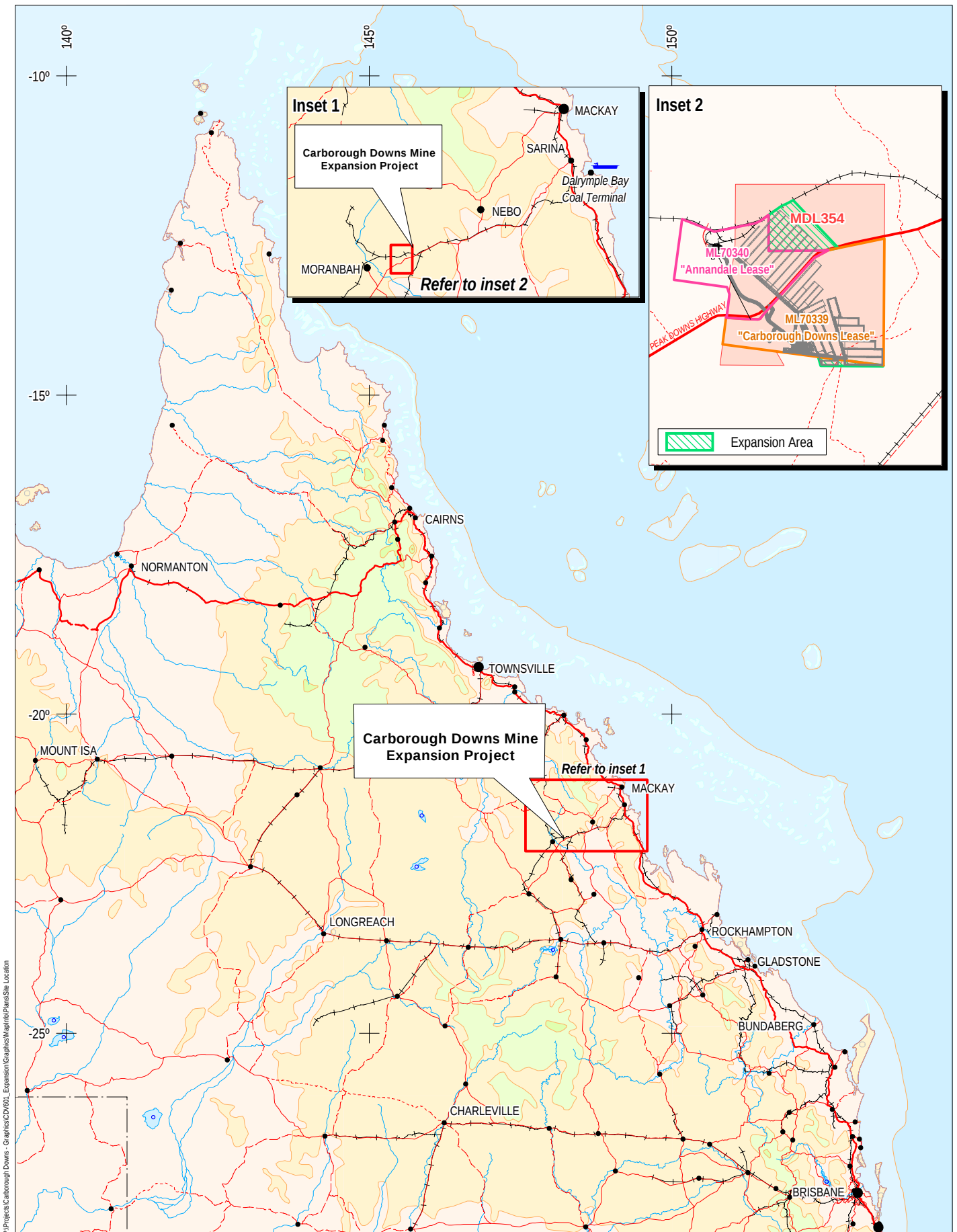
The EPA has published several Guidelines for assisting in the environmental management of mining operations. EPAs *Guideline 4 - Deciding the Level of Impact Assessment for the Mining Industry* (December 2000), provides guideline trigger criteria for 'greenfield' mining projects which are to be used when assessing whether an application for a new or amended Environmental Authority (EA) requires an EIS. As the CDMEP is a 'brownfield' project, and in the absence of specific guidelines for brownfield sites, an assessment against the EIS triggers using the greenfield criteria is presented in **Section 5**.

One (1) out of the eleven (11) EPA trigger criteria has been assessed in this IAS as having the potential to trigger an EIS requirement as the CDMEP will result in the production of more than 2 Mtpa of ROM coal.

A number of technical studies are currently being undertaken to identify the potential for environmental impacts to occur as a result of the proposed mine expansion. These studies are expected to be completed by the end of August 2006 and will form the basis of the draft EIS and comprehensive EMP (EMP).

The technical studies are described in subsequent sections and include:

- Subsidence Modelling;
- Surface Water Assessment;
- Groundwater Assessment;
- Targeted Ecological Investigations;
- Geochemical Investigations;
- Soils and Land Capability Assessment; and
- Noise and Air Quality Impact Assessments.



Legend

- City
- Town
- Road
- - - Track
- +— Railway line

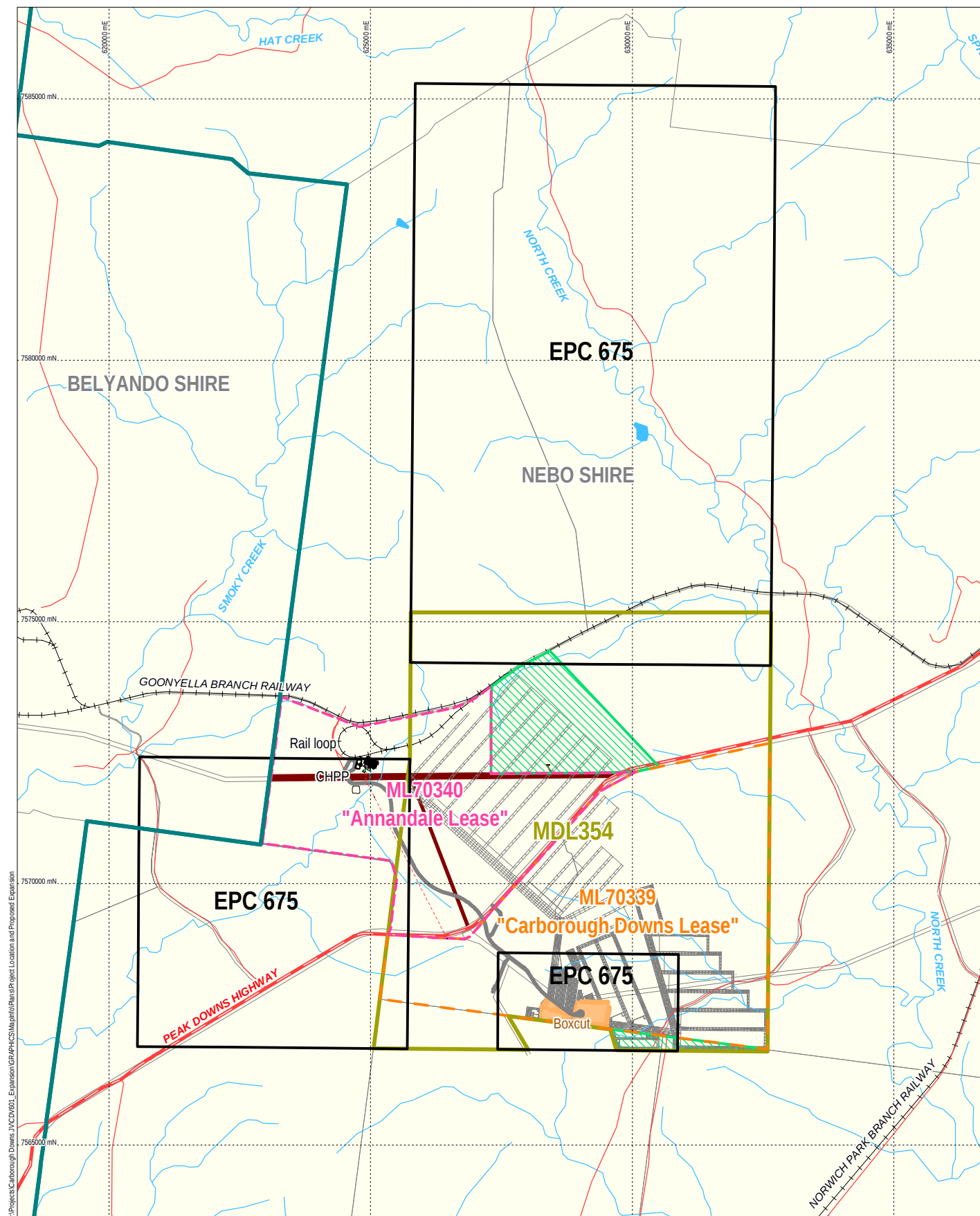
Datum: GDA94
Projection: Lat/Long

Carborough Downs Joint Venture Carborough Downs Mine Expansion Project

Project Location

0 250 500
kilometres

FIGURE 1



- Local Government Boundary
- Exploration Permit
- ML 70339
- ML 70340
- MDL354
- Mine Layout
- Expansion Area
- Highway / Road
- Railway
- ~ Drainage
- Easement
- Haul Road

Carborough Downs Joint Venture

Carborough Downs Mine Expansion Project

Project Location and Proposed Expansion

Datum: GDA94
Projection: MGA, Zone 55

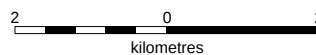


FIGURE 2

2 PROJECT DESCRIPTION

2.1 PROJECT SITE

The CDMEP includes existing ML 70340, ML 70339 and the expansions areas within MDL 354. ML 70340 covers approximately 1,754 hectares directly north of (and including) the Peak Downs Highway while ML 70339 covers approximately 2,657 hectares directly south of the Peak Downs Highway. Both the MLs and expansion areas are located within MDL354 which has an area of approximately 2,109 ha. The topography of the CDMEP is dominated by an escarpment running north to south through the site. The area above the escarpment, on the western side of the CDMEP, is gently undulating with a plateau like formation. The balance of the CDMEP is located on the mid and lower slopes of the escarpment. The CDMEP is located wholly within the Nebo Shire, a well established grazing, farming and coal mining region within the Bowen Basin.

The approved CDM was based on a resource estimate of approximately 100 million tonnes (Mt) of in-situ coal, an estimated recovered of 40-50% and a production rate of up to 1.9 Mtpa, giving a projected mine life of approximately 30 years. The ROM coal will be washed to produce both coking and pulverised coal injection (PCI) products.

Additional exploration drilling and geological interpretation undertaken since the initial approval was sought has increased the resource within MDL 345 to approximately 300 Mt of in-situ coal and also identified the expansion areas as amenable to mining. Conservatively assuming a similar recovery, the expanded Carborough Downs project will produce approximately 150 Mt of product coal for the export market. In order to maintain a similar mine life, CDJV are now seeking approval for an increase in the rate of mining and expansion into the additional areas where the resource has been confirmed.

The principal land use within the project area is grazing. There are no national parks, conservation zones, or significant cultural heritage sites other than those identified by cultural heritage surveys conducted on the existing MLs, the management of which are the subject of a Cultural Heritage Management Plan developed with the traditional owners (refer **Section 4.9**).

Current approved mining activities are carried out under the following approvals/documents:

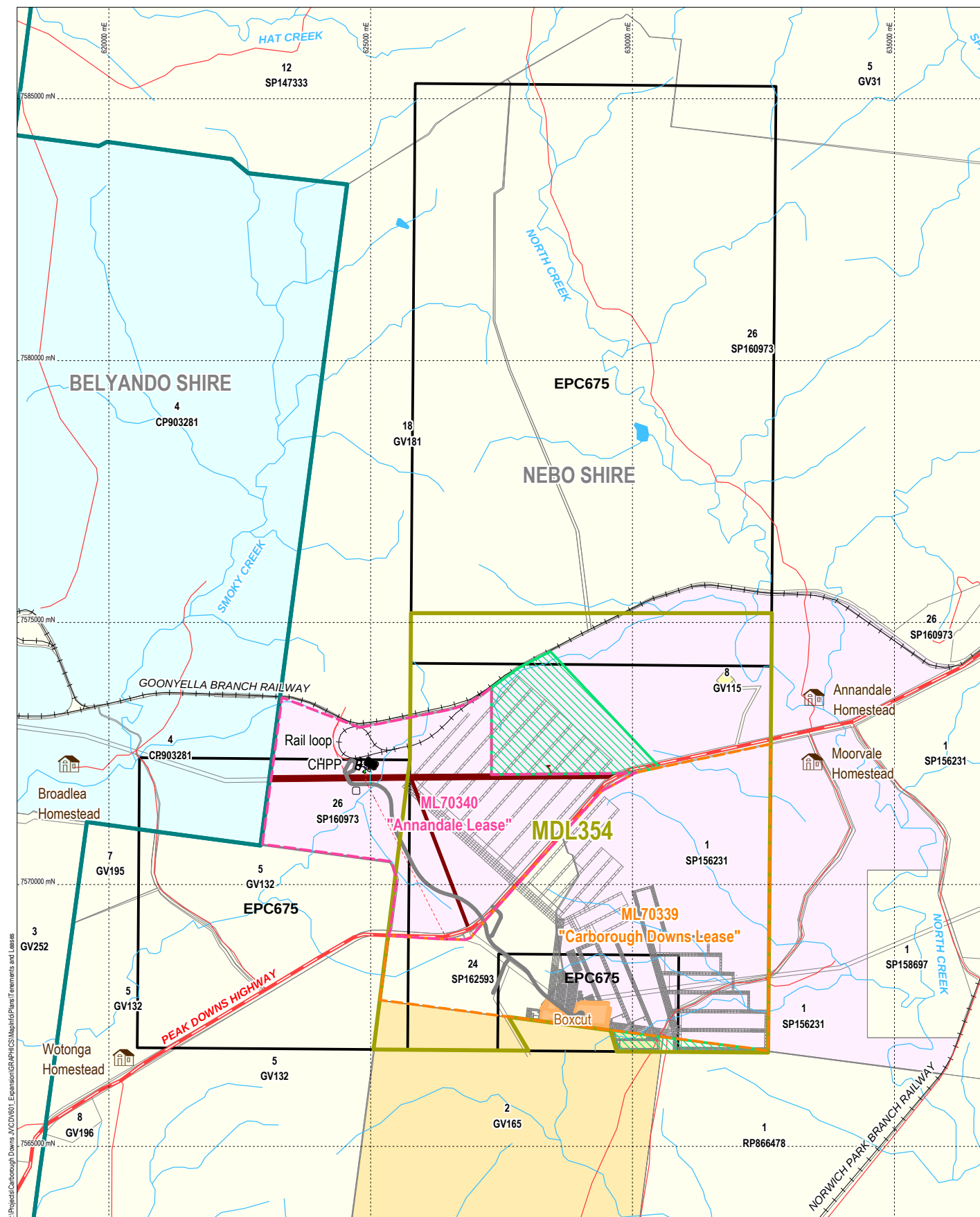
- EA Number MIM100329305 (for ML 70339 and ML 70340);
- EMP December 2005; and
- Plan of Operations (PoO) May 2006 to June 2007.

The proposed mine expansion area to the north of the Annandale ML is located on Lot 26 SP160973, which is freehold land currently owned by WR and EJ Neilson, while the proposed expansion area to the south of the Carborough Downs ML is located on Lot 1 RP866478, which is freehold land owned by Millennium Coal Pty Ltd. The landowners within the current Carborough Downs and Annandale ML areas are listed in **Table 1**.

Table 1: Property Ownership Details

Description	Landowner	Tenure	County	Parish
Lot 1 on SP156231	D.J. & J.E. Deguara	FH	Grosvenor	Ingsdon
Lot 26 on SP160973	W.R. & E.J. Neilson	FH	Grosvenor	Ingsdon
Lot 24 on SP162593	CDJV participants	FH	Grosvenor	Ingsdon
Poitrel Road	Dept. Natural Resources, Mines, & Water	Dedicated Road	Grosvenor	Ingsdon
Lot 2 on GV165	BA Nielsen	GHPL	Grosvenor	Ingsdon
Peak Downs Highway	GV114 Main Roads	Dedicated Road	Grosvenor	Ingsdon
Lot 1 RP866478	Millennium Coal Pty Ltd	FH	Grosvenor	Ilslington

The nearest residence to the CDMEP is the Broadlea residence, approximately 6 km west of the CHPP and 10 km north-west of the box cut. Property locations are illustrated in **Figure 3**.



Carborough Downs Joint Venture Carborough Downs Mine Expansion Tenements and Leases

Datum: GDA94
Projection: MGA, Zone 55

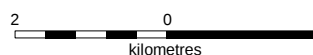


FIGURE 3

2.2 MINING METHOD

Mining at Carborough Downs is currently undertaken using the “cut and flit” method whereby continuous miners and mobile roof bolters advance a series of adjacent and parallel six metre wide headings (roadways) sequentially within the coal seam. Pillars of coal are retained between the roadways with the dimensions of the pillars determined primarily by the depth of seam below ground level.

The planned increase in production will be achieved either through a continuation of the existing method using additional continuous miners or, subject to further geological, geotechnical and economic evaluation, through the introduction of the longwall mining method. With longwall mining, in-situ coal recovery will be approximately 60 - 70%.

2.3 COAL PROCESSING AND HANDLING FACILITIES

The ROM coal will be delivered to the surface via conveyors. On the surface, coal will be stored on the ROM coal stockpile before being trucked to the CHPP located within the Annandale ML.

CDJV intend to utilise the existing CHPP and train loadout facilities. However, an upgrade of the CHPP will be required to accommodate the increase in ROM coal production. The CHPP upgrade will involve the duplication of the existing CHPP adjacent to the existing facility and an increase in the number of product stockpiles from four to six. Coarse and fine rejects will initially be disposed of to the adjacent Broadlea Mine open cut voids and subsequently within a previously-approved on-site co-disposal facility. The footprint of the currently approved co-disposal area may, however, also increase to accommodate the greater volume of coarse and fine rejects which will be produced as a consequence of the increased volume of coal to be mined. This will be confirmed during the EIS.

2.4 TRANSPORT ACTIVITIES

The ROM coal delivered to the surface is hauled by truck (via the mine site haul road) to the CHPP via an already constructed underpass of the Peak Downs Highway. The coal is then washed and transferred to the rail loading facility, from which it is transported by rail to the Dalrymple Bay Coal Terminal for export. The proposed expansion is not likely to result in any major changes to current coal transport activities or infrastructure other than an increase in the frequency of truck and train movements.

2.5 SUPPORT ACTIVITIES

The proposed expansion will utilise the CDMs existing site services. However, modifications to surface infrastructure as discussed above will be required to accommodate the increase in the production rate. Additional surface water dams may also be required and will be confirmed during the preparation of the EIS.

2.6 NOTIFIABLE ACTIVITIES

The proposed expansion will not introduce any new notifiable activities.

2.7 SUBSIDENCE

Maximising the extraction of coal, by either continuous miner or longwall mining techniques, results in the overlying strata settling behind the mined-out areas, with the progressive filling of the void space and subsequent subsidence of the surface micro-topography. Subsidence is influenced by the method of extraction, depth and nature of the overlying strata and the thickness of coal seam extracted, with the greatest potential surface impacts associated with longwall mining.

Subsidence from longwall mining for the CDMEP will be in the order of 2.5 m (to be confirmed through the subsidence study as part of the EIS) for the maximum planned panel width of 300 m and, based on monitoring of other mines in the region, would be achieved approximately 4 to 6 weeks after the active longwall face has retreated beneath a point on the surface.

Subsidence on the ground surface above a longwall panel creates a broad and very shallow sinusoidal shape landform. The mining of successive longwall blocks can create a horizontally exaggerated 'corrugated iron effect'. However, in most cases, troughs formed by subsidence are very subtle and not easily distinguishable from the surrounding land. Subsided areas within the CDMEP would generally be difficult to detect visually because the micro-topography of the subsided areas would be consistent with the surrounding un-subsided topography, i.e. gently rolling country with low relief.

Additionally all feedback will be recorded and used to aid the development of criteria that could subsequently be used to judge whether CDJV's future rehabilitation efforts are successfully progressing towards developing that land (or domain) for its proposed future use.

3 COMMUNITY CONSULTATION

CDJV proposes to undertake an extensive community consultation program in order to adequately address the various environmental, social and economic interests of community within Nebo Shire. This program will ideally involve community representatives working with CDJV to identify and work towards the following objectives and the achievement of the best practicable environmental, social and economic outcomes for the local community.

- 1 Provide opportunities and seek community input into future uses for different types of land (or domains) on site that would provide the best possible environmental, economic and social outcomes for the local community.
- 2 Be open and accountable and meet, and where possible exceed, all requirements under the EP Act (i.e. Schedule of public advertisements).
- 3 Be used to develop a review process that:
 - i. provides the broader community with opportunities to continually provide input; and
 - ii. ensures the various management plans evolve over time to reflect changing community values and advances in scientific knowledge.

Additionally all feedback will be recorded and used to aid the development of criteria that could subsequently be used to judge whether CDJV's future rehabilitation efforts are successfully progressing towards developing that land (or domain) for its proposed future use.

The community and stakeholder involvement process provides an opportunity for community issues and concerns to influence the nature of the expansion. All comments received through the stakeholder and community consultation process will be summarised into broad issues for inclusion in technical and planning processes.

Table 2 details the consultation activities that have been designed to specifically meet the information and feedback needs for particular stakeholder groups.

Table 2: Proposed Consultation Activities

Task	Stage	Consultation Activity
Introduce project to key local and State Government stakeholders.	Prior to release of IAS.	One-to-one meetings with EPA, DNRMW, DMR and Nebo Shire Council.
Introduce project to directly and indirectly-affected landholders and utilities and service providers.	Release IAS/draft TOR for public comment.	Public advertisement of IAS/draft TOR and invitation to comment.
Provide results of environmental studies to stakeholders.	Draft EIS.	Public advertisement of draft EIS and request comments. Mail-out to key project stakeholders.
Provide information sessions for all interested stakeholders.	During public comment period on draft EIS.	Open day workshop with Matrix + Consulting and CDJV personnel where community members can meet with the project team and ask any questions about the project.
Consultation with stakeholders who lodge submissions.	Following public comment on the draft EIS.	One-to-one meetings with individual stakeholders, as necessary.

Initial Advice Statement – Carborough Downs Mine Expansion Project

Stakeholder consultation is an integral component of the planning and approvals process for the CDMEP. The consultation process requires the early identification of stakeholders and engagement of these stakeholders.

Preliminary assessments have indicated a range of stakeholders including:

- Commonwealth Department of Environment and Heritage (DEH);
- Queensland Environmental Protection Agency (EPA);
- Queensland Department of Natural Resources, Mines and Water (DNRMW);
- Queensland Department of Main Roads (DMR);
- Queensland Department of the Premier and Cabinet – Native Title Services;
- Queensland Department of Emergency Services;
- Nebo Shire Council;
- Belyando Shire Council;
- Directly affected landholders;
- Indirectly affected landholder/groundwater users;
- Mackay Conservation Council;
- Nature conservation and wilderness groups;
- The general community;
- Ergon Energy;
- Barada Bana Kabalbara and Yetimarla People Aboriginal Party;
- Powerlink Queensland;
- Neighbouring coal mines;
- Queensland Rail; and
- Dalrymple Bay Coal Terminal.

The following consultation has been undertaken to date.

- 1 Discussions with DEH on the need for a referral for the Expansion Area(s) under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). (Note: a referral for the Carborough Downs project was previously made and deemed not a controlled action);
- 2 Meetings with EPA Emerald to discuss CDJV's intentions in relation to this project and the assessment process; and
- 3 Site inspection with EPA.

4 ENVIRONMENTAL VALUES AND POTENTIAL IMPACTS

The environmental values and potential impacts from the proposed activities associated with the CDMEP, and proposed controls based on the current level of information, are presented in this section.

4.1 FLORA AND FAUNA

A detailed flora and fauna assessment was undertaken in 2004 by Austral Asian Resource Consultants (AARC). The study covered ML 70340 and ML 70339 and included a desk-top assessment and literature review to ascertain the level of available information for the lease areas, together with a field investigation to maximise the data collection and assess the environmental values of the flora and fauna communities. The field program was based on standard methodologies with targeted survey approaches adopted for rare and/or threatened species assessments. The quality of each community was assessed with regard to its likely value and viability as a representative vegetation type.

4.1.1 Flora

More than 150 flora species were identified during the AARC field survey. One Threatened flora species was identified (*Persoonia amaliae*) which is listed as 'Rare' under Schedule 4 of the *Nature Conservation Wildlife Regulation 1994*. AARC recommended that although underground mining would have minimal impact on this community, further targeted surveys should be undertaken once exact disturbance boundaries were known.

The Carborough Downs area is also a known potential habitat for the King bluegrass species (*Dichanthium queenslandicum*) which is listed as Threatened (Vulnerable) under the EPBC Act. The King bluegrass species was not identified during the AARC flora survey or in previous surveys, although it is known to occur in the region.

Six vegetation communities were identified during the field surveys undertaken by AARC (refer **Figure 4**). Associations within these communities reflect different vegetation structures and compositions which occur in different geophysical locations. Two of the six communities were identified as non-remnant cleared or regrowth areas and were described as:

- Regrowth vegetation dominated by Acacia species occurring on the sandy plateau; and
- Cleared grassy areas with some regrowth of *E. populnea*/*Acacia harpophylla* woodland occurring on grassy plains.

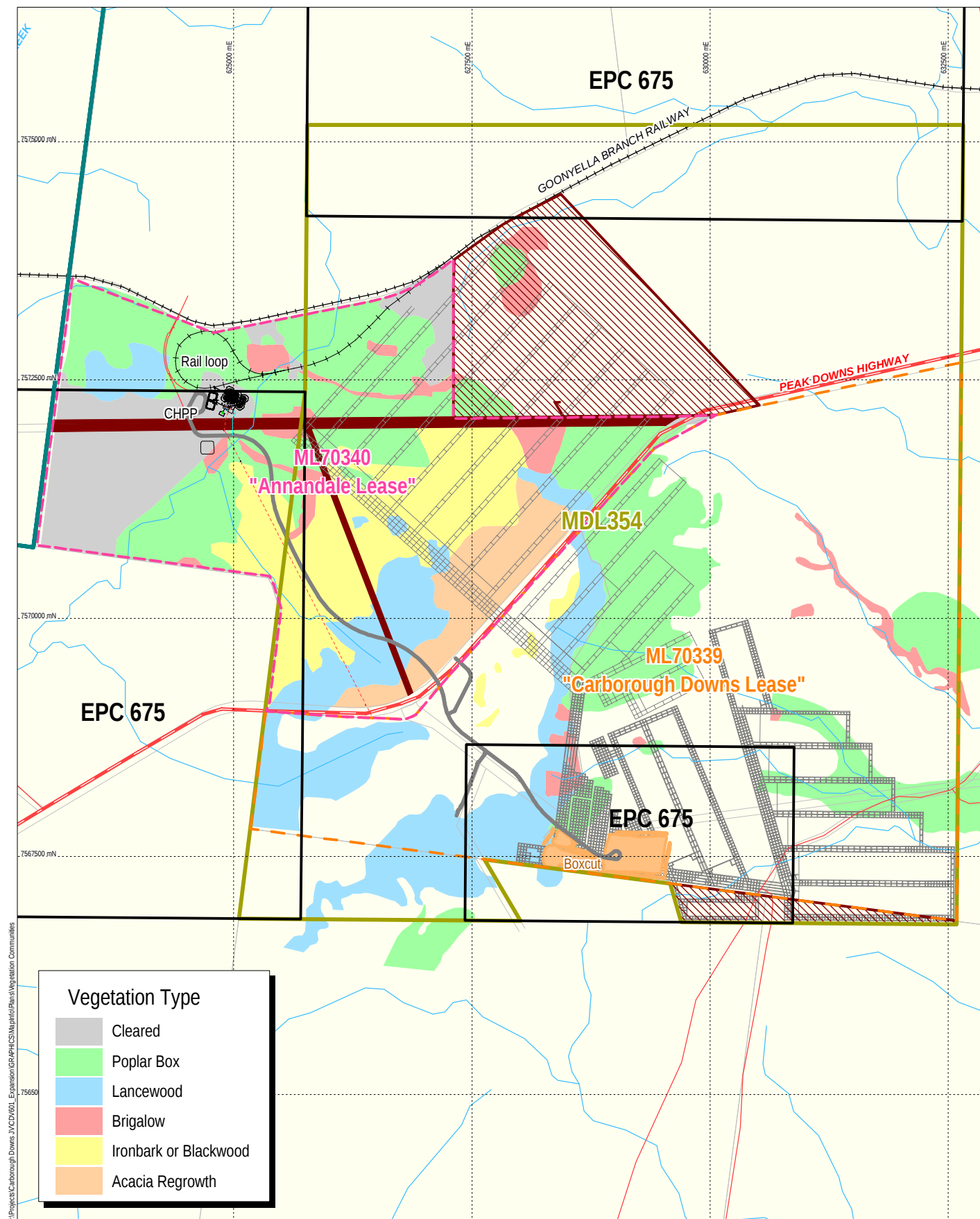
Four regional ecosystems (REs) were identified within the MLs as illustrated by **Figure 5**. The conservation status of each RE under the *Vegetation Management Act 1999* is summarised in **Table 3**.

Table 3: Conservation Status of Carborough Downs REs

RE	Conservation Status
Woodland on sandy plains and hill slopes (<i>Eucalyptus populnea</i>) (RE 11.5.3)	Not of concern
Low woodland on rocky breakaways (<i>Acacia shirleye</i>) (RE 11.10.3)	Not of concern
<i>Casuarina cristata</i> open forest (<i>Acacia harpophylla</i>) (RE 11.5.16)	Endangered
Bloodwood open forest occurring on sandy soils derived from consolidated sediments of the plateau (<i>Eucalyptus crebra</i>) (RE 11.5.9)	Not of concern

RE.11.5.16 (Brigalow) is currently considered to be of conservation significance and is listed as 'Endangered' under the *Vegetation Management Act 1999* and the EPBC Act.

Remnant vegetation areas dominated by Brigalow (*Acacia harpophylla*) and/or by Belah (*Casuarina cristata*) in the canopy or small tree layer, occur on low lying areas with a higher clay content, and on exposed lateritic surfaces. These areas are small in extent (mostly less than 50 m in width) and are difficult to map at an appropriate scale.



- Local Government Boundary
- Exploration Permit
- ML 70339
- ML 70340
- MDL354
- Mine Layout
- Expansion Area
- Highway / Road
- Railway
- Drainage
- Easement
- Haul Road

Carborough Downs Joint Venture Carborough Downs Mine Expansion Project

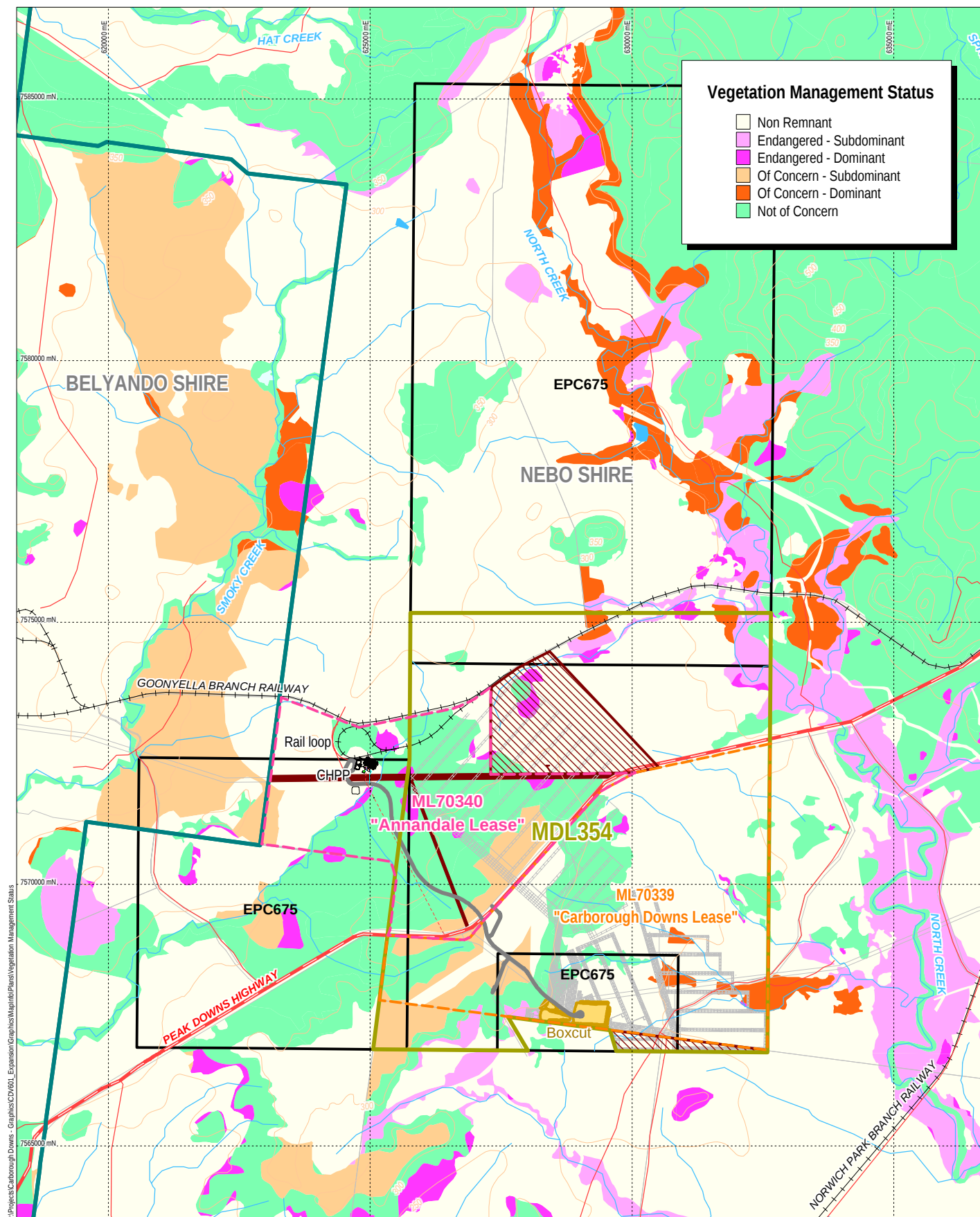
Vegetation Communities

Datum: GDA94
Projection: MGA, Zone 55

0 1000 2000
metres

FIGURE 4

Note: Regional Ecosystems within expansion areas sourced from Ver. 5.0 Qld Regional Ecosystems



- Local Government Boundary
- Exploration Permit
- ML 70339
- ML 70340
- MDL354
- Mine Layout
- Expansion Area
- Highway / Road
- Railway
- Drainage
- Easement
- Haul Road

Carborough Downs Joint Venture Carborough Downs Mine Expansion Project

Vegetation Management Status

Datum: GDA94
Projection: MGA, Zone 55

2 0 2
kilometres

FIGURE 5

4.1.2 Fauna

A total of 158 species were observed during the AARC study including 12 butterflies, nine amphibians, 85 birds, 23 reptiles, 24 mammals and five introduced pest species. Of the 153 species recorded on site, two species were identified as having conservation significance, namely:

- the Little Pied Bat (*Chalinolobus picatus*), listed as 'Rare' (under Schedule 4 of the *Nature Conservation Wildlife Regulation 1994* (NCWR 1994)), was captured during the survey at two locations as well as recorded on the ANABAT call detection system; and
- the Squatter Pigeon (*Geophaps scripta scripta*), listed as 'Vulnerable' under both State (NCWR) and Federal (EPBC Act 1999) legislation, was observed (one individual) in the Popular Box Woodland during the survey.

Ten bird species that are listed as Migratory species under the EPBC Act were recorded, all of which are considered to be common throughout Australia. In accordance with the requirements detailed in the EPBC Act, AARC assessed the impact of the proposed activities on all ten migratory species and determined that potential impacts would be negligible, that is, there would be no 'significant impact' on these species.

4.1.3 Potential Impacts

The flora and fauna assessment undertaken by AARC in 2004 covered the area within the boundaries of the existing Carborough Downs and Annandale MLs. A review of the RE mapping (refer **Figure 4** and **Figure 5**) indicates that two areas of the endangered Brigalow occur in the proposed expansion areas.

In 2004, a referral was lodged with the DEH in Canberra under the EPBC Act and stated that the impacts on the endangered Brigalow community (a matter of national environmental significance protected under the EPBC Act) from the MLs were not regarded as significant and therefore considered "not a controlled" action. The Assistant Secretary, Policy and Compliance Branch, DEH, confirmed that the proposed action was not a controlled action and therefore did not require approval under the Act.

Given the findings of the previous referral for the current MLs, which was deemed by DEH as not resulting in a significant impact (i.e. not a controlled action), the impacts on the Brigalow communities within the footprint of the expansion areas are not regarded as significant. It should also be noted that the expansion areas contain a significantly smaller area of Brigalow compared to that contained in the MLs. Ground truthing of the REs within the expansion areas is currently being undertaken.

CDJV have engaged with DEH in relation to referral requirements under the EPBC Act for the proposed mine expansion. Considering the minor change in surface area, DEH have agreed in-principal that the impacts are not likely to be significant. On this basis, a referral will not be lodged for this project. CDJV have sent a letter to DEH on this basis.

4.2 SURFACE WATER

The Carborough Downs ML area is dominated by an escarpment area trending north to south through the ML. The topography above the escarpment, on the western side of the lease, is gently undulating with a plateau like formation. The site below the escarpment incorporates five to eight smaller gullies converging towards the eastern boundary where one larger gully is formed.

The proposed expansion area to the north-east of the Annandale ML is characterised by small basaltic hills. The expansion area to the south of the Carborough ML is located in similar topography.

There are no major watercourses within the Carborough Downs or Annandale MLs or the proposed expansion areas. However, small drainage lines within the Annandale ML channel surface water flows from the escarpment to the centre of the lease where it joins flows from the northern area. Surface water is then channeled from the site via a small unnamed gully that is the largest watercourse in the CDMEP. All drainage lines are considered ephemeral and all surface water flows in a south-west direction to North Creek (refer **Figure 2**), a tributary to of the Isaac River.

Water supply at Carborough Downs is currently sourced from the eastern spur pipe line and is pumped to holding tanks prior to underground use. An evaporation dam contains mine water from dewatering. A number sediment basins of variable capacities have been constructed on ephemeral drains within the MLs.

4.2.1 Potential Impacts

The principal sources of potential surface water contamination from both the existing and planned mining operations at Carborough Downs include:

- runoff from coal stockpiles containing sediment and dissolved salts;
- runoff from cleared areas containing sediment;
- spoil runoff containing sediment; and
- infrastructure runoff from roads etc. containing oils, sediment, coal fines etc.

CDJV has addressed these potential impacts on surface water in the existing PoO.

Given that there are no major watercourses within the CDMEP, it is not likely that significant impacts to surface water will result from mine subsidence. However, a surface water assessment is currently being undertaken by Gilbert & Associates. The assessment involves analysis of the predicted post-subsidence contours to indicate if there are likely to be any significant ponds created within the ephemeral drainage lines, changes to drainage patterns and/or an increase in erosion potential. In addition, the Mine Water Management System will be updated to include a revised mine water balance to accommodate a potential increase in dewatering and water demand at the CHPP as a result of the mine expansion. Dam capacity will also be reviewed to ensure an acceptable level of risk of overflow.

The hydrological assessment will involve predicting the frequency of water discharges based on anecdotal rainfall data, dewatering requirements and dam storage capacity to ensure that, in the event of a discharge, there is sufficient dilution to satisfy downstream water quality criteria. Surface water impact mitigation measures will be developed in consultation with the EPA and will be incorporated into the EMP.

4.3 GROUNDWATER

There are no major aquifers present within the Carborough Downs and Annandale MLs. However minor groundwater flows associated with the coal seams are known to occur. Groundwater within the CDMEP is typically saline.

A detailed groundwater assessment is currently being undertaken by Australasian Groundwater & Environmental Consultants that involves:

- a review of local and regional groundwater data including regional bore census;
- an investigation and description of the hydrogeological environment for the CDMEP;
- an investigation of any impacts caused by subsidence on any groundwater base load supplying surface water bodies;
- a review of water quality and quantity data for the underground mine dewatering system. Outcomes of this review will be used to assess the adequacy of the existing mine water management system; and
- recommendations to minimise or avoid potential impacts that may be identified.

Predictions will be undertaken of groundwater impacts using empirical techniques, if required, should potential aquifers above the coal be identified.

4.3.1 Potential Impacts

The proposed mining activities within the Mining area have the potential to impact on groundwater quality. The potential for impact will be investigated during the EIS and appropriate mitigation measures will be developed, if necessary, in consultation with the EPA.

4.4 REHABILITATION AND POST-MINING LANDFORM

CDJV have several legislative requirements within their existing EA, EMP and PoO to ensure the post-mining landform is returned to the same or improved condition that existed prior to mining.

4.4.1 Surface rehabilitation

Surface subsidence will be the principal impact mechanism as a consequence of underground mining within the CDMEP. CDJV will amend the current EMP to incorporate monitoring and management measures to ensure the integrity of the land and to allow the return of former land uses. To achieve this, the CDJV EMP will address the following issues.

- regular liaison with the local stakeholders;
- land management practices that take into account soil erosion, seasonal factors and climatic conditions;
- repair of damage caused by subsidence; and
- construction of new soil erosion control structures (where required).

A land resource assessment was undertaken by GSS Environmental in 2004 that investigated the soil and landuse capabilities of the land within the Carborough Downs and Annandale MLs. **Figure 6** illustrates soils occurring within the footprint of the CDMEP, including detailed soil mapping by GSS Environmental within the MLs and broader regional scale soil mapping for those areas outside of the MLs.

GSS Environmental classified the areas below the escarpments, in which the majority of mining activities are located, as Class 2, i.e. land suitable for grazing of native and improved pastures. This area has been extensively used for agriculture (grazing) and much of the natural (Brigalow dominant) vegetation has been cleared.

The soils in the local area are predominantly cracking clays which are prone to erosion and are not suitable for regular cultivation given the topography and the region's climate (evaporation exceeds rainfall).

A comprehensive soil and landuse suitability assessment similar to that previously undertaken is currently being conducted for the proposed expansion areas including:

- the assessment of the pre-mining soils and land capability;
- predicting the post-mine landuse;
- investigating the extent and depth of the topsoil resources in any additional infrastructure areas, i.e. for stripping and storage;
- mapping the soils in the proposed expansion areas, and areas which are to be disturbed for infrastructure; and
- an investigation of the nutrient levels, sodicity and the salinity of soils.

4.4.2 Potential Impacts

The major limitations to land use are likely to relate to inherent landform, soil properties, and land management practices prior to and after mining, and will be investigated during the EIS. Any impacts to agricultural practices as a result of subsidence would be manageable through the adoption of appropriate farm management practices.

4.5 NOISE/VIBRATION

The low ambient noise and vibration levels surrounding the CDMEP are typical of a rural environment. No specific baseline studies were undertaken prior to the initial approval due to the low population density of the area and proximity to other mining operations. However, detailed noise and vibration assessments are currently being undertaken for the CDEP given that the proposal will result in an increase in production levels, associated equipment, train and vehicle movements, and duplication of the CHPP. The noise and vibration assessment will concentrate on the surface infrastructure and potential increase in coal haulage.

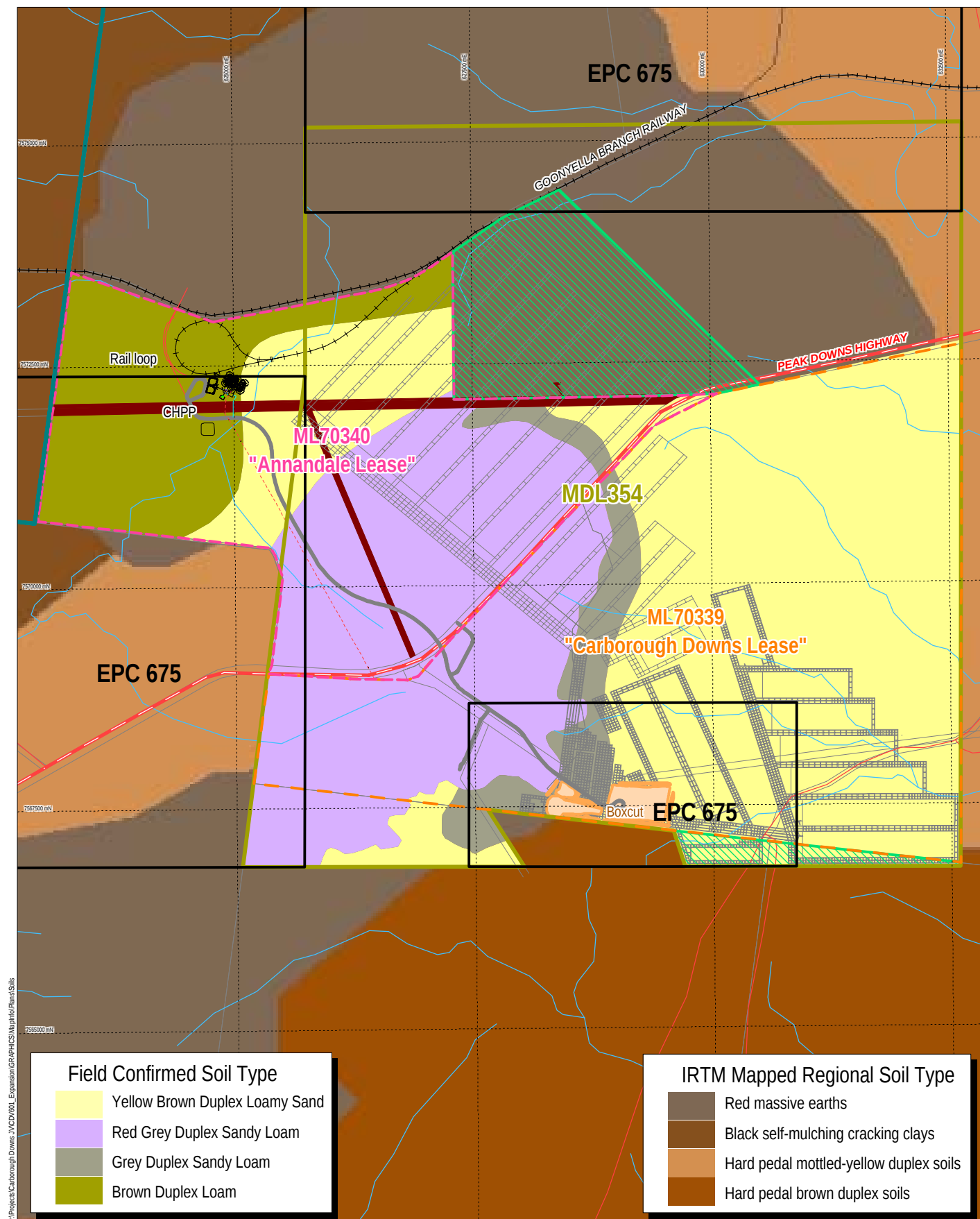
The nearest town to the noise sources at the Carborough Downs mine is Moranbah, approximately 15 kilometres to the east. The nearest residences to the existing mine are listed in **Table 4** and shown in **Figure 3**.

Table 4: Proximity of Residences to the Mine

Residence	Distance from Operations
Broadlea residence	6 km west of CHPP and 10 km north-west of the box cut
Annandale & Moorvale residences	8 km east of CHPP & 9 km northeast of the box cut
Wotonga residence	10 km south-west of the box cut
Winchester residence	15 km south-west of the box cut

Baseline noise monitoring is currently being undertaken by Noise Mapping Australia to determine background noise levels at sensitive receptors. This data will be used to model the predicted noise generated by the mine expansion. Appropriate mitigation measures will be developed, if necessary, depending on the results of the numerical modelling.

Given the nature of the operation, low population density of the immediate locality and separation distances to dwellings, a practicable approach for noise management is likely to involve investigating any noise complaints should they arise and endeavouring to resolve the issue with the complainant, as is the current practice.



- Local Government Boundary
- Exploration Permit
- ML 70339
- ML 70340
- MDL354
- Mine Layout
- Expansion Area
- Highway / Road
- Railway
- Drainage
- Easement
- Haul Road

Carborough Downs Joint Venture Carborough Downs Mine Expansion Project

Soils

Datum: GDA94
Projection: Geographic
Grid: MGA, Zone 55

0 1000 2000
metres

FIGURE 6

4.6 AIR QUALITY

As discussed in **Section 4.5** and summarised in **Table 4**, four rural residences are located within a 15 km radius from the CDMEP. The local airshed is typically rural and generally influenced by pastoral activities, primarily in dry conditions, and open cut mining activities.

The potential impacts on air quality as a result of the proposed mine expansion are related to the generation of dust and greenhouse gas emissions from mining activities, coal hauling and handling activities. However, it is anticipated that there will be minimal impact to surrounding sensitive receptors as the prevailing winds are mostly from easterly directions year round and the nearest receptors in the west are six kilometres from the CHPP and rail load-out facilities.

An air quality assessment is currently being undertaken to investigate the potential for dust impacts to occur as a result of the proposal. The investigation will draw on the results of a network of dust gauges established for the Carborough Downs and nearby Broadlea and Isaac Plains projects. Given the nature of underground operations, low population density of the immediate locality and separation distances to dwellings, the CDMEP is not likely to have a significant impact on air quality.

Air quality management is likely to involve an investigation into any nuisance complaints and resolution in a reasonable and practicable manner, as is existing practice. The greatest potential impact on air quality is likely to be from dust emissions from coal stockpiles, CHPP and traffic movements on site, as is currently the case. This will be adequately addressed in the EMP for the CDMEP.

Other emissions may also include sulphur dioxide and nitrogen oxides generated by the diesel-powered plant and machinery. The emission rates of these oxides will be minimal and will be consistent with other underground mining operations in the region.

Gas drainage will be undertaken in consultation with CH4, the holders of an overlying petroleum lease (PL223). Consultation will focus on utilisation options for methane gas.

4.7 VISUAL ENVIRONMENT

The majority of surface infrastructure required to support the CDMEP was constructed under the existing approval. The only notable new infrastructure associated with the expansion project will be the duplication of the CHPP. However, the CHPP is well separated from publicly assessable vantage points (e.g. Peak Downs Highway). The proposed expansion areas are located in areas of gently undulating slopes with subsidence difficult to visually distinguish. Notwithstanding the above, a visual assessment will be undertaken as part of the EIS.

4.8 NATIVE TITLE

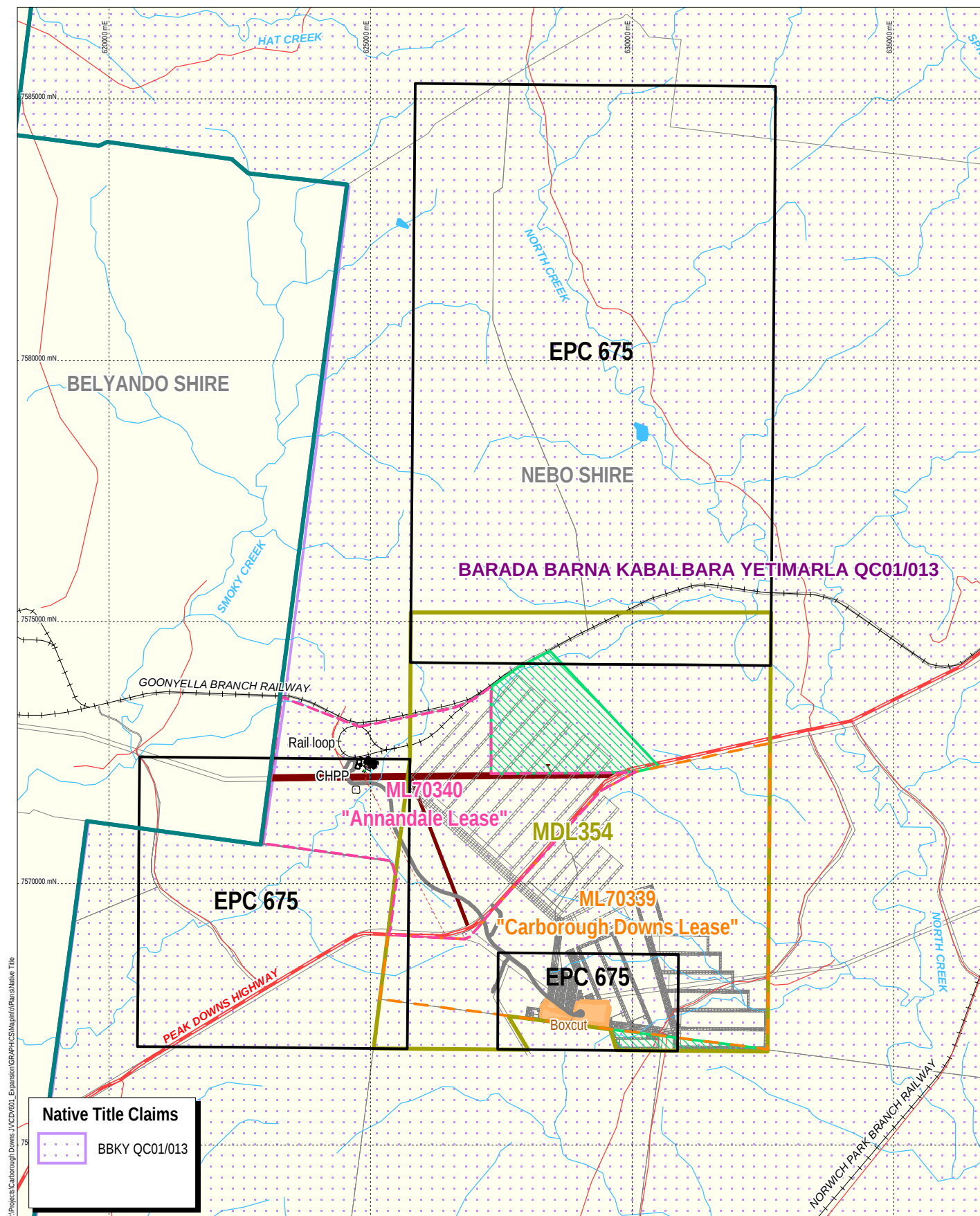
The proposed mine expansion areas are located on Lot 26 SP1060973 and Lot1 RP866478 which are freehold lands. Native title is extinguished on freehold land. One registered native title claim by the Barada Barna Kabalbara Yetimarla QC01/013 (BBKY#3) traditional owner (TO) group exists in the project area, as shown in **Figure 7**.

4.9 ABORIGINAL AND CULTURAL HERITAGE

A cultural heritage survey was undertaken in July and August 2004 within the Carborough Downs and Annandale MLs with members from the BBKY#3 TO group. Cultural materials, including continuous scatters of stone artefacts, remains of Aboriginal hearths and two scarred trees were identified during the surveys. Significant areas of cultural materials and associated natural features were identified on the banks of creeks and gullies, on flat alluvial terraces, in undulating box tree country and along lower levels of the escarpment. The survey also identified a range of locally occurring natural resources which were available to support the economic and cultural systems of the Aboriginal people who lived in this area.

The findings of the cultural heritage field survey and relevant mitigation measures were included in a Cultural Heritage Management Plan (CHMP) prepared by McCollum Environmental Management Services in 2005 in consultation with the BBKY#3 TOs under the *Aboriginal Cultural Heritage Act 2003*. As the July and August 2004 surveys did not cover the proposed expansion areas, CDJV will undertake cultural heritage surveys with the BBKY#3 TOs in these areas and will modify the CHMP, as required.

Given the nature of the underground operations, the CDMEP is not likely to have a significant impact on cultural heritage.



- Local Government Boundary
- Exploration Permit
- ML 70339
- ML 70340
- MDL354
- Mine Layout
- Expansion Area
- Highway / Road
- Railway
- Drainage
- Easement
- Haul Road

Carborough Downs Joint Venture Carborough Downs Mine Expansion Project

Native Title Claims

Datum: GDA94
Projection: MGA, Zone 55

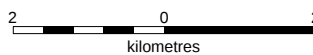


FIGURE 7

5 EIS TRIGGERS AND THE CARBOROUGH DOWNS EXPANSION PROJECT

The CDMEP will require separate MLs (under the *Mineral Resources Act 1989*) for each of the two expansion areas that are located outside of the current MLs. CDJV's current EA MIM100329305 will also require amendment to include the additional MLs (under the *Environmental Protection Act 1994*). The amendment will also include the necessary considerations for an increase in mining rate.

5.1 EIS ASSESSMENT CRITERIA

Triggers for deciding whether a non-standard mining application requires an EIS are outlined in the EPA Guideline 4 *Deciding the level of impact assessment for the mining industry*. These triggers are reproduced below in **Table 5** with commentary provided on how the guideline criteria apply to the CDMEP.

Table 5: EIS Trigger Criteria

EPA Trigger	Y/N/U	Comment
Have a significant impact on Category A and Category B environmentally sensitive areas (ESAs).	N	While Category B ESAs occur in the expansion area (ie Brigalow), given that mining is underground, there are not likely to be any significant impacts on Brigalow. This is further supported by the EPBC referral for the previously-approved project which deemed that the impacts on Brigalow are not likely to be significant (refer Section 4.1).
Involve mining in a marine area.	N	The proposal does not involve mining in a marine area.
Involve mining less than 500 m landward from the highest astronomical tide (HAT).	N	The project location is in central western Queensland; therefore the proposal will not involve mining within 500 m of HAT.
Require construction of more than 150 new dwellings.	N	Any additional demands on accommodation will be met by the existing 1,000 persons camp at Coppabella.
Include an ERA that would otherwise be a Level 1 ERA with an annual fee of greater than \$4,000.	N	The proposal is not likely to require additional non-mining ERAs to the current operations.
Involve the mining of more than 2 million tonnes of mineral or ROM ore per year.	Y	The project seeks to increase the mining and processing rate from 1.9 Mtpa to approximately 5 Mtpa, which exceeds the 2 Mtpa threshold.
Involve the abstraction of more than 2 million m ³ of water per year from natural surface and/or groundwater.	N	Water demands for the CDMEP, as outlined in EMP for Stage 2, are estimated as 993 ML/annum, which is less than 2 million m ³ per annum (or 2,000 ML/annum).
Result in more than 25 ha remaining post-mining in a non-beneficial land capability where an acceptable alternative may be feasible.	N	No more than 25 ha of a non-beneficial land capability, where an acceptable alternative may be feasible, will remain.
Involve any non-standard mining activity less than 2 km from a town.	N	N/A. The site is located approximately 15 km west of Moranbah.
Contain a dam which requires a dam failure assessment under the <i>Water Act 2000</i> .	N	The proposal is not likely to involve a dam that requires a dam failure assessment under the <i>Water Act 2000</i> .
Include Mining for uranium or asbestos.	N	N/A. The proposal is for the mining of coal.

Based on the assessment of EIS triggers in **Table 5** above, the project triggers the 2 Mtpa threshold criteria and accordingly, an EIS is required.

6 REFERENCES

- AustralAsian Resource Consultants (AARC), 2004, *Carborough Downs Project Flora and Fauna Assessment Report*.
- Carborough Downs Joint Venture (CDJV), December 2005, *Carborough Downs Coal Mine EMP*.
- Carborough Downs Joint Venture (CDJV), March 2005, *Carborough Downs Coal Mine Environmental Management Overview Strategy*.
- Integrated Environmental Services Australia Pty Ltd (IESA), 2004, *Soils, Landuse, and Environmental Values Assessment Carborough Downs Project*.
- Maunsell Pty Ltd, 2005, *Carborough Downs Coal Mine Assessment of Impacts*, Prepared for CDJV Pty Ltd.



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