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## **Figures for Responses**

# 1 Introduction

## 1.1 Purpose of Supplementary Report

An Environmental Impact Statement (EIS) has been prepared for the Caval Ridge Project. BMA is the proponent of the Project.

The EIS was made available for public comment and review from 13 July to 24 August 2009. In response to this 466 submissions were received from Advisory Agencies, organisations and the public.

The submissions were reviewed and this Supplementary Report was prepared in response. This Supplementary Report also describes any amendments to the Project description which have been made since the EIS was released.

## 1.2 Structure of the Supplementary Report

The structure of the Supplementary Report is detailed below in Table 1.1.

**Table 1.1 Structure of the Supplementary Report**

Section	Details
Section 1	Lists the Advisory Agencies, organisations and public making submissions and key issues raised.
Section 2	Provides a description of the major changes made to the project since the release of the Draft Caval Ridge EIS. These changes have been made as further design studies have been completed and options optimised. Environmental impacts resulting from these changes are detailed and assessed within this supplementary report.
Section 3	Provides an update on the community consultation activities that have occurred since the release of the Draft Caval Ridge EIS.
Section 4	Provides a detailed response table that addresses the issues raised in each individual submission from advisory agencies, organisations and the public.
Section 5	Groups the submissions received and responses by the chapter headings within the Draft Caval Ridge EIS presenting a format for reviewing the responses.
Appendices A - P	Provide documentation supporting the responses.

## 1.3 Advisory Agencies Making a Submission

Table 1.2 details the Advisory Agencies who provided submissions to the EIS. The submissions are addressed in Section 4.1.

**Table 1.2 Advisory Agencies**

Advisory Agency/Organisation	Response Table Section
Department of Community and Safety	4.1.1
Department of Communities	4.1.2
Department of Employment, Economic Development and Innovation	4.1.3
Department of Environment and Resource Management	4.1.4
Department of Environment, Water, Heritage and the Arts	4.1.5

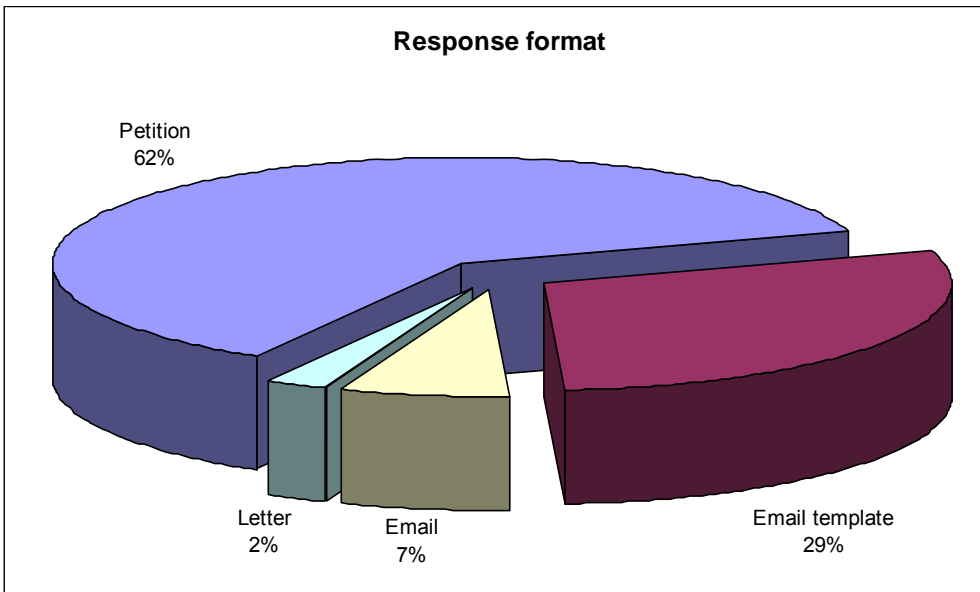
Advisory Agency/Organisation	Response Table Section
Isaac Regional Council	4.1.6
Department of Transport and Main Roads	4.1.7
Queensland Health	4.1.8
Queensland Police Service	4.1.9
Department of Infrastructure and Planning	4.1.10

## 1.4 Public Submissions

### 1.4.1 Format

A total of 396 public submissions, from 456 public respondents were received representing a cross range of individuals and corporations. It should be noted that one of the submissions (#105) was signed by 81 respondents. Responses to these submissions are addressed in Section 4.2.

Public submissions were received in a number of formats including email/petition master templates type submissions, letters and individual emails. Template type submissions were most common with 91% of public respondents choosing to utilise this format. Figure 1.1 below details the breakdown of response formats.



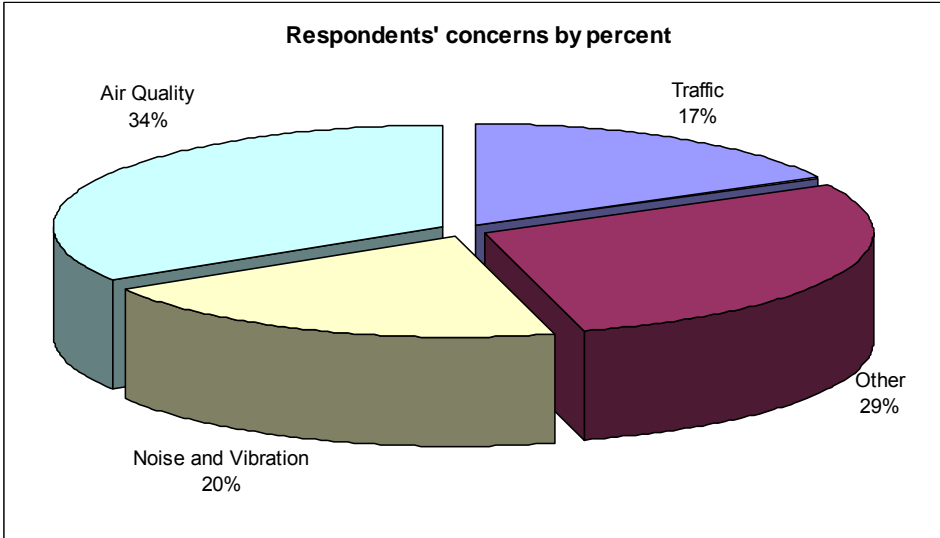
**Figure 1.1 Public Response Format**

### 1.4.2 Issues Raised

Issues raised in each submission were categorised for assessment according to the following general categories:

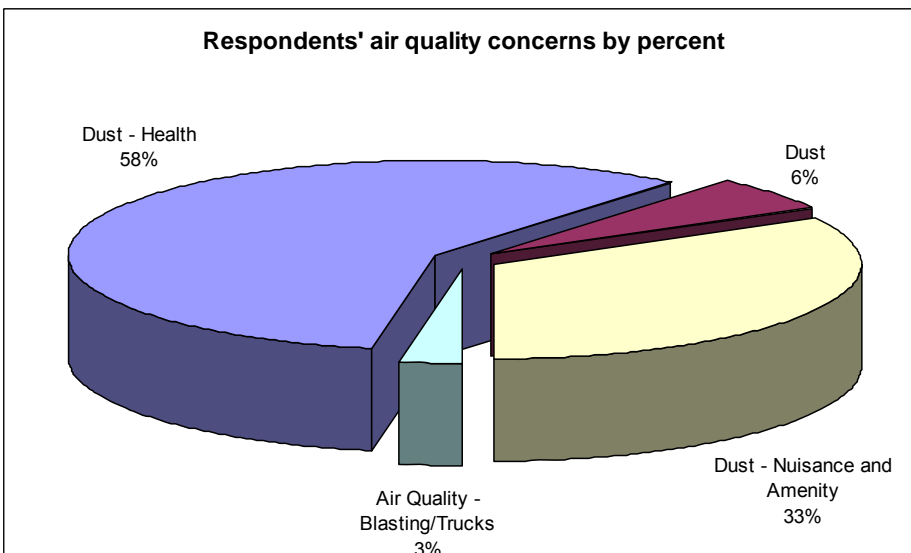
- Air quality
- Noise and vibration
- Traffic
- Other.

Figure 1.2 below details the contribution of responses per category.



**Figure 1.2 Percentage Responses per Category**

Air quality was the most common issue. This can be further broken down into sub-issues which relate to dust, health, and amenity. Ninety-one per cent of respondents were concerned with the health issues and nuisance or amenity issues of dust. Figure 1.3 below details respondents' specific concerns with respect to air quality.



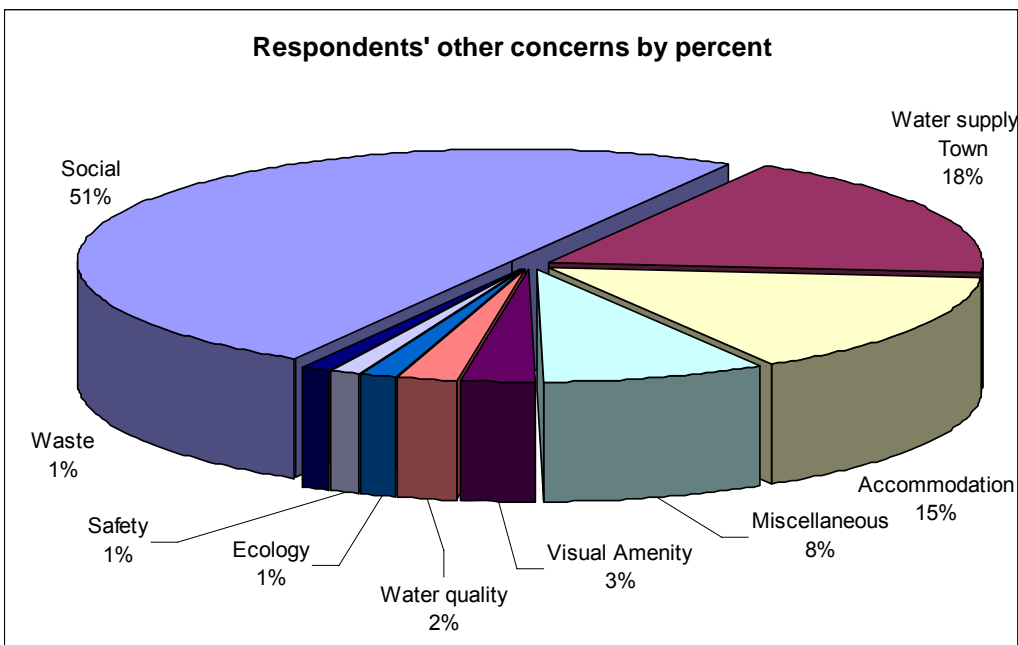
**Figure 1.3 Air Quality Concerns**

Of those respondents who raised noise and vibration as a concern, 52% were concerned with both noise and vibration, 38% were concerned with noise as a stand alone issue and likewise 10% for vibration. Traffic was not further categorised into more specific issues as most responses did not need further information.

Points of concern raised by respondents which were not categorised into the above mentioned categories were collated in the category of Miscellaneous. The three most frequently reported concerns were:

- Social issues (51%);
- Town water supply (18%); and
- Accommodation (15%).

Detailed in Figure 1.4 below are other concerns raised by respondents.



**Figure 1.4 Respondents- Other Concerns by Percent**

### 1.5 Key Issues Raised in Submissions

In summary, the following key issues were raised in the various submissions:

- Dust management and potential impacts
- Noise and vibration assessment and management
- Flood risk and management
- Increased traffic and management on the Peak Downs Highway
- New traffic infrastructure
- Management of emergency situations
- Management of hazardous and dangerous goods on site



- Mine layout design and sequence
- Water supply and site water management
- Good Quality Agricultural Land (GQAL) assessment
- Mine waste management
- Accommodation and fly in and fly out arrangements
- Nature conservation management strategies

These have been addressed by reference to applicable sections of the EIS, clarification in Sections 4 and 5 of this Supplementary EIS or additional studies presented in the appendices and referenced to the specific responses in Sections 4 and 5.

## **2 Amendments to Project Description**

### **2.1 Introduction**

The detailed project description is provided in Section 3 of the Caval Ridge EIS.

In summary, the Caval Ridge Mine will be a new open cut coal mine north of and adjacent to BMA's existing Peak Downs Mine. The mine is located in the northern section of the existing ML 1775, with Harrow Creek acting as the southernmost boundary. Spoil dumps will be located on MLA 70403. Open cut mining operations (using dragline and truck/shovel equipment) are proposed, producing approximately 5.5 Mtpa of hard coking coal product primarily for the export market. The life of mine is expected to be at least 30 years.

The coal from Caval Ridge Mine will be processed at an on-site coal handling and preparation plant (CHPP). Construction of the CHPP is expected to commence 2011, with first coal expected to be produced in 2013/14.

Additional coal will be extracted at the Peak Downs Mine, conveyed from a new southern ROM to the proposed Caval Ridge Mine and processed using the proposed CHPP to produce an additional 2.5 Mtpa of product coal. The Southern ROM and conveyor form part of the Caval Ridge project. The Caval Ridge CHPP will effectively produce 8 Mtpa of product. Mining the 2.5 Mtpa from Peak Downs Mine does not form part of the Caval Ridge project as it is within the currently approved capacity of the Peak Downs Mine.

A rail spur and loop will be constructed from the Blair Athol line to the train loadout (TLO) facility. The spur and loop are included in this project. Product coal will be railed either to the Port of Hay Point (Hay Point Coal Terminal, via the existing Blair Athol Line) or to the Abbot Point Coal Terminal (via the Newlands and North Goonyella system upon complete of the Northern Missing Link Rail).

### **2.2 Project Changes**

Since the submission of the Caval Ridge EIS, there have been changes to the project description due to ongoing optimisation of the design as well as in response to submissions received.

The general changes to the description are described below, while the changes to potential impacts are addressed in Section 4 (by agency/general submission topic) and Section 5 (by potential area of impact).

#### **2.2.1 Infrastructure**

##### **2.2.1.1 Overland Conveyor**

A re-design of the conveyor corridor has been undertaken to minimise clearing impacts and fragmentation of an endangered ecosystem. The previous location of the overland conveyor traversed a stand of brigalow dominated vegetation, resulting in some clearing and fragmentation of this habitat.

The previous conveyor corridor width was approximately 120 m wide. Reconsideration of the conveyor corridor design and relocation of the proposed service road has allowed for the conveyor corridor to be substantially narrowed to 40 m.

The conveyor alignment itself has also been moved approximately 360 m to the north of the previous design to minimise the area intersecting the brigalow community. The re-location and narrowing of the conveyor corridor has effectively halved the brigalow proposed to be cleared and reduced the fragmentation effect. Further detail is provided in Appendix A2 and Figure A (supplement) .

Re-design of the conveyor to move it further north (and ideally out of the brigalow community) was investigated, however to do so would require the installation of transfer towers and other associated infrastructure such as a power and water supply points for these transfers and potentially increase the impacts to the adjacent vegetation.

### **2.2.1.2 Pit Ramps**

An additional two pit ramps (Figure 1.3) were included in Horse Pit. While this is an additional cost to the project, additional ramps reduced the haul distances and vehicle kilometres travelled. The additional two pit ramps have made a significant contribution to dust reduction initiatives. The increased pit ramps and change to haul method described in 2.2.2.2) are predicted to reduce the dust emissions associated with wheel generated dust from coal and reject hauling by 69% (Appendix B – Air Quality Supplementary Report).

### **2.2.1.3 ANFO Mixing Plant and Magazine Access**

Details of access roads to the ANFO mixing plant and magazine were not included in the EIS. These have now been indicated on the revised MIA layout (Figure 3.2a).

## **2.2.2 Equipment and Operations**

### **2.2.2.1 Mine equipment**

The composition of mobile equipment has been optimised and various changes to the operating strategy will be implemented. These include reduction of some fleet numbers, inclusion of back-hauling to minimise trucks travelling empty and the re-allocation of some dozers to improve efficiency of operations. These changes have made a significant contribution to dust reduction initiatives (Appendix B – Air Quality Supplementary Report).

### **2.2.2.2 Changes to Operations**

#### ***Haul Method***

The original haul method was to have coal and rejects hauled by separate fleets. Back-hauling of reject material for disposal has been introduced to minimise trucks travelling empty. This change to haul method together with additional pit ramps in Horse Pit are predicted to reduce the dust emissions associated with wheel generated dust from coal and reject hauling by 69%.

#### ***Dozer assignment***

Some dozers have been re-assigned to improve efficiency of operations. These changes are expected to make a significant contribution to dust reduction initiatives. This change has resulted in a reduction of dust emissions of 8% for dozer activities.

### **2.2.3 Tenure**

The Caval Ridge EIS mistakenly included the area covered by MLA 70412 as part of MLA 70403, this mistake has now been corrected as indicated on Figure 3.1.

### **2.2.4 Indigenous Cultural Heritage**

To date BMA has consulted with the Barada Barna Kabalbara and Yetimarla #4 group (BBKY) regarding matters of Native Title and Indigenous Cultural Heritage.

BBKY made their application to the National Native Title Tribunal (NNTT) on 31 July 2001. The application was registered by the NNTT on 5 April 2002. The BBKY application was later dismissed.

On 12 November 2008, a new claim over the geographical area covering the Caval Ridge project was submitted by the BaradaBarna (BB). This claim was registered by the NNTT on 9 October 2009.

BMA has entered into discussions with BB and is committed to ensuring that the Native Title interests are captured during community consultation and the EIS process and that an agreed cultural heritage management plan (CHMP) is developed.

The *Aboriginal Cultural Heritage Act 2003* applies to all aspects of the project. The registration of the BB claim has no effect on cultural heritage surveys carried out to date. Work at site will be carried out in accordance with the Act's duty of care guidelines.

### 2.2.5 Resource Statement

The following table provide revised value for resource information.

Deposit	Coal Type	Coal Resources as at 30 June 2008 (a,e,h)				Coal Reserves as at 30 June 2009 (a,d,h)			
		Measured Tonnes (b) (millions)	Indicated Tonnes (b) (millions)	Inferred Tonnes (b) (millions)	Total Tonnes (b) (millions)	Proved Tonnes (c) (millions)	Probable Tonnes (c) (millions)	Total Reserve (Tonnes (c) (millions)	Marketable Tonnes (c) (millions)
Caval Ridge Area(f)	Metallurgical coal	74	197	120	390	28	135	163	86
Heyford Pit (g)	Metallurgical coal	70	86	25	181	45	89	134	68
Total					571				154

- (a) Reserves and Resources are reported in compliance with the JORC Code.
- (b) Resource tonnes at insitu moisture basis.
- (c) Reserves tonnes at standard ROM moisture basis, Marketable tonnes at standard product moisture basis.
- (d) Coal Reserve estimate compiled under the supervision of Competent Person Marc Delaney who is a full time employee of BMA and consents to the inclusion of the estimate in the form and context above.
- (e) Coal Resource estimate compiled under the supervision of Competent Person Donna Frater who is a full time employee of BMA and consents to the inclusion of the estimate in the form and context above.
- (f) Caval Ridge Area includes the undeveloped pits of Horse and Cherwell.
- (g) Heyford pit is developed and currently operated by Peak Downs Mine, and will form part of the Caval Ridge Project.
- (h) Resource reported as at 30 June 2008 and are currently being updated. Reserves as at 30 June 2009.

### 3 Updates to Community Consultation

BMA continued community engagement throughout the display period for the Caval Ridge Project draft EIS. The project team engaged with over 300 community members throughout July and August 2009. A key focus of the display period was to present the EIS in plain English and to gather key community issues for further study and consideration. The following summary provides an outline of key activities and community responses. It is important to note the comments raised by the community were in addition to the official EIS submission process.

During the release of the project draft EIS, BMA conducted a number of activities including:

- Distribution of the fourth growth project newsletter to 3,300 homes and businesses in Moranbah. The newsletter outlined how to access the project draft EIS, where to get dates and locations for BMA's mobile information displays, and the submission and approvals process;
- Display of information posters in key public locations in Moranbah. The poster advertised mobile display information, project profiles and contact details for the project team;
- Local and regional advertising in the Daily Mercury, the Miner's Midweek and local radio station Rock FM between July and August 2009. A flashing sign on the outskirts of Moranbah also advertised the mobile display dates and locations;
- Development of a plain English Community Overview document which presented key aspects of the project draft EIS;
- Meetings with Isaac Regional Council;
- Updating the project webpage with the Caval Ridge Project draft EIS, community overview document and relevant fact sheets;
- Uploading copies of the project draft EIS on USBs for distribution to interested parties and individuals;
- Hosting a Community Reference Group (CRG) site tour of the proposed Caval Ridge Mine;
- Contacting affected property owners and offering a copy of the project draft EIS, in hard copy or USB;
- Presentations to government agencies in Brisbane and Mackay. Consultation with agencies also included a site tour of the proposed Caval Ridge Mine;
- Managing project contact points ie. 1800 number and project email; and
- Seven mobile information displays in Moranbah and Mackay between July and August 2009. 348 people attended the displays.

#### Results

Participants showed general interest for the project and other BMA growth projects. Key community comments and concerns relating to the project draft EIS specifically, included:

- Timing and location of project;
- Environmental issues such as noise, dust, vibration, climate change and impacts to water ways, flora and fauna;
- The type of mining and facilities planned for the project;
- Whether the mine would be open cut or underground;



- Proposed mine rehabilitation activities;
- Availability and affordability of housing as a result of the project;
- Impacts on existing social services;
- Employment opportunities;
- Where BMA would source employees from;
- Negative and positive impact of FIFO workforces on the community;
- Location and design of local roads;
- Traffic impacts;
- Opportunities to provide business services;
- Global economic conditions and impacts on the Project;
- Airport expansion; and
- Where coal will be railed to for shipping.

## 4 Supplementary Report – Response Table

### 4.1 Advisory Agencies

#### 4.1.1 Department of Community Safety

ID	Major Issues- Summary	Response
1.01	<p>Relevant Project EIS Section: Sections 3.6.7, 3.6.8, 3.6.9, 3.6.10</p> <p>Provide calculations to support the additional water demand required by the site for fire water, washdown water, dust suppression and potable water.</p>	<p>Water demand calculated for the preliminary design are summarised as follows:</p> <ul style="list-style-type: none"> <li>■ Fire water (0.6ML minimum) 4 fire hydrants for 4 hours at 10L/s each,</li> <li>■ Washdown water (77.8ML/yr) based on 4 heavy vehicles/24hr – 360days per year</li> <li>■ Dust suppression (5491.4ML/yr) includes CHPP, process water, haul road and stockpile dust suppression and</li> <li>■ Potable water (5.1)ML/yr.</li> </ul>
1.02	<p>Relevant Project EIS Section: Section 3.6.7</p> <p>With respect to fire protection systems for the CHPP, the QFRS is seeking confirmation that the fire protection system will consist of the following:</p> <ul style="list-style-type: none"> <li>a) materials handling washdown, firewater and dust suppression pipe work that service the facility.</li> <li>b) fire hydrants and pumps located at appropriate spacing around the facility.</li> <li>c) hose reels and fire hydrants located along the conveyor gantries and conveyors;</li> <li>d) hose reels and fire hydrants located throughout the CHPP, offices and workshop buildings;</li> <li>e) fire extinguishers installed to Australian Standard;</li> <li>f) Manual Call Points (MCPs) located at the exits from switch rooms and on each level of the CHPP and connected to a Fire indicator Panel (FIP);</li> <li>g) Sub Fire Indicator Panels (SFIP) with automatic detection and alarm systems located in the CHPP switch room;</li> </ul>	<p>The wet fire protection system will consist of a raw water dam that has dedicated fire water reserve. A combined raw and fire water pressurised main will be fed by electric pumps with diesel pumps as back up. The fire installation will comply with the requirements of AS 2419.1-2005 as appropriate.</p> <p>In response to the specific queries raised:</p> <ul style="list-style-type: none"> <li>a) The materials handling washdown, firewater and dust suppression pipe work that service the facility will be included and placement is subject to final design.</li> <li>b) Fire hydrants and pumps will be located at appropriate spacing around the facility. These locations will be finalised during final design.</li> <li>c) Hose reels and fire hydrants will be located along the conveyor gantries and conveyors. These locations will be finalised during final design.</li> <li>d) Hose reels and fire hydrants will be located throughout the CHPP, offices and workshop buildings. The locations will be finalised during final design</li> <li>e) Fire extinguishers will be installed to Australian Standard. The locations will be finalised during final design.</li> </ul>

ID	Major Issues- Summary	Response
	h) Fire suppression system located in all CHPP switch rooms; and i) Control room supplied with fire suppression systems.	f) Manual Call Points (MCP) will be located at the exits from switch rooms and on each level of the CHPP and connected to a Fire Indicator Panel. g) Sub Fire Indicator Panels with automatic detection and alarm systems will be located in the CHPP switch room; h) A fire suppression system will be located in all CHPP switch rooms; and h) The Control Room will be supplied with fire suppression systems.
1.03	Relevant Project EIS Section: Section 3.7.3 QFRS requires the quantity of water that will be kept for fire fighting purposes when the 'fire water reserve' is reached.	The lower 0.6ML of the Raw Water Dam has been allocated as Fire Water reserve. The fire water reserve amount of 0.6ML was calculated using the Australian Standard 2419.1-2005 Fire Hydrant Installations. The value of 0.6ML is the required amount of water to run 4 fire hydrants for 4 hours at 10L/s each.
1.04	Relevant Project EIS Section: Section 3.4.4 From the information supplied the magazine has no vehicular access indicated. Details regarding the capacity of the proposed magazine, its construction, operation procedures along with any access should be supplied.	The magazine and Bulk explosive facilities will be designed to store sufficient detonators (estimated 6,000 and up to 12,000tonnes of bulk explosive), These facilities will be designed and constructed in accordance with AS 2187.1 (Explosives—Storage, transport and use). BMA will develop and implement procedures for the operation of the magazine. Operations access and emergency access is provided in Figure 3.2a (Appendix: List of Figures)
1.05	Relevant Project EIS Section: Section 3.5 Storage locations should be identified on site maps indicating the most direct access and an alternative route for responding emergency vehicles.	Operations access and emergency access is provided in Figure 3.2a (Appendix: List of Figures)
1.06	Relevant Project EIS Section: Section 6 The proponent should ensure an appropriate level of flood immunity (100 year ARI) for onsite accommodation and offices.	BMA will provide flood immunity for onsite accommodation and offices for 100 year ARI
1.07	Relevant Project EIS Section: Section 6 The project should: a) avoid any reductions of on-site flood storage capacity and contain within the subject site any changes to depth/duration/velocity of flood waters of all floods up to and	The project will avoid loss of flood storage capacity and contain changes to depth duration and velocity of flood water within the subject site for all floods up to the 1:100 AEP flood event, subject to the following provisions: <ul style="list-style-type: none"> <li>■ The final design of creek diversions, on-site drainage works, and flood protection works is still subject to further detailed engineering and mine</li> </ul>

ID	Major Issues- Summary	Response
	<p>including the DFE; or b) not change the flood characteristics at the DFE outside the subject site in ways that result in:</p> <ul style="list-style-type: none"> <li>▪ loss of storage</li> <li>▪ loss of/changes to flow path</li> <li>▪ acceleration or retardation of flows; or</li> <li>▪ any reduction in flood warning times elsewhere on the floodplain.</li> </ul>	<p>layout design. Hydrodynamic flood modelling will be undertaken during detailed design to assess and mitigate the flood characteristics of concern.</p> <ul style="list-style-type: none"> <li>▪ Some minor changes to flooding characteristics may be unavoidable subject to the detailed design of flood protection works required to prevent pit flooding for extreme floods. The mine pit flood protection must take precedence over minor impacts to flooding characteristics as the environmental and economic consequences of flooding the mine pits would be much more severe than minor changes to flood hydrograph characteristics and flood warning times. The potential minor impacts on flooding are not expected to pose risk to life or property as the impacts will be limited to the waterway reaches through the mine lease area (i.e. impacts will be immeasurable upstream and downstream of the mine lease). Flooding analysis for detailed design during the Definition Phase of the project will aim to minimise impacts on flooding.</li> </ul>
1.08	<p>Relevant Project EIS Section: Section 6, Section 19.4 It is recommended that the manufacture or storage in bulk of hazardous materials takes place above DFE flood levels; or Structures used for the manufacture or storage of hazardous materials in bulk are to be designed to prevent the intrusion of floodwaters.</p>	<p>The storage of hazard materials will be within industrial area facilities near the Coal Preparation Plant and will be above the 1:100 AEP flood level or designed to prevent 1:100 AEP flood ingress into the storage areas.</p>
1.09	<p>Relevant Project EIS Section: Section 13, Section 19 Construction Heavy Vehicle Movements (Table 13.2) indicated significant increases in the usage of the road network. This coupled with an increase of 'oversized vehicles' utilised during the construction phase, will put an increased pressure on existing emergency response capabilities.</p>	<p>Noted – The traffic assessment presented in Section 13 and Appendix N of the EIS assesses the impact of increased traffic generated from the project on the road network. Mitigation measures such as intersection upgrades and development of traffic management plans for movements of oversized vehicles have been included.</p> <p>BMA will continue to work with DTMR to minimise the potential impact of the Caval Ridge Project on the surrounding road network and ensure that emergency response requirements are not adversely impacted.</p> <p>BMA is committed to developing emergency response plans in consultation with the appropriate agencies and organisations such as QFRS.</p>

ID	Major Issues- Summary	Response
1.10	<p>Relevant Project EIS Section: Section 17.3.3</p> <p>The QFRS is seeking confirmation that the water infrastructure will be upgraded to cope with the increased residential lots and unit sites within Moranbah and Dysart townships.</p>	<p>BMA is the major water supplier to the Moranbah community and will continue to ensure that appropriate supply is maintained in accordance with current agreements. BMA has made a significant contribution to deliver Burdekin water, via the new Burdekin Pipeline, to allow further flexibility with water delivery arrangements to the township of Moranbah and surrounding operations. Overall, water usage management is an issue for local authorities with whom BMA actively engages.</p>
1.11	<p>Relevant Project EIS Section: Section 17.4.7.11</p> <p>The QFRS would support the recruitment of BMA personnel as auxiliary fire-fighters in accordance with the recruitment requirements and subject to vacancies being available at the relevant stations.</p>	<p>BMA will investigate opportunities to work with the QFRS where possible.</p>
1.12	<p>Relevant Project EIS Section: Section 19</p> <p>The QFRS believes it will be directly affected as a result of the project and it looks forward to the opportunity to liaise with the proponent to develop the project's Emergency Response Plan.</p>	<p>BMA is committed to developing emergency response plans in consultation with the appropriate agencies and organisations such as QFRS. This commitment has been included in the commitments register (Appendix P).</p>
1.13	<p>Relevant Project EIS Section: Section 19</p> <p>It would be expected that the operations of this mine site would impact on the delivery of ambulance operations from the Moranbah Ambulance Station.</p> <p>The increased traffic on the Peak Downs Highway may also impact on Nebo Ambulance Station.</p>	<p>BMA will consult with QFRS (including the ambulance services) prior to and during the development of the Caval Ridge Mine. This will enable the ambulance services to adjust resourcing requirements. This commitment has been included in the commitments register (Appendix P).</p>
1.14	<p>Relevant Project EIS Section: Section 19</p> <p>Manifests and inventories should be formulated and this dangerous goods information provided to the QFRS in the form of an 'Off Site Plan' as required under legislation.</p>	<p>Noted – Manifests and inventories of dangerous goods to be used on site will be prepared as part of the mine operating documentation and BMA will provide this information to QFRS. This commitment has been included in the commitments register (Appendix P).</p>
1.15	<p>Relevant Project EIS Section: Section 19.6.1</p> <p>The QFRS endorses this section of the EIS (19.6.1 Emergency Response)</p>	<p>Noted.</p>

ID	Major Issues- Summary	Response
1.16	Relevant Project EIS Section: Section 19.10 Emergency Planning The QFRS should be involved in the formulation of an Emergency Response Plan along with the other relevant stakeholders.	BMA will consult with QFRS and other relevant stakeholders during the formulation of the Caval Ridge Emergency Response Plan.
1.17	Relevant Project EIS Section: Section 19 Emergency and or disaster planning and response within the Caval Ridge Mine Development will require consultation with members of the Isaac Regional Council, Local Disaster Management group and emergency services.	BMA will consult with Isaac Regional Council, Local Disaster Management Group and other relevant stakeholders during the formulation of the Caval Ridge Emergency Response Plan.
1.18	Relevant Project EIS Section: Section 19 The disaster management plan of the project is to be provided to Emergency Management Queensland (EMQ) Regional Office.	BMA will provide the Caval Ridge disaster management plan to Emergency Management Queensland (EMQ) Regional Office.
1.19	Relevant Project EIS Section: Section 19 Orientation regarding the Caval Ridge Mine Development is to be provided for the Area Director Mackay, local controller SES and SES Group leaders of the Isaac Regional Council Area.	BMA will provide an orientation regarding the Caval Ridge Mine Development to the Area Director Mackay, local controller SES and SES Group leaders of the Isaac Regional Council Area.
1.20	Relevant Project EIS Section: Section 19 Evacuation and access maps of the project are to be provided to EMQ and other emergency service agencies.	BMA will provide evacuation and access maps to EMQ and emergency agencies as part of the Caval Ridge Emergency Management Plan.
1.21	Relevant Project EIS Section: Section 19 Copy of emergency and or Disaster Plan are to be made available to EMQ regional office, EMQ area director Mackay, local controller SES and SES Group leaders of the Isaac Regional Council Area.	BMA will provide the Caval Ridge disaster management plan to Emergency Management Queensland (EMQ) Regional Office.
1.22	Contact numbers of the Duty Safety officers to be made available to EMQ Regional Office, EMQ Area Director Mackay, Isaac Regional Council SES Local Controller and local SES Group Leaders.	Contact numbers of the Duty Safety officers will be made available to EMQ Regional Office, EMQ Area Director Mackay, Isaac Regional Council SES Local Controller and local SES Group Leaders.
1.23	The QFRS seeks clarification from the "Authority Having Jurisdiction" (AJH) for the project on what above ground buildings and special structures will be assessed as assessable development and self-assessable development in accordance with	An amendment to the purpose of ML1775 to include the construction and operation of accommodation facilities was granted by the former Department of Mines and Energy on 27 January 2009. Additionally, an amended Plan of Operations for the Peak Downs Mine Plan which

ID	Major Issues- Summary	Response
	<p>the Integrated Planning Act (IPA) 1997 Schedule 8 and development that is exempt from assessment against a planning scheme as per the IPA 1997. The EIS contained general information on this matter in Section 1.7.1.3 - Integrated Planning Act 19967 and Section 4 - Land Resources however, the QFRS seek guidance in this area from the AHJ for the project. The QFRS also seeks formal engagement from the AHJ for the project clearly defining the roles and responsibilities of the QFRS in the project development process.</p>	<p>specifically included activities associated with the construction and operation of the accommodation village was approved by the former Environmental Protection Agency on 2 October 2008.</p> <p>As all Aspects of Development authorised under the <i>Mineral Resources Act 1989</i> are exempt development under the <i>Integrated Planning Act 1997</i> (refer to Schedule 9, table 5 of the <i>Integrated Planning Act 1997</i>), no approvals under the <i>Integrated Planning Act 1997</i> for development of the village on Mining Lease 1775 are required.</p> <p>Works required for access off the Moranbah Access Road to the Denham Village have been granted approval by the Isaac Regional Council.</p> <p>BMA has had discussions with a QFRS representative regarding this submission. The main concern raised by QFRS was that the Authority having Jurisdiction (AHJ) for the project be identified and that the AHJ engage with QFRS to allow QFRS to clearly understand their terms of reference, role and responsibilities in the IPA assessment process. QFRS stated that this should be as early as possible in the project to allow for meaningful input.</p> <p>BMA will consult with QFRS during the detail design of on site buildings.</p>

#### 4.1.2 Department of Communities

ID	Major Issues- Summary	Response
2.01	<p>The Isaac Regional Council has a housing policy objective that states that mining proponents should endeavour to accommodate workers as follows: one third to be accommodated in detached dwellings in Moranbah; one-third to be accommodated in high density dwellings; and, one-third to reside in purpose-built accommodation camps. Furthermore, the Isaac Regional Council has made available an additional 1,100 hectares to provide a diversity of housing that will enable the population of Moranbah to double from approximately 9,000 to 18,000 full time residents.</p>	<p>Accommodation issues are discussed in EIS Sections 17.4.5 and 17.5.6. BMA actively works with local service providers and agencies to provide assistance where possible. BMA's Planning and Development Manager attends regular meetings with the Isaac Regional Council to enable effective information sharing around future project activities including housing needs. BMA is the largest provider of developed land and accommodation in Moranbah and will continue to develop accommodation options for our workforce including those who choose to reside in Moranbah. This includes land development at the Isaac Views Estate Subdivision in north-east</p>

ID	Major Issues- Summary	Response
	<p>The purpose of the policy objective is to attract and retain all sections of the community in Moranbah as well as providing a more stable and happy workforce. The market in Moranbah is impacted by low housing affordability and limited stock with low vacancy rates. The department, therefore, advises that the proponent should accede to demand by providing adequate affordable housing as well as housing choice within the township of Moranbah.</p>	<p>Moranbah which will provide at least 167 residential lots and 200 unit sites. A key goal of BMA is to increase diversity in accommodation availability. Currently approximately 79% of the BMA workforce housed in Moranbah are housed in low density accommodation, approximately 3% are housed in medium to high density accommodation and approximately 17% live in accommodation villages in Moranbah. This figure includes both BMA employee home owners, purchased with BMA assistance and those in properties owned by BMA. BMA approach accommodation from a business wide as opposed to mine or project perspective, and are moving to increase the proportion of medium density and village facilities available to our employees.</p> <p>Providing a choice of employment options across the business allows BMA the greatest opportunity to attract an ongoing workforce to meet future operational needs. Feedback from our workforce studies indicate FIFO is an important attract / recruit strategy and employees working under formal FIFO arrangements currently only make up approximately 3% of the permanent BMA workforce. By expanding the FIFO workforce, BMA expects to reduce the current high demand for residential accommodation in Moranbah and the demand on existing services and infrastructure and promoting sustainable growth.</p>
2.02	<p>An implication of not having a resident population is the necessity of workers to drive in/dive out from Mackay to Moranbah along the Peak Downs Highway. The department argues that the drive in/drive out component constitutes a workplace health and safety issue, which could, in part, be alleviated by securing permanent accommodation within the township of Moranbah. The department advises that the EIS should reflect his mitigation strategy by acceding to the Isaac Regional Council's housing policy objectives.</p>	<p>BMA is supportive of the family friendly environment that is valued by the Moranbah community and actively encourages families to the region by supporting those workers who choose to reside in the community with appropriate housing options and will continue to support residential workers and the community through its ongoing commitment to community investment.</p> <p>From studies of existing employees BMA knows that a significant number of BMA employees who own houses in Moranbah live on the coast and are effectively drive-in drive out employees.</p> <p>BMA will provide structured travel options for employees through planned fly-in fly-out and bus-in bus-out options to address to address health and safety issues.</p>

ID	Major Issues- Summary	Response
		It is an employee choice to drive-in drive out and BMA strongly refutes the department's argument that this constitutes a workplace health and safety issue.
2.03	Equality with regards to gender, ethnicity and those with disabilities: The department advises that the proponent should continue to develop workforce strategies to attract and retain women, people from different cultural backgrounds, and people with disabilities as stated in Section 17.5.3.1 of the EIS.	BMA is committed to workplace diversity and considers employment opportunities for all groups in the community. BMA has engaged a dedicated Senior Human Resources Advisor for Diversity who, in consultation with Human Resource teams, has developed a Diversity Strategy. This is a strategic imperative with the intent to support diversity throughout BMA, build a highly skilled workforce and enable diversity to become embedded in the organisation. The BMA Diversity Strategy will apply to employment opportunities for women, Indigenous people, people with disabilities and ethnic groups.
2.04	The proponent should continue to consult with local government, The proponent should continue to consult with local government, community and service agencies on all matters of community concern. The department maintains an interest in this project and would like to participate as an advisory agency to provide advice on potential impacts and mitigation strategies that are identified and addressed by the proponent	BMA will continue to regularly consult with local government and community service agencies to ensure best outcomes for BMA operations, our employees and our communities in line with organisational policies and standards. BMA currently partners with Governments and the community to support the delivery of community programs that address community needs and concerns. Through our Community Partnerships Program and Local Site Initiatives, in FY09 BMA contributed over \$6.5 million. BMA welcomes the opportunity to continue building on existing partnerships with the Department of Communities and other Government agencies.

#### 4.1.3 Department of Employment, Economic Development and Innovation

ID	Major Issues- Summary	Response
3.01	<p>Relevant Project EIS Section: Section 3</p> <p>As the coal in these MBCM seams constitutes a potential resource, the Department requires the proponent to elaborate further on the proposed Caval Ridge mine layout. Further explanation should outline the following:</p> <ul style="list-style-type: none"> <li>■ reasons why the mining layout for the Horse Pit as presented</li> </ul>	The basal seam for the mine design has been determined as the D02, due to various technical and economic factors. There are 2 seams or plies lower in the stratigraphy, namely D00 and C01; however these are inconsequential coal seams. They are not economic due to their thin nature, variability and most importantly poor quality. The ash level of the seams means they are not an economic product.

ID	Major Issues- Summary	Response
	<p>in the EIS, that includes the proposed out-of-pit spoil dumps to the west of the pit and proposed Horse Creek diversion, in the northern part of ML 1775, is the only viable mining option in the vicinity of the proposed pit</p> <ul style="list-style-type: none"> <li>▪ alternative options that have been considered for locating spoil out of pit at Horse Creek and location the Horse Creek Diversion away from the 'subcrop zone' of these lower MBCM seams and plans if any the proponent has to provide for these coal seams to be accessible for further geological evaluation and possible future recovery</li> </ul>	<p>The mining layout for Horse Pit has been determined by the location of the limit of oxidation (LOX) of the lower Dysart seam. This LOX has been determined by the historic and more recent geological drilling undertaken by BMA Horse Pit is limited in the north by Horse Creek. In order to maximise the extraction of the coal within the current lease, the current Horse Creek will need to be realigned to a controlled area. This area has been defined to allow sufficient area for the required parameters for stream flow to be achieved and for access criteria. Further detail is provided in Appendix C: MBCM Seam Clarification.</p>
3.02	<p>Relevant Project EIS Section: Section 4.3</p> <p>One aspect of the potential resource sterilisation considerations associated with Caval Ridge project needs further clarification and additional comments by the proponent. This matter relates to those coal seams known to exist below the basal target (Dysart) seam to be mined in the vicinity of the Horse Pit at Caval Ridge. These coal seams are possibly splits off the Dysart Seam and have been named by the proponent as the D00 and C01 seams. On the information presented, these seams are known to be present in the northern parts of ML 1775 - (refer to geological cross section- cross section No4 in Figure 4.12)</p>	<p>D00 and C01 are inconsequential coal seams. These seams are not economic due to their thin nature, variability and most importantly low quality. These very thin seams split off so quickly as to be uneconomic to chase and the ash level of the seams means they are not an economic product. They were only named and tenuously modelled to help in the understanding of the general structural geology of the area. They do not meet the quality or mining economic parameters to be considered a viable coal resource.</p>
3.03	<p>Relevant Project EIS Section: Section 6</p> <p>Works within the bed of a creek or gully may require waterway barrier works approval from Queensland Primary Industries and Fisheries (QPI&amp;F) under the Integrated Planning Act 1997</p>	<p>All of the creeks through the project site are highly ephemeral and are not significant fisheries habitat or resources.</p> <p>Any works in defined watercourses which require waterway barrier works approved under the Fisheries Act, will be designed and constructed in a manner which as far as practicable, minimises the impact of the structure. Furthermore, BMA undertakes to engage with Queensland Primary Industries and Fisheries (QPI&amp;F) on the proposed design (as is occurring currently for the Daunia project) and will submit an application for the approval of the waterway barrier works.</p>

ID	Major Issues- Summary	Response
3.04	<p>Relevant Project EIS Section: Section 6</p> <p>QPI&amp;F suggests that any creek or gully crossings required in the area incorporate structures (such as large box culverts) to provide for fish passage. Consideration of factors such as cross-sectional area and bed level height need to be addressed to avoid any problems that road crossings may pose fish migration.</p>	<p>Detailed design and construction of creeks and gully crossings will include consideration of DPI&amp;F policies and guidelines, to minimise the potential impact on fish migration.</p>
3.05	<p>Relevant Project EIS Section: Section 9</p> <p>Due to the highly ephemeral nature of the surrounding catchment, QPI&amp;F consider that the immediate area surrounding the proposed mine area probably offers minimal fisheries habitat value.</p>	<p>Noted.</p>
3.06	<p>Relevant Project EIS Section: Section 9</p> <p>QPI&amp;F suggests best practice controls for erosion and sedimentation should be implemented to ensure the impacts of surface activities on fish habitats are minimised. Any rehabilitation of riparian zone vegetation or badly eroded creek systems would be encouraged</p>	<p>Erosion control is addressed in various parts of the EIS including Section 6.2 <i>Surface Water – Potential Impacts and Mitigation Measures</i> and the draft EMP. The earthworks contractor will be required to prepare a construction environmental management plan which will include a sediment and erosion control plan. The site environmental management plan will also include requirements to minimise erosion and potential impact on surface water quality.</p>
3.07	<p>Relevant Project EIS Section: Section 17</p> <p>DEEDI recommends that the EIS Report include a commitment to Indigenous employment opportunities throughout the project.</p>	<p>BMA is continuing to develop opportunities with Indigenous communities across the Bowen Basin and is in the process of developing an Indigenous Strategy. BMA is consulting with Government (meetings have been held with DEEDI, DEIR, DEWR, DETA and QMEA) and the community to develop this strategy.</p>
3.08	<p>Relevant Project EIS Section: Section 17</p> <p>Projects under Project Assurance Framework must demonstrate how Indigenous employment participation will be incorporated into the project implementation through:</p> <ul style="list-style-type: none"> <li>■ identifying recognised and accredited qualifications and articulated training pathways to boost existing indigenous and mainstream employment programs (for example, apprenticeships and traineeships)</li> <li>■ planning where possible, to have continuity for stage projects</li> </ul>	<p>BMA is developing an Indigenous Strategy which will encourage indigenous employment and business opportunities in the community. This strategy will investigate ways that indigenous employment can be incorporated into the project.</p>

ID	Major Issues- Summary	Response
	<p>delivered, where appropriate, through bundled contracts awarded in the same area for project proposals, particularly in remote Ares in order to build the local workforce capacity and to ensure a steady supply of work to communities, and</p> <ul style="list-style-type: none"> <li>▪ reporting Indigenous employment strategies in any project procurement report.</li> </ul>	
3.09	<p>Relevant Project EIS Section: Section 10, 17</p> <p>While DEEDI would expect Queensland Health and Isaac Regional Council to provide further detail on the matter of increased dust levels during construction and operation of the mine, the EIS would benefit from more detailed mitigation measures and a clear procedure to deal with community complaints on air quality as a social and economic impact.</p>	<p>Since the submission of the Caval Ridge EIS, there have been changes to the project due to ongoing optimisation of the design as well as in response to submissions received. These include dust mitigation measures which are described in Sections 2 and 5. Mitigations measure and detail of the proposed monitoring program is presented in Section 3.3.8 of the revised EMP.</p> <p>In addition, as part of the construction and site environmental management plans there will be procedures in place to register and where appropriate respond to complaints of potential environmental impacts resulting from the Caval Ridge Project. As part of the sites ISO 14001 EMS mitigation measures to address complaints will be implemented and revised as required.</p>
3.10	<p>Relevant Project EIS Section: Section 17</p> <p>DEEDI is keen to assist the proponents of the project to maximise employment opportunities for local people, including local Indigenous people.</p>	<p>BMA is currently liaising with DEEDI in the development of its Indigenous Strategy and welcomes the opportunity to work with DEEDI where possible.</p>
3.11	<p>Relevant Project EIS Section: Section 18</p> <p>DEEDI recognises the economic significance and catalytic potential of the project and supports the conclusions reached in relation to the economic and social benefits.</p>	<p>No response required.</p>
3.12	<p>Relevant Project EIS Section: Section 18, Section 17</p> <p>The Queensland Government has developed an Indigenous Workforce Strategy guideline. The guideline must be applied in the development of project proposals and has been released as a supplementary guideline under the Project Assurance Framework.</p>	<p>BMA is developing an Indigenous Strategy which will encourage indigenous employment and business opportunities in the community. This strategy will investigate ways that indigenous employment can be incorporated into the project. BMA notes the development of the Indigenous Workforce Strategy Guideline and will refer to these guidelines wherever possible during the development of the strategy.</p>

ID	Major Issues- Summary	Response
3.13	TOR: Section 3.2.2.1. The EIS should provide a description, map and a series of cross-sections of the geology of the Project area, with particular reference to the physical and chemical properties of surface and sub-surface materials and geological structures within the proposed areas of disturbance.	<p>The regional geology is described in Section 4.3.1 of the EIS and the project geology is described in section 4.3.2.</p> <p>A figure of the regional and site geology are presented in Fig 4.10 – Geological Land Zones and Fig 4.11 – Geology and Location of geological cross sections</p> <p>A series of cross-sections of the geology of the Project area are presented in Fig 4.11 – Geology and Location of geological cross sections and 4.12 Geologic Cross Sections.</p> <p>Physical properties are discussed in Section 4.3.4 of the EIS.</p> <p>Chemical properties of surface and sub-surface materials are discussed in Section 5.2 of EIS.</p> <p>Geological structures within the proposed areas of disturbance are discussed in Section 4.3.3 of EIS.</p> <p>Additional information to clarify the geology section is provided in 3.14 to 3.18 and Figure 4.13 (Supplement)</p>
3.14	Relevant Project EIS Section: Section 4.3 Difficult to match the resource statement of 570 Mt (page 2-4) with resource information provided in Table 4.4 (page 4-25).	Refer to section 2.2.5 for information on the resource statement.
3.15	Relevant Project EIS Section: Section 4.3 The term "inferred reserves" (Table 4.4) does not make sense and is incompatible with the JORC code. It could be replaced with Coal Resources. Also appears at the bottom of page 4-24. refer Figure 1- JORC code 2004.	The words "Inferred reserves" have been replaced with Coal Resources in the new table in section 2.2.5.
3.16	Relevant Project EIS Section: Section 4.3 Section 4.3.8.5 Resource Estimates (page 4-24) should state if "Inferred Reserves" are additional to the Coal reserve Estimate tonnage.	The words "Inferred reserves" have been replaced with Coal Resources in the new table in section 2.2.5.
3.17	Relevant Project EIS Section: Section 4.3 The name "Caval Pit" (Table 4.4) does not appear on any figures or in the text. Maybe this term refers to Horse Pit + Cherwell Pit. Some clarification is required.	Revised information is provided in section 2.2.5.

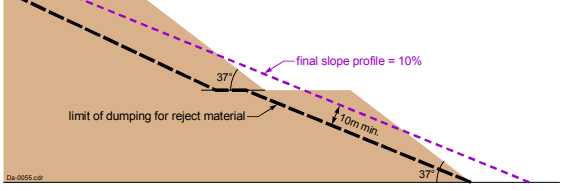
ID	Major Issues- Summary	Response
3.18	<p>Relevant Project EIS Section: Section 4.3</p> <p>The Q Seam (one of the economic seams) appears to be missing from sections and mine plans showing coal seams. Maybe a representative cross section south of the Peak Downs Highway could show the coal seams present up to Q seam.</p>	<p>The Q seam LOX line is not as well defined as it is outside the 30 year mine life window.</p>
3.19	<p>Relevant Project EIS Section: Section 4.3</p> <p>There are no maps showing structural features mentioned in the text (page 4-19) for the Caval Ridge project area.</p>	<p>The structural model once complete will have these details, it is however not currently available.</p>

#### 4.1.4 Department of Environment and Resource Management

ID	Major Issues- Summary	Response
4.01	<p>Relevant Project EIS Section: Section 1</p> <p>The EIS should address the requirements of section 1.1, Project Proponent, of the TOR by describing the proponent's environmental record and performance.</p>	<p>All existing BMA operations have Environmental Management Systems certified to ISO14001, which means that they are subject to robust internal and external auditing programs. The Project will also operate under a certified EMS.</p> <p>Information on BMA's environmental performance is provided in Appendix D1. In addition a copy of the BMA 2008 Sustainable Development Report is provided in Appendix D2. It provides details of BMA's environmental performance in the financial year ending June 2008. Key environmental performance issues since this time are outlined below.</p> <ul style="list-style-type: none"> <li>■ Blackwater Mine - Environmental Evaluation for Ramp 72 tailings decant water spill. Outcomes being implemented under a Transitional Environmental Program to address water management.</li> <li>■ Goonyella-Riverside Mine Transitional Environmental Program for non EA compliant water releases in the 2008 Wet Season.</li> <li>■ South-Walker Creek Mine - Tailings line rupture incident. Investigated by Queensland DERM. Infringement notice and \$2000 fine. Required to undertake an Environmental Evaluation / Audit of the tailings management system with outcomes to be implemented via a Transitional Environmental Program.</li> </ul>

ID	Major Issues- Summary	Response
4.02	<p>Relevant Project EIS Section: Section 2.4.7.2</p> <p>Section 2.4.7.2, Water Supply, of the EIS states that a site water balance assessment indicated an overall deficit in water and outlines potential water supply options. The nearby, BMA owned and operated, Peak Downs mine currently has, and is to have for some time, excess water of approximately 5,000ML. The EIS states that 3,200ML/yr of water is required at Caval Ridge. However, there is no option discussed of making use of the excess water from Peak Downs at Caval Ridge.</p> <p>The EIS should consider the use of excess Peak Downs mine water in the pre-production process. It should also investigate the potential benefits of the integrated mine water management across the two mine sites.</p>	<p>The design basis of the water supply infrastructure is to provide a reliable water supply to Caval Ridge Mine in the long term. To minimise risk to operations, Caval Ridge Mine will be operated as a stand alone operation. Therefore its continued operation in the long term should not be planned to be reliant on specific conditions or management practices being implemented at other operations. As such, integrating the water management across the two mine sites is not contemplated at present.</p> <p>Notwithstanding, it is recognised that from time to time conditions may arise where it is beneficial to transfer water from other operations to Caval Ridge, or vice versa. It is anticipated that transfers of this nature would be implemented in response to short term conditions on either mine site. The transfer would be constrained by water quality, safe storage levels and the volume required to restore normal operating conditions. Appropriate provisions need to be made in the Caval Ridge and other operations Environmental Authorities to allow transfers of this nature.</p> <p>It has been recognised that such an opportunity may arise during construction and early operation of Caval Ridge Mine. Excess water from other operations may be used for construction purposes and/or to seed the water supply dams at Caval Ridge Mine. This will be investigated during the project execution phase.</p>
4.03	<p>Relevant Project EIS Section: Section 1.7</p> <p>Section 1.7 of the EIS discusses project approvals for the mine, but there is no mention of a requirement for a water licence under the Water Act 2000 for dewatering.</p> <p>As the project lies within the Highlands Declared Sub-Artesian area, as listed in schedule 11 of the Water Regulation 2002 a water licence under the Water Act 2000 may be required to authorise the take of groundwater for dewatering purposes.</p> <p>The EIS should amend Table 1.2, Key Approvals Required for the Project, for the approvals to be obtained under the <i>Water Act 2000</i>. Delete the reference to monitoring bores and insert a reference to the possible requirement to obtain a water licence for the take of groundwater through mine dewatering.</p>	<p>In Queensland, a number of subartesian areas have been declared under the Water Act 2000. Some have been declared within water resource plans, while most have been declared under the Water Regulation 2002, both of which are subordinate legislation to the Act. Water licensing and development permit requirements for subartesian areas defined in the Water Regulation 2002 are as follows:</p> <p>A water license is required to take or interfere with subartesian water, other than for the purposes specified within Schedule 11 of the Water Regulation 2002.</p> <p>Under the Integrated Planning Act 1997, a development permit is required to construct or install works that take subartesian water, other than works constructed or installed solely for the purposes mentioned within schedule 11 of the Water Regulation 2002.</p> <p>The project lies within the Central Highlands declared groundwater area.</p>

ID	Major Issues- Summary	Response
		<p>Therefore, a water licence and a development permit are required for all bores that take from groundwater unless it is for stock or domestic purposes.</p> <p>DERM have advised that despite groundwater inflows to the pit being minor and not likely to result in an impact to groundwater users, a water licence for the take of groundwater may be required. BMA will make the necessary application following receipt from DERM as to whether or not the licence is required.</p>
4.04	<p>Relevant Project EIS Section: Section 3, Section 14.5</p> <p>The EIS should describe the construction methods associated with containment and disposal of construction spoil and solid and liquid handling as is required by section 2.3.1.2, Construction, of the TOR.</p>	<p>Inert construction spoil will be placed and mixed in designated mine spoil areas. Waste will be dumped in spoil and mixed into spoil with dozers. These areas will then be covered with prestrip and rehabilitated.</p> <p>The designated areas will documented and identified in the construction and site environmental management plans. These areas, as with other spoil rehabilitation will be managed to minimise surface exposure.</p> <p>Solid &amp; liquid waste (eg Construction fuels, oils and chemicals) will be stored, dispensed and contained within appropriately designed bunded areas in accordance AS 1940. Waste from these products will be removed by licences contactors and disposed of at an approved facility.</p>
4.05	<p>Relevant Project EIS Section: Section 3.4, Appendix Q</p> <p>Section 3.4.1.2, Mining, and Appendix Q, Draft EM plan, section 2.5, Coal Processing and Handing, of the EIS describe the mining activities of placing rejects back in pits within spoil emplacements.</p> <p>The EIS should provide further information on reject management procedures within soil emplacements addressing the location and placement of rejects. It should detail and discuss whether rejects will be placed away from ground water and or surface water resources and whether reject capping with benign material will occur.</p>	<p>To ensure the effective management of coal rejects and tailings at Caval Ridge, the following guidelines will be implemented and monitored, further detail is provided in Appendix N (Tailings and Rejects Management Plan):</p> <ul style="list-style-type: none"> <li>■ All reject material will be trucked to in-pit waste dumps;</li> <li>■ Dumps will be developed in line with the mine plan;</li> <li>■ It is not planned to place reject material within 10m of the final landform slope; and</li> <li>■ Survey control will be utilised to ensure documented evidence of thickness of cover is recorded.</li> </ul>

ID	Major Issues- Summary	Response
		 <ul style="list-style-type: none"> <li>■ There will be no concentrated dumping of reject materials:           <ul style="list-style-type: none"> <li>○ All reject material will be dumped or mixed, either over a tiphead or paddock dumped, alongside dry waste material in order to minimise potential areas of geotechnical instability;</li> <li>○ The material will be dumped at the same dump face as the pre-strip material then pushed over the edge resulting in mixing.</li> <li>○ No reject material will be dumped below the pre-mining groundwater table; and</li> <li>○ All dumps will be designed and constructed to be free-draining.</li> </ul> </li> </ul>
4.06	<p>Relevant Project EIS Section: Section 3.4, Appendix Q</p> <p>The EIS should discuss if reject disposal areas will be recorded via map and or GPS measurements.</p>	<p>It is not practical to map disposal locations as the rejects will be mixed in with the mine waste (spoil) material.</p>
4.07	<p>Relevant Project EIS Section: Section 3.4, (Section 5), Appendix Q</p> <p>The EIS should discuss measures to be used for identifying and selectively managing any potential acid forming (PAF) material.</p>	<p>Section 5.2.1 of the EIS discusses the acid generating potential of the material at Caval Ridge mine. Almost all materials are non acid forming (NAF), but the high acid neutralising capacity (ANC) of many of the samples combined with the very low sulphur concentrations, indicates there would be excess alkalinity to buffer the small quantity of acid that could potentially be produced by a very small proportion of the likely mineral waste materials.</p> <p>Sections 3.7.6 and 3.7.7 (Appendix Q) of the draft EMP states that the ongoing management of mineral waste (overburden, interburden and potential reject materials) will consider the geochemistry of materials with respect to their potential risk to cause harm to the environment and their suitability for use in revegetation. A mineral waste management strategy for the project will be</p>

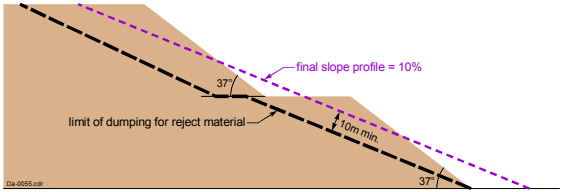
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		<p>designed to focus on the placement of mineral waste materials to minimise run-off and erosion and the evaluation of the geochemical characteristics of materials from untested areas or lithologies that have not been evaluated.</p> <p>BMA will undertake ongoing operational geochemical characterisation of mineral waste materials in the southern section of the project site to confirm the expected geochemical characteristics of these materials. Continued characterisation of reject materials from the CHPP will also be undertaken to verify the expected geochemical data of rejects. This data will be used to re-evaluate the management strategies of mineral waste materials.</p> <p>PAF material will be managed in accordance with BMA Guideline Design of Sustainable Mine Land Forms (EIS - Appendix R5).</p>
4.08	<p>Relevant Project EIS Section: Section 3.5</p> <p>Section 3.5, Mine Facilities and Infrastructure, of the EIS states that the on-site sewage treatment plant (STP) will provide A+ quality effluent. It is not clear whether this STP will treat all of the site's effluent. The EIS should estimate the volume of effluent this plant will contribute to the water system, and provide some discussion as how it will alleviate the site's need to purchase water from the Eungella-Bingegang pipeline.</p> <p>The EIS should provide additional information on the effluent management system. It should also provide information on how much useable water, as a percentage of overall water needs, this system will provide.</p>	<p>Section 3.10.1 of the EIS describes the sewerage system. Sewage from the MIA and CHPP will be treated in the sewerage treatment plant (STP) while septic tanks will be used to treat sewage from toilet facilities in the mining area.</p> <p>The STP is expected to treat approx 20,000 litres per day. The volume of water that would be recovered for reuse as process water is estimated to be approximately 90 % of input, ie. 18,000 litres per day. This amount, however, may vary depending on the type of treatment plant provided through the design and construct process.</p> <p>This is only a small proportion of the 17,010 KL/day water required for the project.</p>
4.09	<p>Relevant Project EIS Section: Section 3.7.9, Appendix Q, Draft EM Plan, Proposed Environmental Authority Conditions: Schedule F - Land, Rehabilitation Landform Criteria</p> <p>Amend the specified section for proposed conditions to include tables proposing criteria for final land use and rehabilitation approval schedule, and landform design.</p> <p>Also amend the EIS and the Draft EM Plan proposed conditions</p>	<p>The Caval Ridge Mine Project EIS Supplementary Report - Final Void &amp; Landform Management Plan (Appendix E1), Section 9 discusses rehabilitation outcomes and various performance criteria.</p> <p>The proposed Rehabilitation Landform Criteria which are to be incorporated into the EM Plan are outlined in Table 9 of that document. This table provides for a range of treatments and outcomes which are based on the BMA Sustainable Landform Guideline.</p> <p>BMA does not propose to schedule such an extensive table of rehabilitation</p>

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	<p>to provide clear information describing the proposed final rehabilitated landform including outer slope designs.</p>	<p>criteria into the Environmental Authority but rather supports an outcome based rehabilitation requirement for the EA such as:            “All areas significantly disturbed by mining activities must be rehabilitated to a stable landform with a self-sustaining vegetation cover. Implement a rehabilitation monitoring program and rehabilitate significantly disturbed areas in accordance with the final landform concept and BMA sustainable landform guideline.”            BMA preference is to have outcomes for the Caval Ridge Mine Project specified in the EA. This is a more sensible and practical situation. See Caval Ridge Mine Project EIS Supplementary Report, Final Void &amp; Landform Management Plan Section 9.2 Rehabilitation Performance Outcomes which focus on the principal requirements for mine rehabilitation – safety, stability, sustainability and use.            BMA believes that the EM Plan should be the vehicle for detailing rehabilitation methods, treatments and performance indicators; and these criteria should be revised as knowledge expands in this most complex and challenging area.</p>
4.10	<p>Relevant Project EIS Section: Section 3.13.2.3, Section 3.6, Appendix Q            Section 3.13.2.3, Vegetation Clearing, and Appendix Q, Draft EM plan, Section 3.6, Waste Management, describes vegetation clearing on the site. It is not clear whether it is intended that cleared and stockpiled vegetation will be burned on the mining lease.            The EIS should state whether cleared vegetation will be required to be burned on site. If burning is planned, the EIS should propose appropriate controls in the Draft EM Plan.</p>	<p>Burning of cleared vegetation is not proposed as standard practice at Caval Ridge Mine. However should the burning of some vegetation be required, BMA will seek approval prior to commencing the burn.</p>
4.11	<p>Relevant Project EIS Section: Section 4.4            In order to assess land suitability, the EIS should provide complete details for all soils in the project area. Figure 4.14, Soil Classification and Sampling Location, shows nine soils on the soil map, but only provides descriptions and analytical data for six of these soils.</p>	<p>As part of the EIS study program six of the nine soil types were sampled and analysed. The remaining three soil types were not able to be accessed at the time of the study and historical information from previous soil investigations was used to complete the investigation. The additional information relating to the three soil types not included in the EIS are provided in Appendix F (Soils Addendum) - Section 2.            After discussions with DERM representative Peter Muller (Soils Specialist) it</p>

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	The EIS should provide descriptions and analytical data for the deep sandy loam soil, red-brown duplex soil and shallow sandy soils. More detailed vegetation descriptions for all soils are also required.	was agreed that vegetation descriptions per soil type are not required for this study.
4.12	Relevant Project EIS Section: Section 4.4 The EIS should provide fertility, cation, pH and electrical conductivity data for all soils. Data should be referenced to a specific depth, rather than to a layer.	The fertility, cation, pH and electrical conductivity data for all soils are now provided in Appendix F (Soils Addendum) - Section 2. The information is provided on a horizon basis.
4.13	Relevant Project EIS Section: Section 4.4 Soils should be sampled at 0.3m intervals down the profile to a depth of 1.2m.	As discussed with DERM (Soils Specialist) this sampling technique is to be considered for future EIS projects and is not required for this project.
4.14	Relevant Project EIS Section: Section 4.4 The EIS should reassess, and provide more discussion on, the land suitabilities after acquiring more data on, and giving more consideration to, soil types.	All soil and landscape parameters were considered in the land suitability assessment in accordance with Table 2.2 in Attachment 2 of Land Suitability Assessment Techniques (1995). Soil parameters are described in the soil unit description in the appendix report and Section 4 of the EIS, except the PAWC which is included in the Soils Addendum. The PAWC and rooting depth is shown in Table 1 of the Soil Addendum (Appendix F).
4.15	Relevant Project EIS Section: Section 4.4 In Central Queensland, agricultural land class C1 is also considered to be Good Quality Agricultural Land (GQAL). Therefore a large portion of the mine project area is GQAL. As the mine project area has been mapped at a detailed scale, the GQAL map should be derived from this mapping once the full profile soil analysis has been completed and the agricultural land classification for each soil has been accurately determined.	As part of the supplement report a new figure has been developed for the GQAL (Figure 4.16) on the site using site specific information as opposed to using the regionally available data. Through analysis of this site information, no agricultural land class A or C1 was considered to be present on the project site. An explanation of the findings is provided in Appendix F (Soils Addendum), Section 1.
4.16	Relevant Project EIS Section: Section 4.8.6 Rehabilitation Methods Table 4.30, Rehabilitation Success Criteria, states the criteria of "Average soil loss per annum domain unit is <40 tonnes/ha/yr (sheet erosion)" This criteria applies to in-pit and out-of-pit spoil dumps and dragline spoil areas, final voids, reject dumps, and	The 40tonnes/ha value has now been replaced by a more holistic approach to landform sustainability development and monitoring regime as specified in the FVLMP (Appendix E1) which covers BMA commitment to sustainable rehabilitation. Section 9 of the FVLMP aims for overall safe, stable and sustainable outcomes, rather than overly prescriptive performance limits for the final landform.

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	<p>mine plant/industrial areas. DERM considers that these rates are unacceptably high.</p> <p>The EIS criteria should be changed to "Average soil loss per annum is &lt;5tonnes/ha/yr (sheet erosion): for final void, OEF/WEF and mine infrastructure area.</p>	<p>The important aspect for erosion monitoring is not tonnes per hectare – erosion monitoring is preferably and more sensibly based on visual assessment/measurement of the presence and activity of sheetwash, rills and gullies. A stable landform does not exhibit these features to such an extent that the stability of the landform is threatened. Absence of significant active rills, gullies and sheet washed areas is the most direct and practicable measure of erosional stability. Provided these processes are not affecting surface stability, loss of soil and declining vegetation cover should not occur.</p> <p>It should also be noted that the 40tonnes/ha upper limit was implemented the Queensland Government in the 1990's and not the proponent. BMA as part of its commitments for sustainable landforms accepts that the Qld limit of 40t/ha/annum is excessive and predates a more contemporary understanding of soil loss and landform stability. The monitoring and performance program proposed for Caval Ridge includes monitoring and evaluation of the presence of sheetwash, rills and gullies as well as vegetation cover. These are the features that enable conclusions on the performance of the landform to be made.</p> <p>The criteria presented in Section 9 are specific to BMA operations and transferable to the Caval Ridge Project</p>
4.17	<p>Relevant Project EIS Section: Section 4.8, Section 6.2, Section 6.7, Appendix Q</p> <p>The following figures only provide a general overview and do not adequately address the terms of reference (TOR) requirements:</p> <ul style="list-style-type: none"> <li>■ Section 4.8.5.1, Landform Design and Planning, Figure 4.90, Decommissioning and Rehabilitation- Final Landform;</li> <li>■ Section 6.2.3.3, Creek Diversions, Figure 6.6, Caval Creek Diversion Centreline;</li> <li>■ Section 6.7, Horse Creek Diversion Centreline; and</li> <li>■ Appendix Q, Draft EM Plan, Section 3.7.6.2, Rehabilitation and Decommissioning, Figure 3.7.8, Decommissioning and Rehabilitation-Final Landform</li> </ul>	<p>The final landform of the Caval Ridge Project will ultimately depend on a number of ongoing investigations which are addressed in the Caval Ridge Mine Project EIS Supplementary Report - Final Void &amp; Landform Management Plan (Appendix E1). Three main scenarios are provided for the spoil landform including</p> <ul style="list-style-type: none"> <li>■ A base case in which stable outcomes have been satisfied by a fence and bund arrangement around the final void.</li> <li>■ A steeper regrade 25% regrade and</li> <li>■ A 10% regrade of the void areas.</li> </ul> <p>This supplementary report provides explanation on how various final landform strategies will be developed as the mine progresses.</p> <p>Drainage and landform aspects of the post mining landform are provided in more detail in the Caval Ridge Mine Project EIS Supplementary Report- Long</p>

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	<p>The EIS should provide additional information, illustrated by maps, plans and cross-sections at a suitable scale, of the topography of the post mining landform as required in Section 2.6, <i>Rehabilitation and Decommissioning</i>, of the TOR and specifically final drainage. The figure should clearly show surface water drainage patterns and seepage control systems in the post mining landscape, including the areas of rehabilitated spoil.</p>	<p>Term Void Water Storage and Quality(Appendix E2). Importantly the URS study did examine two drainage scenarios for three regrade scenarios of the spoil landform. The minimal catchment models – looked at void storage behaviour when only areas sloping to the void reported runoff to the void; and also a maximum catchment scenario in which all of the spoil area reports to the final void. No spill occurred in the modelled 100 years period and even extreme event modelling did not cause a spill. All spoil in the mined areas, other than the box cut spoil will be placed in pit on dipping shales and mudstones, hence - seepage must progress to the final void. Final void water quality becomes progressively saline, but flows from the modelled void situations did not occur.</p>
4.18	<p>Relevant Project EIS Section: Section 4.8 The EIS should provide more detailed information on, and illustrations of, the proposed size and shape of the final voids.</p>	<p>The size shape and actual location of a final void cannot be accurately determined at a project design level. Caval Ridge Mine Project EIS Supplementary Report - Final Void &amp; Landform Management Plan (Appendix E1) which specifically addresses this complex issue. Section 4 generally and 4.2 specifically. However, modelled scenarios of the Caval Ridge Horse Pit final void have been prepared and provided in the Caval Ridge Mine Project EIS Supplementary Report- Long Term Void Water Storage and Quality (Appendix E2) and also reproduced in Caval Ridge Mine Project EIS Supplementary Report - Final Void &amp; Landform Management Plan (Appendix E1) which discusses how the different void scenarios may be utilized in the development of the Caval Ridge final landform and void specification.</p>
4.19	<p>Relevant Project EIS Section: Section 3 The EIS states that rejects from the CHPP will be disposed of in the spoil dumps but gives no detail on how co-disposal cells would be sited, constructed or managed. The EIS and Draft EM plan should provide the following: details of how the sites and materials for co-disposal cells will be chosen, constructed and managed; an assessment of how the risk of failure will be addressed in the</p>	<p>Co-disposal will not be undertaken at Caval Ridge. Rejects from the CHPP will be dewatered and mixed with spoil. To ensure the effective management of coal rejects and tailings at Caval Ridge, the following guidelines will be implemented and monitored, further detail is provided in Appendix N (Tailings and Rejects Management Plan):</p> <ul style="list-style-type: none"> <li>■ All reject material will be trucked to in-pit waste dumps;</li> <li>■ Dumps will be developed in line with the mine plan;</li> <li>■ It is not planned to place reject material within 10m of the final landform</li> </ul>

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	<p>design of co-disposal cells; and            an assessment of the long-term stability of spoil dumps in relation to the co-disposal cells</p>	<p>slope; and</p> <ul style="list-style-type: none"> <li>■ Survey control will be utilised to ensure documented evidence of thickness of cover is recorded.</li> </ul>  <ul style="list-style-type: none"> <li>■ There will be no concentrated dumping of reject materials:               <ul style="list-style-type: none"> <li>○ All reject material will be dumped or mixed, either over a tiphead or paddock dumped, alongside dry waste material in order to minimise potential areas of geotechnical instability;</li> <li>○ The material will be dumped at the same dump face as the pre-strip material then pushed over the edge resulting in mixing;</li> <li>○ No reject material will be dumped below the pre-mining groundwater table; and</li> <li>○ All dumps will be designed and constructed to be free-draining.</li> </ul> </li> </ul>
4.20	<p>Relevant Project EIS Section: Section 5, Appendix Q.            Neither the EIS nor the Draft EM plan provides sufficient detail on the measures to be taken to avoid placing sodic or dispersive material near the surface of the spoil dumps or in the plant root zone.            The EIS and Draft EM plan should provide details of the criteria to be used to select sodic or dispersive spoil for special handling and disposal, and the measures to be taken that will ensure</p>	<p>Ideally, sodic and dispersive materials should be identified, selectively handled and placed within the core of spoil piles away from final surfaces, or returned to voids during mining. However, since most overburden and coarse reject material is expected to be marginally sodic, this method of managing potentially sodic material is inappropriate (i.e. it should be assumed that all spoil material will be sodic) (EIS – Section 5.3).            Therefore, it is likely that treatment of the sodic waste materials may be required if these were to be used as an additional source of topsoil. As part of operational</p>

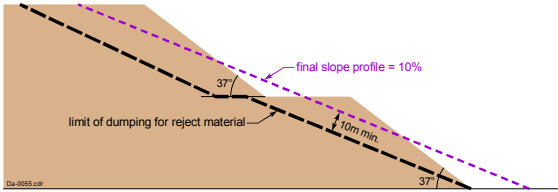
ID	Major Issues- Summary	Response															
	<p>selected material will be suitable placed and encapsulated or covered. The EIS and Draft EM plan should similarly discuss the selection and disposal of acid generating material.</p>	<p>planning a site environmental management plan will be developed, which will include criteria for the management of sodic or dispersive soils.</p> <p>The soils report indicates that topsoil across the site has low to moderate sodicity. The most effective means to ameliorate against sodicity during rehab works is to apply and incorporate gypsum; and / or apply and incorporate an organic amendment eg. biosolids, composted manure, mulch, straw, etc . These treatments are however, cost prohibitive in Central Queensland.</p> <p>Management practices to be employed would be as follows:</p> <ol style="list-style-type: none"> <li>1. Test spoil ahead of mining and rehab. The most relevant test is exch. Na%. The approx threshold levels follow: <table border="0" data-bbox="1081 699 1523 874"> <tr> <td>Very low</td> <td>-</td> <td>&lt; 4%</td> </tr> <tr> <td>Low</td> <td>-</td> <td>5 – 8%</td> </tr> <tr> <td>Moderate</td> <td>-</td> <td>9 – 12%</td> </tr> <tr> <td>High</td> <td>-</td> <td>13 – 15%</td> </tr> <tr> <td>Very high</td> <td>-</td> <td>&gt;15%</td> </tr> </table> </li> <li>2. Selectively bury high to very high exch. Na% (sodic) spoil (if practicable).</li> <li>3. Ensure moderately sodic material is topdressed with topsoil.</li> <li>4. Low &amp; very low sodic material can be sown with native trees &amp; shrubs without topsoil provided that the spoil has a pH of &gt; 4.5 &amp; &lt; 8.5 and is non-saline. The spoil must be coarsely ripped ie rough seedbed preparation with distinct furrows (not smooth).</li> </ol> <p>Other tests that can be used to determine sodicity are Dispersion % or the Emerson Aggregate Test.</p>	Very low	-	< 4%	Low	-	5 – 8%	Moderate	-	9 – 12%	High	-	13 – 15%	Very high	-	>15%
Very low	-	< 4%															
Low	-	5 – 8%															
Moderate	-	9 – 12%															
High	-	13 – 15%															
Very high	-	>15%															
4.21	<p>Relevant Project EIS Section: Section 4.4.9.1, Section 3.7, Appendix Q</p> <p>Section 4.4.9.1 and Appendix Q, Draft EM plan, Section 3.7, Land Management, states that a topsoil balance will be developed (and included as an environmental authority condition) for the mining operations.</p> <p>The EIS and Draft EM plan do not discuss what actions will be taken if it is identified that a top soil deficiency will be realised at</p>	<p>A top soil management plan will be developed to ensure an understanding of volumes of topsoil available. Where topsoil cannot be sourced, benign (non-acidic, non-dispersive) rocky material should be used as the surface medium and preferably sown with a tree species dominated seed mix. Such areas will be closely managed to maximise the establishment of vegetation cover and minimise the risk of erosion and degradation.</p> <p>As part of the site EMS rehabilitation activities will be audited to ensure the correct processes are followed, success of the rehabilitation against set criteria</p>															

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	<p>the end of mine life.</p> <p>The EIS and Draft EM plan should outline what options are available if topsoil deficiencies occur at the end of mine life. The EIS should describe what techniques could be used for rehabilitation in the event of topsoil being scarce. The EIS should describe what investigations should be completed to identify how rehabilitation will be impacted by using methods other than topsoil to rehabilitate the site.</p>	<p>will be monitored. Deviation from process or performance criteria will be managed through the EMS corrective action system.</p>
4.22	<p>Relevant Project EIS Section: Section 4.8</p> <p>The EIS should provide more detail on the equilibrium water levels in the final voids in relation to the proposed final landform and illustrate the likely size of the residual water bodies during both drought and wet climatic conditions. The EIS should assess under what conditions, if ever, including under probable maximum precipitation, water into the final voids would discharge to the surrounding environment. If discharge from the final void could occur, the EIS should assess the potential impacts of the discharge.</p>	<p>The modelling determined that a spill is most improbable even in extreme events (Caval Ridge Mine Project EIS Supplementary Report - Long Term Void Water Storage and Quality (Appendix E2). This report examines the hydrological behaviour of three possible residual void strategies for the Caval Ridge Project.</p>
4.23	<p>Relevant Project EIS Section: Section 4.8</p> <p>The EIS should model the water quality in final voids as a prelude to providing reasoned, evidence-based assessment of the potential impacts of saline water in the void on both surface and groundwater resources and quality. The assessment should not assume that rainfall runoff into the final void would readily achieve complete mixing as low-salinity runoff may form a relatively stratified layer above more dense, saline void water, which may impact on connected aquifers.</p>	<p>The Caval Ridge Mine Project EIS Supplementary Report - Long Term Void Water Storage and Quality report (Appendix E2) examines water quality outcomes from three possible void scenarios and the Final Void &amp; Landform Management Plan (Appendix E1) Section 5 reviews the results of salinity modelling undertaken at a number of BMA mine sites as well as the findings of the water and salinity balance modelling.</p> <p>The modelling determined that a spill is most improbable even in extreme events. Further that in all three instances mixing of void water with aquifers is not possible, given that the equilibrium water levels are well below the groundwater table. Each modelled void scenarios act as a sump. Thus the stratification issue is not of critical concern. Stratification aspects are discussed in both documents as it is possible that stratification as a phenomena may occur in deep voids.</p> <p>The ability of voids to support significant life will depend on whether there is</p>

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		<p>permanent water stored in the void and the ultimate salinity of the void water. The modelling undertaken by URS and others indicates that in the longer term, void water for all cases will be very saline to extremely saline. Unless mechanisms to shed salt are available, all void modelled scenarios at Caval Ridge will not be able to sustain longer term useful habitat for freshwater species.</p> <p>However, stratification of surface runoff water and incident rainfall may occur from time to time, if this is the case there may be limited potential for a hospitable water supply for native species on some occasions.</p> <p>The oxygen flux of the void may also have important implications for the ability of the water to sustain aquatic fauna. Measurements of some typical mine voids with standing highwalls in Central Queensland has shown that oxygen levels may diminish rapidly as depth increases, thus limiting use of deeper voids for aquaculture without active and costly oxygenation.</p> <p>Void rehabilitation is recognised as a major challenge for all open cut mines in Central Queensland. Achieving a comprehensive understanding of void hydro-geological and hydro-chemical behaviour and cost effective measures and remedies to ensure a beneficial outcome will take many more years of industry research and development.</p> <p>It is unlikely that there will be a single approach or remedy for void configuration and that the final treatment of voids at Caval Ridge and elsewhere will be based on reasonable negotiated outcomes between BMA and the regulator at the time. The important aspect is that BMA expresses a willingness to continue to investigate means of improving void outcomes as demonstrated by its development of the “Sustainable landform guidelines” and planning studies currently being undertaken at all mine sites which aim to substantially reduce the size and depth of final voids to deliver cost effective sustainable outcomes.</p>
4.24	<p>Relevant Project EIS Section: Section 4.8</p> <p>The EIS provides insufficient detail on the final landform and final voids to demonstrate the ability to achieve the rehabilitation objectives required by the TOR. It is unclear how rainfall runoff is intended to be directed off the final landform, which final</p>	<p>Final drainage arrangements for the spoil and void landform cannot be detailed with any level of certainty in the project development phase of a large strip mining operation. The drainage overall however is that most of the spoil runoff will report to the final void – see contour plans of the three modelled scenarios in the supplementary Caval Ridge Project EIS Supplementary Report- Long</p>

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	<p>landform areas are intended to drain to the final void and which are intended to drain to the surrounding environment.</p> <p>The EIS should provide details on the final landform and include figures that illustrate contours and include cross-sections at appropriate internals. The EIS should also provide details on:</p> <ul style="list-style-type: none"> <li>- final drainage and seeping control systems; and</li> <li>- measures to ensure stability of the waste dumps.</li> </ul>	<p>Term Void Water Storage and Quality (Appendix E2) and also the Caval Ridge Mine Project EIS Supplementary Report - Final Void &amp; Landform Management Plan (Appendix E1). It is also possible to establish all outer spoil drainage to the void and modelling shows that this does not cause a spill situation, even in extreme circumstances.</p> <p>Measures to ensure stability of the waste dumps are discussed in the supplementary Caval Ridge Mine - Final Void &amp; Landform Management Plan. Stable situations are to be achieved by use of low gradients on spoil batters and further, erosional stability will be achieved with use of a variety of measures including sustainable vegetative cover, rock mulch and in some instances graded banks and rock lined waters.</p> <p>For the main BMA will not rely on cross slope structures for erosional stability as these structures for the main, can not be relied on a permanent basis. The BMA Guideline for the Design of Sustainable Mine Landforms. (EIS Appendix R5) will ultimately form the basis for strategy development for landform and drainage design.</p>
4.25	<p>Relevant Project EIS Section: Section 5, Appendix Q</p> <p>The EIS and EM plan do not provide sufficient measures to ensure that during operations overburden and interburden are adequately characterised with regard to their chemical and physical properties.</p> <p>The EIS and Draft EM plan should provide measures for the chemical and physical characterisation of overburden and interburden that would be adequate for the selective management of those waste materials.</p>	<p>The geochemical assessment of potential overburden (including interburden) undertaken as part of the EIS has identified that overburden is expected to be overwhelmingly non-acid forming (NAF), with very low acid-generating potential and moderate to high alkalinity.</p> <p>The total and soluble metals concentrations in overburden and interburden were also very low. As such, no selective management of overburden or interburden materials is required, other than seepage and run-off water quality monitoring proposed as part of the water management program. Overburden and interburden was identified in the EIS as being moderately to strongly alkaline, moderately saline and marginally sodic. Therefore overburden and interburden reporting to final surfaces may need to be managed appropriately to enable suitable rehabilitation and revegetation to be undertaken.</p> <p>As reported in Section 5.4.1 of the EIS, BMA will undertake ongoing operational geochemical characterisation of mineral waste materials in the southern section of the project area to confirm the expected geochemical characteristics of these materials.</p>

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		<p>The detail surrounding this additional work cannot yet be defined, however a suitable program may involve the sampling of one or two drillholes per year in the first five years of operation in in-fill areas, with a statistically representative number of overburden and interburden samples collected and analysed for a broad suite of geochemical parameters. The analytical suite will include at minimum:</p> <ul style="list-style-type: none"> <li>▪ pH and EC (either saturated paste or 1:5 water extract);</li> <li>▪ Total sulphur;</li> <li>▪ Sulphide sulphur;</li> <li>▪ Total organic carbon; and</li> <li>▪ Acid neutralising capacity.</li> </ul> <p>Selected samples (individual or composites) will likely undergo further testing to include total and water-soluble metals, exchangeable cations, and potentially additional acid-base classification (depending on the results).</p> <p>Geochemical characterisation, assessment and reporting will be undertaken by a suitably qualified and experienced geochemist.</p>
4.26	<p>Relevant Project EIS Section: Section 5</p> <p>The EIS should provide commitments to appropriate testing to ensure that a 'non-flowable' paste of the fine rejects is being produced.</p>	<p>Feed to the belt press filter supply tank is regulated by the density of the tailings thickener underflow. When the density is within the setpoint range, the feed valve is opened. When the density is outside the setpoint range or the level in is greater than the alarm setpoint, the tailings thickener re-circulation valve is opened, placing the thickener underflow into re-circulation mode. If it is closed for a period greater than 900 seconds, all belt press filters will be shutdown to conserve water. Further detail is provided in Appendix G – Belt Filter Press Operating Philosophy.</p>
4.27	<p>Relevant Project EIS Section: Section 5, Appendix Q</p> <p>The EIS should provide commitments to appropriate operational measures (in the design plan and Plan of Operations) to be applied to the spoil dump to guarantee a minimum standard of mixing of the rejects and tails with the spoil.</p>	<p>To ensure the effective management of coal rejects and tailings at Caval Ridge, the following guidelines will be implemented and monitored, further detail is provided in Appendix N (Tailings and Rejects Management Plan):</p> <ul style="list-style-type: none"> <li>▪ All reject material will be trucked to in-pit waste dumps;</li> <li>▪ Dumps will be developed in line with the mine plan;</li> <li>▪ It is not planned to place reject material within 10m of the final landform</li> </ul>

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		<p>slope; and</p> <ul style="list-style-type: none"> <li>■ Survey control will be utilised to ensure documented evidence of thickness of cover is recorded.</li> </ul>  <ul style="list-style-type: none"> <li>■ There will be no concentrated dumping of reject materials:           <ul style="list-style-type: none"> <li>○ All reject material will be dumped or mixed, either over a tiphead or paddock dumped, alongside dry waste material in order to minimise potential areas of geotechnical instability;</li> <li>○ The material will be dumped at the same dump face as the pre-strip material then pushed over the edge resulting in mixing.</li> <li>○ No reject material will be dumped below the pre-mining groundwater table; and</li> <li>○ All dumps will be designed and constructed to be free-draining.</li> </ul> </li> </ul>
4.28	<p>Relevant Project EIS Section: Section 5, Appendix Q          The EIS should provide commitments to the development of a contingency plan for conventional TSF storage on site in circumstances where there may be short term or long term failure to meet test standards for tailings and reject paste.</p>	<p>The current design allows for the tailings to be recirculated back into the tailings thickener should there be operational issues with the filters Appendix G; Filter Belt Press Philosophy. In support of this the design has 24 units installed. Modelling suggests under worst case conditions only 22 units will required during operations. This allows for a redundancy for maintenance and extra capacity purposes. A test unit is currently being installed at another BMA mine and results from this test unit will be used to confirm the information above. Based on this a conventional tailings storage facility will not be required on site.</p>
4.29	<p>Relevant Project EIS Section: Section 6          Issue: Water Storage Assessment</p>	<p>The storage requirements are determined in accordance with the following provision of the draft Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (Version 1.0, 2008):</p>

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	<p>Design Storage Allowance (DSA) (i.e. seasonal rainfall requirements) for those storages that will take pit and other contaminated water have not been bench marked using deciles analysis in accordance with either the Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME, 1995) or the draft Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (Version 1.0, 2008), both of which are cited in the EIS. The standards cited for such dams (e.g. Table 6.7) are either not applicable for that class of dam under DME 1995 and or the proposed methods are no longer acceptable to DERM.</p> <p>The EIS should provide details of water management system monitoring together with bases and assumptions that generated estimated volumes of storages required on site, consistent with conditions. Benchmarking against deciles analysis should also be included.</p>	<p>“An alternative to providing available storage capacity for all required dams, is to demonstrate to the satisfaction of DERM that a positive environmental benefit is achieved by operating a water management system that provides for storage such that agreed release limits and receiving water limits are not exceeded. Design and conditions would ensure that contingency is provided for failure or absence of a pump during critical operations, with mandatory reporting of such absence or failure”</p> <p>To determine storage requirements the mine water balance utilises over 100 years of climate data (1900 to 2009) to ensure the water system performance can cater for a wide range of climate variability.</p> <p>The water balance modelling of the integrated management system takes account of:</p> <ul style="list-style-type: none"> <li>■ Runoff from all mine area and catchments draining into the integrated mine water management system, including runoff into mine pits;</li> <li>■ Transfers of mine water between storages;</li> <li>■ Re-use of mine water in plant operations and for dust suppression;</li> <li>■ Evaporation losses;</li> <li>■ Controlled releases to the environment complying with proposed controlled release discharge criteria;</li> <li>■ Uncontrolled overflow releases from dams.</li> </ul> <p>The required total mine water system storage capacity will be determined to ensure the water management performance limits the probability of uncontrolled overflow discharges (to receiving waters) from Significant and High Hazard Dam to less than 1:100 AEP.</p> <p>Water management system performance will also be evaluated for system failure risks such as failure of a pump, pipeline, or water storage to develop appropriate contingency plans. The system failure risk assessments will be prepared during detailed design for the Definition Phase of the project and outcomes will be considered as part of design criteria for the design of each element of the water management system (e.g. pumps, pipelines, dams, control systems). System failure contingency plans (actions or strategies) will be</p>

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		<p>prepared for modified or restricted operation of the water management system as required to address potential failures of one or more components of the water management system which cannot be eliminated through design. The system failure contingency plans will not allow increase in the frequency of uncontrolled discharges from the mine water storages and ensure that controlled discharges remain compliant with EA conditions. The system failure risk assessment and contingency plans will be documented in an operations plan for the integrated water management system.</p> <p>The approach outlined above is more robust and provides a more secure environmental safeguard than the nominated DSA analysis which does not account for mine water transfer operations, permissible controlled discharges, or ability to actually achieve DSA free storage prior to each wet season. Most of the Significant and High Hazard Dams have no catchment other than the dam itself. Exceptions include the North Catchment Dam and South Catchment Dam which do not receive pit water or mine spoil runoff and are relative “cleaner” than other High and Significant Hazard dams. The North Catchment Dam and South Catchment Dam do not receive pumped inputs. The risk of such dams overflowing is managed by maintaining the dam level below the MRL. Inputs other than direct rainfall can be controlled by ceasing pumping operations.</p> <p>The proposed EA conditions in the EM Plan include provisions for annual updating of the water balance modelling with monitoring of:</p> <ul style="list-style-type: none"> <li>■ Rainfall;</li> <li>■ Actual water volumes in dams, and water quality in dams and pits to review and improve model calibration;</li> <li>■ Confirmation of the storage capacity of dams;</li> <li>■ Water quality in all elements of the water management system;</li> <li>■ Mine water transfer operations with either flow meters or logged hours of operation of pumps;</li> <li>■ Controlled releases (including all monitoring requirements outlined in the EA conditions); and</li> <li>■ Quality and quantity of uncontrolled releases (if any occurred in the</li> </ul>

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		<p>previous years operations).</p> <p>The annual update of the water balance modelling is to ensure that there is sufficient operational capacity to prevent uncontrolled overflow releases to the environment, and/or to review system performance in the event of failure of any critical component of the water management system.</p>
4.30	<p>Relevant Project EIS Section: Section 6, Appendix Q Issue: Water Storage Assessment</p> <p>Appendix Q, Draft EM plan, dam conditions F7-1 and F7-3, do not reflect the DERM's current conditions for dams. DERM will require a hazard assessment for all dams including basic performance for those dams that are assessed as 'regulated' (significant or high hazard).</p> <p>EIS and Draft EM plan dam conditions should reflect DERM's current dam conditions, which require hazard assessment, design plans certified by 'suitably qualified and experienced engineers and annual inspections for dams in the significant or high hazard category. For hazard assessment and basic hydraulic performance of dams, those conditions should reference either the Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME, 1995) or the draft Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (Version 1.1, 2009) currently out for final comment by peak bodies.</p>	<p>A preliminary Hazard Assessment has been undertaken and is presented in Appendix H1. The proposed EA conditions in the EM Plan include provisions for regular reviews of the Hazard categories for all mine water dams.</p> <p>Significant and High Hazard Regulated Dams will be designed and certified by a suitably qualified engineer. Construction of the Regulated Dams will be certified by a suitably qualified engineer. Annual surveillance inspections of Regulated Dams will be undertaken by a suitably qualified engineer.</p> <p>The Draft Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (Version 1.1, 2009) is not endorsed State Government policy. Neither BMA nor industry's peak representative body, The Queensland Resources Council, endorse this guideline. The current version of this guideline could lead to detrimental impacts on downstream water resources when considered in a holistic sense and may not be sustainable. It does not recognise that controlled compliant discharges are permissible and does not recognise the equally critical role of transfer systems (e.g. pumps and pipes) for integrated mine water management.</p> <p>The alternative water balance modelling approach (outlined above in 4.29) will provide greater certainty of environmental safeguard for mine water management.</p>
4.31	<p>Relevant Project EIS Section: Section 6, Appendix Q</p> <p>The EIS does not provide design concept details for the mine pits, in pit storage and the initial 'out of pit' waste dump. While the EIS and Draft EM plan suggest principles that may be adopted, they do not address the potential environmental impacts associated with the final land form design or provide specific conditions and commitments to demonstrate identified impacts and appropriate means for their management.</p>	<p>The proposed waste placement strategy for Caval Ridge is discussed below:</p> <ul style="list-style-type: none"> <li>■ Dumping Corridor - Sufficient area has been made available on the western side of the box cut excavation to ensure that all waste material can be placed within this corridor and meet final rehabilitation grade requirements. See (Appendix I – Concept Final Dump) for further explanation. . It should be noted that this comment deals with Horse Pit only, there is space at Heyford Pit and once the box cut has been excavated at Horse there will be space in this pit as well. The landform models have made allowance for the</li> </ul>

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	<p>The EIS should provide information on the conceptual designs for the mine pits, in pit storage and the initial 'out of pit' waste dump. Further detailed information should be provided of potential environmental impacts associated with the final land form design, mine pits, in pit storage and the initial 'out of pit' waste dump. The Draft EM plan should propose conditions and commitments which demonstrated that identified impacts can be appropriately managed.</p>	<p>rejects</p> <ul style="list-style-type: none"> <li>■ Ongoing waste placement – The waste placement strategy will be the same as that adopted by most dragline strip mining operations. That is, excavations will be backfilled with waste as mining operations progress down dip. A key feature of the Caval Ridge waste placement strategy is that Truck / Shovel material will be hauled to the low wall side of the pit and dumped to pre-designed final spoil grade designs to ensure progressive rehabilitation can be carried out.</li> </ul> <p>Appendix I – Concept Dump provides an overview of the dump design strategies that have been incorporated into Caval Ridge planning.</p>
4.32	<p>Relevant Project EIS Section: Section 6, Appendix Q</p> <p>The EIS does not adequately address the issue of effective containment of saline waters and other potential leachate from spoil dumps. The EIS should provide detailed information on those storages likely to be associated with spoil dumps.</p> <p>The EIS and Draft EM plan should provide further information, and propose environmental protection commitments for those storages currently defined as sediment dams or sumps associated with spoil dumps (to contain reject and fine tailings). A monitoring plan should be developed to ensure regular water quality monitoring is undertaken. This plan should assess the adequacy of pump capacity and storages elsewhere on site.</p>	<p>All runoff and seepage (potential leachate from spoil dumps will drain to sediment dams, into the mine pits, or the north and south catchment dams, and consequently be contained within the integrated mine water management system.</p> <p>The majority of spoil dumps will be constructed in pit and the topography underlying the majority of out of pit dumps reports back to the pit. As such, potential leachate from spoil dumps is expected to predominantly report to the pit.</p> <p>Networks of pipes and pumps will collect these waters for reuse in the mine operations, controlled compliant releases to the receiving waters or be lost through evaporation from dams.</p> <p>Based on experience of BMA operations at nearby Peak Downs and Goonyella Riverside mines, the integrated collection and transfer of mine water is expected to produce net water quality suitable for reuse. In the unlikely event that operations show that the mine water is too saline for reuse, contingency measures will be developed with reassessment of the mine water balance and overarching mine water strategy if required. Subject to mine water balance modelling assessment of the specific water quality issue of concern, contingency measures could include either improved mixing of mine waters, segregation of mine waters, modification of plant (to allow reuse), or mine water treatment if practical. The mine water balance method will be the key operational tool to continually manage the integrated mine water management</p>

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		<p>system, improve performance, and ensure that the risk of uncontrolled (overflow) discharge to the environment is acceptably low. Infrastructure requirements including pump and pipe capability and location will be determined from the water balance.</p> <p>The specific function of each dam, whether to capture runoff from spoil dumps, runoff from around the industrial area, collection of pit water was outlined in Table 6.8 of the draft EIS.</p> <p>Water storages will be strategically monitored so that their suitability for storing and transferring water from the nominated sources can be periodically reviewed. The detailed monitoring plan will be prepared during the Definition Phase of the project and will include all elements outlined in item 4.29.</p>
4.33	<p>Relevant Project EIS Section: Section 6, Appendix Q</p> <p>The EIS provides no assessment on the worst case immunity to regional or localised flooding on site - with proposed concepts in place and at AEP levels appropriate to a reasonable risk over the operational project life of 30 years (e.g. AEP 1 in 3,000 gives 1% probability), and after decommissioning and rehabilitation. The EIS and Draft EM plan should assess the hazards associated with proposed residual pit voids and assess the feasibility of the proposal.</p> <p>The EIS should include conceptual designs for the pits and levees, and more detailed consideration of flood immunity at the impacted site. It should provide commitments in the Draft EM plan to demonstrate that mitigation of potential environmental impacts will be delivered to an acceptable standard during the operational mine life, and for the foreseeable future after decommissioning and rehabilitation.</p>	<p>A supplementary flood assessment has been completed to assess levee requirements for rare and extreme events up to 1 in 3,000. This assessment is provided in the Flood Assessment Report included as Appendix H2 of the EIS Supplement.</p> <p>This modelling work indicates that levees providing the pit with 3,000 year ARI flood immunity from adjacent watercourses can be incorporated into the infrastructure design and the post mining landscape. Flood levees will be constructed to provide the pit with at least 500 year ARI flood immunity from adjacent watercourses during the operational phase of the mine. A higher level of immunity may be provided, however this is subject to feasibility investigations planned for subsequent design stages. The feasibility assessment will include consideration of any measures that are required to manage residual risk.</p> <p>The final void will be provided with at least 3,000 year ARI immunity from flooding in adjacent watercourses.</p>
4.34	<p>Relevant Project EIS Section: Section 6</p> <p>The proponent should note that the current Water Resource (Fitzroy Basin) Plan (WRP) provides for the construction of overland flow worse that are required under an EA. It currently</p>	<p>Noted - BMA notes that the Water Resource (Fitzroy Basin) Plan is under review and will discuss potential changes and implications of those changes with DERM when they are available.</p>

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	<p>also provides exemption for works on a mining tenement. However the WRP is currently under review. This review may result in possible amendments to the overland flow provisions during the life of the mine development.</p>	
4.35	<p>Relevant Project EIS Section: Section 6 The EIS and Draft EM plan should address what would constitute a controlled release of water from the site, under what circumstances there would need to be a release, and should provide a detailed assessment of the suitable circumstances when discharges would be permitted.</p>	<p>Under most dry and average conditions, the mine will operate with a water deficit and controlled releases will not be required. In above average wet seasons, and exceptionally high wet seasons there will be a surplus of mine water and controlled releases may be required. Typically this will occur with a frequency with 1:10 AEP or less frequent.</p> <p>Controlled releases will only be made from the 12North dam under the following conditions:</p> <ul style="list-style-type: none"> <li>▪ When flow in upstream Cherwell Creek is above a prescribed threshold defined in the EA;</li> <li>▪ The quality of release waters are within prescribed limits defined in the EA;</li> <li>▪ The maximum controlled release flow rate will be 20% of the upstream Cherwell Creek flow.</li> </ul> <p>The criteria for the above conditions will be outlined in the revised draft EM Plan and EA conditions, and the calculations to derive these criteria are outlined in Appendix H3 (Surface Water Assessment – discharge criteria).</p>
4.36	<p>Relevant Project EIS Section: Section 6, Appendix Q The EIS must identify where, and under what circumstances, controlled discharges would be made. The EIS should propose auditable measures for the management of dams that would receive pit water and the necessary controls for releases. Those auditable measures should also be included in the project's Draft EM Plan.</p>	<p>Controlled releases will only occur at 12North dam. Refer issue ID 4.35 for further details of the conditions under which controlled releases will occur. The EM Plan includes provisions in the EA conditions for auditable measures to for controlled releases, including the quantity and quality of release, upstream flow conditions at the time of the release, downstream receiving environmental monitoring, and reporting in Annual Returns.</p>
4.37	<p>Relevant Project EIS Section: Section 3.7, Section 6.2.4.5 Section 3.7.2.3 and section 6.2.4.5 of the EIS provide information on creek diversions for the project. It is unlikely that</p>	<p>BMA's objective for the diversion design was to adhere as closely as possible to DERM's guidelines for water course diversions. Compliance with the guideline was achieved for the portion of Horse Creek diversion that is equivalent to that</p>

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	<p>DERM would licence the diversions in their currently proposed form. While it is recognised they meet the Australian Coal Industry Research Program (ACARP) guidelines in terms of hydraulic design they do not meet the DERM's guidelines in that they are designed as a straight channel and do not allow for the natural characteristics of the watercourse.</p> <p>The creek diversions should be redesigned in accordance with DERM's guidelines for Watercourse Diversions - Central Queensland Mining Industry. These guidelines outline that diversions should be constructed in such a way that they exhibit similar features to the existing natural water course, such as meanders, terraces, benches and that these features are allowed to develop at a rate consistent with the natural watercourse.</p>	<p>determined to be a water course for the purposes of the <i>Water Act 2000</i>.</p> <p>Spatial constraints associated with the development of the Horse Pit resulted in the guideline not being fully implemented for the Caval Creek diversion. Although all hydraulic considerations of the guideline were met, there was insufficient corridor width available to provide any significant meander in the plan form without significantly impacting on the recovery of reserves. The concept design proposed a slight meander, with channel width amplitude, to mitigate any aesthetic impacts associated with a straight channel.</p> <p>Documentation relating to the constraints and proposed mitigation measures was provided to the (then) DNRW on 5 February 2009 and has been attached with this submission.</p> <p>The above approach was considered appropriate for the following reasons:</p> <ul style="list-style-type: none"> <li>■ Discussions with the DNRW on 8 December 2008 indicated that, provided hydraulic parameters could be met, the main concern with a straight channel plan form was the aesthetic impact. The proposed channel width meander, coupled with revegetation, would break the straight channel appearance and thus significantly mitigate this impact.</li> <li>■ The Caval Creek catchment is relatively smaller than catchments to which the guidelines are typically applied. Hence the peak flow rates experienced by the diversion and resultant risks associated with the diversion are low.</li> <li>■ No practical alternatives were identified that would not impact on the recovery of reserves.</li> </ul> <p>A meeting was held with Mr. Kerry Marler of DERM on 6 October 2009. At this meeting it was confirmed that the Horse Creek arrangements are satisfactory. In relation to Caval Creek, the rationale behind the concept design proposal was further explained and justified. Mr. Marler requested additional information and this information was subsequently provided by BMA</p>
4.38	<p>Relevant Project EIS Section: Section 6.2.4.5</p> <p>DERM's guidelines should also be applied to the section of the Horse Creek diversion that is upstream of the defined watercourse. That is, the entire diversion should be designed in</p>	<p>It is BMA's understanding that DERM's diversion guideline and the ACARP study that underpins a significant portion of the guideline are only intended to apply to watercourse diversion applications under the Water Act. A watercourse for the purposes of the Water Act must exhibit features which are outlined in the</p>

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	accordance with the guidelines.	<p>act. These features were determined by the DNRW not to be present on the upstream portion of Horse Creek.</p> <p>It is not considered appropriate to apply the guidelines in circumstances that are not aligned with their intended scope, particularly as the ACARP study which underpins the guidelines is based on a stochastic relationship indicative of diversion stability.</p> <p>A meeting was held with Mr. Kerry Marler of DERM on 6 October 2009. At this meeting it was confirmed that Horse Creek arrangements are satisfactory and the guideline does not need to be applied to the section of Horse Creek upstream from the defined watercourse upstream limit.</p>
4.39	<p>Relevant Project EIS Section: Section 6.2.4.5</p> <p>The EIS should provide the design for the final entire diversion for the Caval Creek. The entire creek diversion should be submitted for approval, rather than sectional designs.</p>	<p>BMA is only seeking approval for the portion of Caval Creek covered by the concept design. A stage 2 diversion was examined to ensure that the current proposed diversion is not incompatible with potential future mining development in the adjacent areas, if such mining were to occur. Only hydraulic parameters were considered by this examination as no such development is planned and spatial constraints are not defined. In the event such future mining development is proposed, any diversion proposal and the necessary approvals will need to be considered on their own merits.</p>
4.40	<p>Relevant Project EIS Section: Section 6.2.4.7</p> <p>Section 6.2.4.7, Wastewater treatment, is not consistent with best practice for sewage treatment effluent quality. The EIS should provide further information on the proposed treatment and disinfection process to produce class A+ effluent.</p> <p>The EIS should describe the proposed treatment and disinfection process and propose maximum levels intended to be produced by the treatment process. These should be consistent with best practice environmental management.</p>	<p>Waste management is discussed in Section 14 of the EIS and expected sewerage waste volumes are presented in Table 14.1</p> <p>The sewage treatment process will include bioreactors with anoxic and aerobic zones, mixed liquor return streams, mixers, aeration for carbonaceous and biological nitrogen removal. A sodium hypochlorite system shall provide disinfecting of final effluent. Membrane filtration will be provided prior to recycled water being transferred to the recycled water storage tanks. Sludge storage including digester including a supernatant recovery system for returning supernatant to the inlet works. The sludge storage digester will be designed to operate for 1 month between sludge removals at the stage 3 (2000EP) phase load.</p> <p>The sludge residue (approx 15t/yr) from the treatment plants will be removed from site by a licensed contractor and deposited in an approved location in accordance with Isaac Regional Council requirements.</p>

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		Sewage waste water will be treated to Class A+ quality and used for irrigation on the site. Recycled water will be managed in accordance with the Australian Guidelines for Water Recycling - managing health and environmental risks (Phase 1) (2006).
4.41	<p>Relevant Project EIS Section: Section 6.2</p> <p>The pumping of pit water to sediment control dams would contaminate storm water runoff contained in the sediment dams with water of much inferior quality, and they would then be regulated as process water dams.</p> <p>The environmental authority (EA) conditions imposed on process water dams are typically more stringent than conditions imposed on sediment dams that only receive run-off from disturbed areas. DERM would not license dams that receive pit water as sediment dams.</p> <p>The EIS should:</p> <p>identify which dams could receive pit water, and which would be used purely to trap sediment in runoff from disturbed areas; and as necessary, redesign the water management system so that pit water is kept separate from collected runoff in sediment dams.</p>	<p>Surface water storages have been discussed in detail in Section 6 of the EIS. Table 6.8 Summary of Mine Water Storages provides a description of sediment dams and mine water storages. Pit water will be collected in mine water storages and reused in the process water system, while sediment control dams will collect stormwater runoff.</p> <p>The sediment control dams will be allowed to overflow during flow events as their purpose is in-stream removal of sediment from runoff, not containment of runoff.</p> <p>Following a rain event water accumulated in sediment dams will be pumped to the pit and process water network in order to maximise their ability to contain sediment in subsequent events, facilitate maintenance and prevent any accumulation of salt. Under no circumstance will pit water be pumped into the sediment dams.</p>
4.42	<p>Relevant Project EIS Section: Section 6.2,</p> <p>In light of recent flooding events in Bowen Basin mining, DERM now recommends that all operating mines and pits to be protected from flood events up to at least 1 in 500 year ARI.</p> <p>For the operational phase, the EIS should provide a detailed assessment of the effects of inundation of the proposed project site form at least 1 in 500 year ARI event.</p>	<p>A supplementary flood assessment has been completed to assess potential flooding of the site for rare (1 in 500) and up to extreme (1 in 3,000) events. This assessment is provided in the Flood Assessment Report included as Appendix H2 of the EIS Supplement.</p> <p>Levees will be constructed for the Horse and Heyford Pits to provide flood immunity for at least the 500 year ARI event.</p>
4.43	<p>Relevant Project EIS Section: Section 6.2, Section 4.8.11</p> <p>For the phase after mining ceases, the EIS should also provide a detailed assessment of the location of final voids, and protection measures for uncompacted overburden and workings,</p>	<p>The exact size shape and actual location of a final void cannot be accurately determined at a project design level. Caval Ridge Mine Project EIS Supplementary Report - Final Void &amp; Landform Management Plan (Appendix E1) specifically addresses this complex issue. Section 4 generally and 4.2</p>

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	<p>in regard to the probable maximum flood level based on the Bureau of Meteorology's probable maximum precipitation forecast for the locality.</p> <p>If these recommended standards would not be met, the EIS needs to present a detailed argument of the reasons, and provide measure to be adopted that would ensure that Fitzroy Basin water quality will not be compromised in the long-term.</p>	<p>specifically.</p> <p>However, a flood study (Appendix H2) has been prepared for the 30 year mine situation in which the void position has been formed by adopting the current envisaged mining schedule which carries out the void to an approximate position. Reduced or increased demand for coal product and quality variations may well cause the actual void position to change in the future.</p> <p>Void water balance and salinity modelling confirms that overflows of water from the void are most unlikely even in very extreme events. Further that the void acts as sump, hence water flows into the groundwater table are not possible. On this basis no impact on Fitzroy Basin water quality is possible. See URS supplementary report, Long Term Void Water Storage and Quality (Appendix E2) and also the Caval Ridge Mine Project EIS Supplementary Report - Final Void &amp; Landform Management Plan (Appendix E1)</p> <p>Hydrological studies have determined that the only potential for impact to the Fitzroy Basin water quality is due to:</p> <ol style="list-style-type: none"> <li>1. Floods – See Appendix I4 Flood Appendix report (Caval Ridge EIS) which shows areas of the project which would be inundated in a 1:100 event in Horse, Cherwell and Grosvenor Creeks. Flooding into pit will be controlled by placement of bunds established above projected flood heights and off set from the pit perimeter.</li> <li>2. Spills from sediment dams. The mine site water balance model will be used to locate and size water management storages, gravity and pump linked storages to ensure that during operations water discharge criteria are met. Post operations, water quality discharges from the rehabilitated sites will meet accepted salinity and other quality limits which will be proven by monitoring flows from rehabilitated areas during and post operations.</li> </ol>
4.44	<p>Relevant Project EIS Section: Section 6</p> <p>The EIS discusses water quality issues such as erosion, saline overburden and waste, pH and moderately dispersive subsoils. However, waste water quality for suspended solids, total dissolved solids, pH and turbidity (i.e. water quality parameters related to these issues) are not provided.</p>	<p>Runoff from mine spoil and other disturbed areas is not wastewater, it is simply runoff (mine water) with elevated levels of natural contaminants.</p> <p>It is not possible to predict with any degree of certainty the likely quality of mine water until the mine is operational and mine water monitoring (as proposed in the Draft EIS – Figure 6.9) in the early phases of operations can be used to adapt the mine water management operations.</p>

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		<p>Past experience of BMA's operations and monitoring at Peak Downs Mine, and Goonyella Riverside Mine indicates mine water quality typically as follows:</p> <ul style="list-style-type: none"> <li>▪ runoff from mine spoil and around industrial areas typically has EC in the range of 500 to 3,000µS/cm and pH in the range of 6.0 to 9.5.</li> <li>▪ mine water pumped from mine pits (predominantly surface water with minor groundwater contribution) typically has EC in the range of 2,000 to 6,000µS/cm and pH in the range of 6.0 to 9.5.</li> <li>▪ the higher EC values tend to occur in dry weather, and lower EC values tend to occur in wet weather.</li> </ul> <p>Experience has shown that salinity (EC) is the water quality contaminant of concern, and that adequate management of salinity can address the concerns of metalloid contaminants. Operational monitoring will be used to continually improve knowledge and management of key contaminants.</p>
4.45	<p>Relevant Project EIS Section: Section 6</p> <p>Also, chemicals such as flocculants are commonly used in the coal processing and dewatering operations. The EIS provides no advice on what chemicals will be used and likely contaminants that may be present in wastewaters.</p>	<p>Chemicals to be used in the coal processing include:</p> <ul style="list-style-type: none"> <li>▪ Methyl Isobutyl Carbinol (MIBC),</li> <li>▪ Anionic Flocc (acrylamide/acrylate) and</li> <li>▪ Cationic Flocc (polydimethyl diyl ammonia chloride)</li> </ul> <p>None of these chemicals will be present in any significant (detectable) quantity in the mine water because the coal processing waste (fines) will be dewatered within the CPP and recycled (i.e. closed system).</p> <p>As outlined above in 4.36, the waters that could be released from the site (either through controlled complaints releases, or very low probability uncontrolled dam overflows) will be predominantly mine water with elevated levels of natural contaminants, not wastewater.</p>
4.46	<p>Relevant Project EIS Section: Section 6</p> <p>The EIS does not discuss the potential for low pH pit water.</p>	<p>Geochemical testing has shown that Permian materials (i.e. pit geology) practically have minimal potential to produce acidic (low pH) waters.</p> <p>This finding is consistent with the BMA's similar existing coal mine operations in the northern portion of the Bowen Basin which show that low pH water is not a concern.</p>
4.47	<p>Relevant Project EIS Section: Section 6</p>	<p>Wastewaters will not be discharged.</p>

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	<p>The EIS should provide full characterisation of wastewaters intended to be discharged.</p>	<p>Mine water that may be discharged will only contain elevated levels of natural contaminants. Full characterisation of the mine water cannot occur until sampling can be conducted during mine operations. Indicative characterisation of the mine water is presented in 4.46 above.</p>
4.48	<p>Relevant Project EIS Section: Section 6, Appendix Q</p> <p>Currently the proposed Environmental Authority provided as part of the, Appendix Q, Draft EM plan, section 3.4.8, C1-1 and C1-4, proposes releases of water that will result in receiving waters that will exceed current Queensland Water Quality Guidelines for pH and electrical conductivity (EC). Two types of discharge are proposed: one release type involves discharge during stream flows (with a receiving water EC value of up to 2500 <math>\mu\text{S}/\text{cm}</math> and pH between 6 and 9); while the other involves releases in dry times for the beneficial Both types of releases have the potential to reduce water quality from that currently present. The results of Appendix I5, Water Quality Data, show that current median EC values were between 269 and 1139 and pH medians were between 6.3 and 8.6.use of adjacent landowners (with EC values of up to 5000 <math>\mu\text{S}/\text{cm}</math> and pH between 6 and 9).</p> <p>The EIS provides no reason for choosing proposed current median EC values and pH medians upon release to surface waters and does not assess the likely consequences.</p>	<p>The studies for the draft EIS and corresponding proposed release criteria were developed prior to recent studies undertaken by DERM regarding water quality issues in the Fitzroy Basin and subsequent draft documents for proposed changes to the approach to licensing of discharge from mines.</p> <p>BMA's proposed discharge criteria have subsequently been revised taking account of recent changes in the approach to licensing of discharges.</p> <p>There will be no mine water releases during dry periods.</p> <p>There will be an infrequent need for controlled compliant releases that will be governed by:</p> <ul style="list-style-type: none"> <li>■ Flow rate in the receiving waters upstream of the discharge point</li> <li>■ Quality of mine water to be released</li> <li>■ Maximum flow rate of release related to portion of upstream receiving water flow, and</li> <li>■ Maximum limit of water quality in the downstream receiving waters.</li> </ul> <p>The proposed controlled release criteria are outlined in the revised draft EM Plan and the basis for these criteria are presented in Appendix H3 (Surface Water- Assessment).</p> <p>There will be very rare uncontrolled (overflow) discharges from mine water dams that will be limited to 1 in 100 AEP. This recognises that fact that zero discharge is strictly theoretically impossible, (i.e. any containment system that has rainfall contribution has some small risk that it can overflow and cannot be prevented). What can be mitigated through design and operation of the water management system is the frequency of uncontrolled overflow discharges through the use of mine water balance modelling to ensure sufficient storage is available. Receiving environment flow and quality criteria will not apply to low probability uncontrolled overflow discharges because such discharges cannot be controlled by BMA.</p>

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4.49	<p>Relevant Project EIS Section: Section 6, Section 9 Appendix Q</p> <p>The EIS should undertake an assessment of the impacts on downstream environmental values including analysis of which aquatic and riparian taxa are likely to be impacted by controlled releases. The EIS should also consider appropriate mitigation strategies to manage identified impacts.</p> <p>The EIS should provide information detailing how the proposed mine will manage the impacts on the downstream water resources. The EIS should assess the potential impacts of proposed controlled release of surface waters during mine operations. It should also discuss mitigation strategies for identified impacts.</p>	<p>The retention of aquatic habitat and fluvial processes on the site is essential for continued ecological functionality. Therefore, to the extent practicable, areas beyond the intensive zone of development must be protected from direct impacts. Mitigation prescriptions to ensure this occurs include:</p> <ul style="list-style-type: none"> <li>■ All riparian areas and streams outside of the intensive development zones will be protected through early identification and maintenance of buffer zones;</li> <li>■ Adequate erosion and sediment control will be implemented where development, including construction of roads and tracks, encroaches near waterways;</li> <li>■ Monitoring of runoff will be undertaken to observe sediment loads and the extent of sediment distribution and to apply remediation measures where necessary;</li> <li>■ Vegetative stabilisation of soil throughout all non-operational zones within the mine infrastructure area will reduce potential for unanticipated erosive events; and</li> <li>■ Active rehabilitation of streams and riparian zones with native species will assist in ensuring impacts from the proposed works are offset in such a way that contributes to local ecological functionality.</li> </ul> <p>The revised proposed controlled release criteria will limit the maximum EC in receiving waters to 1000µS/cm. The DERM document “Conditions for Coal Mines in the Fitzroy Basin – Approach to Discharge Licensing version 10 June 2009” states that macroinvertebrate taxa are unlikely to be affected at or below 1,000µS/cm.</p> <p>Monitoring of the quality of receiving waters during discharges and the proposed Receiving Environment Monitoring Program (both in the revised draft EM Plan) will ensure impacts on downstream receiving waters are managed, and if necessary specific mitigation measures will be adaptively developed in response to concerns identified from this monitoring.</p>
4.50	<p>Relevant Project EIS Section: Section 6, Section 9.2.1, Appendix Q</p>	<p>The retention of aquatic habitat and fluvial processes on the site is essential for continued ecological functionality. Therefore, to the extent practicable, areas</p>

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	<p>Section 6, Surface Water, and section 9.2.1, Impact Mechanisms, do not adequately address the impacts of stream diversions on the aquatic ecology.</p> <p>The EIS should provide a detailed assessment of the impact of stream diversions on downstream environmental values, stream connectivity and opportunities for movement of aquatic fauna. The EIS and Draft EM plan should propose mitigation strategies for any identified impacts.</p>	<p>beyond the intensive zone of development must be protected from direct impacts. Mitigation prescriptions to ensure this occurs include:</p> <ul style="list-style-type: none"> <li>■ All riparian areas and streams outside of the intensive development zones will be protected through early identification and maintenance of buffer zones;</li> <li>■ Adequate erosion and sediment control will be implemented where development, including construction of roads and tracks, encroaches near waterways;</li> <li>■ Monitoring of runoff will be undertaken to observe sediment loads and the extent of sediment distribution and to apply remediation measures where necessary;</li> <li>■ Vegetative stabilisation of soil throughout all non-operational zones within the mine infrastructure area will reduce potential for unanticipated erosive events; and</li> <li>■ Active rehabilitation of streams and riparian zones with native species will assist in ensuring impacts from the proposed works are offset in such a way that contributes to local ecological functionality.</li> </ul> <p>With regards to stream diversions, Section 9.2 of the EIS indicates potential impacts on downstream ecosystems may occur due to alterations to base flows and the frequency and extent of flooding. However any diversions undertaken during dry conditions will result in minimal impacts on aquatic species, provided disturbance is minimised and natural creek bank morphology is restored. Environmental flows can also be maintained through controlled release from dams, as required.</p> <p>Furthermore, while reduced water quality may result from mine run-off (e.g. from processing plants or stockpiles), most of the aquatic species within the vicinity of the project site are wide ranging and capable of withstanding a wide range of aquatic conditions.</p> <p>Once appropriate mitigation measures and management plans are implemented (including those discussed above), the impacts of the construction and operational phases of the mine and associated infrastructure on aquatic</p>

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		ecosystems are predicted to be predominantly minor or negligible.
4.51	<p>Relevant Project EIS Section: Section 6</p> <p>The water quality management strategies of the project considered in section 6, Surface Water, should be consistent with the recommendations and findings of the Queensland Government document "A study of the cumulative impacts on water quality of mining activities into the Fitzroy River Basin". A copy of the document can be accessed at <a href="http://www.epa.qld.gov.au/register/p02963aa.pdf">http://www.epa.qld.gov.au/register/p02963aa.pdf</a></p> <p>The Queensland government has endorsed these recommendations. It is understood that the mining industry, including the Proponent, has been consulted during the preparation of the report. The EIS does not consider the report or its implications.</p>	<p>The Queensland Government document "A study of the cumulative impacts on water quality of mining activities into the Fitzroy River Basin" has been considered for the revised discharge criteria proposed in the revised draft EM Plan. It should be noted that the Fitzroy Basin study does not provide adequate reference to basin hydrology or salt mass loads which will be essential to properly assess cumulative impacts on water quality. The study conclusions are also rather generic and non specific but recognise the important issues to gain better consistency for discharge licensing and a need to create a basin model. BMA will proactively support these initiatives.</p> <p>The short term implications are that better consistency of discharge criteria are required, knowledge of salt mass load and water volume discharges from mines are required. The proponent acknowledges that the mining industry needs to be prepared to adapt to a changing regime of discharge licensing in the future as knowledge improves for the cumulative impacts or mine water discharges.</p> <p>The revised discharge criteria for the project are aligned to the adaptive requirements needed to support better management of Fitzroy Basin water quality and are consistent with recently amended EA conditions for other BMA operations which are a direct outcome of the study.</p>
4.52	<p>Relevant Project EIS Section: Section 6</p> <p>The EIS should provide information on stream flow at the time of sampling. Comparison of data to ANZECC 2000 and Queensland Water Quality Guidelines 2006 should be based on results recorded during times of flow.</p>	<p>Stream flow measurements were not taken at the time of sampling. Stream flow will be measured during future sampling events. Sampling locations will be consistent with Section 3.4.8 Schedule C1-1 Table 1 of the draft EM plan.</p>
4.53	<p>Relevant Project EIS Section: Section 6.2, Appendix Q</p> <p>Section 6.2.4.10, Mine Water Management System Releases and Appendix Q, Draft EM plan, of the EIS states "Daily during discharge, the upstream and downstream water quality and flow monitoring points will be monitored for receiving water quality within the following limits: EC &lt; 2,500 µS/cm, pH 6 – 9".</p>	<p>The revised controlled release discharge criteria outlined in the revised draft EM Plan address this issue and negate this concern. In summary the controlled discharges will be managed such that the maximum receiving water EC will be 1,000µS/cm or less and impacts on aquatic organisms are unlikely.</p>

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	<p>However, information on background water quality generally showed compliance with the Queensland Water Quality Guidelines 2006 EC value of 720 <math>\mu\text{S}/\text{cm}</math>. Appendix G of the Guidelines (Fitzroy North) shows that the range of data is much lower than 2500 <math>\mu\text{S}/\text{cm}</math> (less than 1400 <math>\mu\text{S}/\text{cm}</math>). Furthermore, data exists that shows that potential toxicity of aquatic organisms can occur at EC levels above 1500 <math>\mu\text{S}/\text{cm}</math> and some data suggests the value is much lower to protect the early life stages of fish.</p> <p>The EIS and Draft EM plan should reassess the data and propose more appropriate receiving water quality limits for EC based on known water quality guidelines for aquatic ecosystem protection, biological effects data or appropriate local reference data.</p>	
4.54	<p>Relevant Project EIS Section: Section 6.1, Appendix Q Section 6.1.3.3, Water Quality Analysis and Appendix Q, Draft EM plan, section 3.4.1.3, Surface Water Quality of the EIS states that medians of total metals concentrations were compared to State and National water quality guidelines. DERM recommends that the 95th percentile be used to assess this trigger value for slightly to moderately disturbed systems (page 78, Queensland Water Quality Guidelines 2006).</p> <p>The EIS should make comparison to ANZECC 2000 toxicant trigger values for metals concentrations using the 95th percentiles of test sites rather than median results. For clarity, the EIS should provide this information in a tabular form and it should include the number of exceedances, where these occur.</p>	<p>Median values were used for the water quality analysis as insufficient samples had been collected, due to the ephemeral nature of watercourses at the site, to reliably calculate a 95<sup>th</sup> percentile. The maximum number of samples collected for any one site was six for Harrow Creek upstream site.</p> <p>Implementation of the water quality monitoring regime outlined in the revised EM plan will enable the development of a continuous and long term data set from which informed comparisons to the ANZECC guidelines can be made.</p>
4.55	<p>Relevant Project EIS Section: Section 6, Appendix Q Appendix Q, Draft EM plan, Proposed Environmental Authority Conditions: Schedule C-Water of the EIS only suggests receiving environment limits for EC and pH.</p> <p>The EIS and EM plan should include and discuss end-of-pipe</p>	<p>A detailed assessment for Electrical Conductivity criteria is provided in Appendix H3 (Surface Water Assessment – discharge criteria). End-of-pipe limits for pH and suspended solids and sulfate concentrations are recommended to be the same as specified in the “<i>Conditions for Coal Mines in the Fitzroy Basin Approach to Discharge Licensing-Version 10, June 2009</i>”.</p>

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	<p>limits for EC, pH, suspended solids and sulfate to be consistent with the approach adopted by DERM documents: A study of the cumulative impacts on water quality of mining activities in the Fitzroy River Basin-April 2009; Conditions for Coal Mines in the Fitzroy Basin Approach to Discharge Licensing-Version 10, June 2009; and Final Model Water Conditions for Coal Mines in the Fitzroy Basin-July 2009. A detailed assessment should be provided to support all findings.</p>	<p>The end of pipe limits are also presented in the EM Plan (Appendix O, Section 3.4.8).</p>
4.56	<p>Relevant Project EIS Section: Section 6, Appendix Q The EM plan should include end-of-pipe contaminant monitoring and trigger values for metals and metalloids and any other potential contaminants such as ammonia, nitrate and hydrocarbons consistent with DERM's Final Model Water Conditions for Coal Mines in the Fitzroy Basin-July 2009. The EIS should include receiving water trigger limits for pH, EC, suspended solids, turbidity and sulfate consistent with DERM's Final Model Water Conditions for Coal Mines in the Fitzroy Basin-July 2009</p>	<p>The revised controlled release discharge criteria in the revised draft EM Plan have been developed in accordance with these documents. A detailed assessment for the recommended EC limits is provided in Appendix H3 (Surface Water Assessment – End of Pipe Discharge Criteria). End-of-pipe limits for pH and suspended solids and sulfate concentrations are recommended to be the same as specified in the “<i>Conditions for Coal Mines in the Fitzroy Basin Approach to Discharge Licensing-Version 10, June 2009</i>”. End-of-pipe limits should not apply for metals, metalloids, and other potential contaminants such as ammonia, nitrates, and hydrocarbons, at least until operational monitoring demonstrates the need for these to be applied as strict end-of-pipe limits. Nonetheless, the operations monitoring will monitor these contaminants in end-of-pipe discharges, in receiving waters (with set Trigger levels) and the potential effects of these contaminants will be monitored as part of the Receiving Environment Monitoring Program.</p>
4.57	<p>Relevant Project EIS Section: Section 6, Appendix Q The EIS suggests that controlled discharges will occur, but does not define the circumstances when discharge would be permitted. The EM plan should propose flow triggers and flow measurement locations for discharge consistent with a ratio of at least 1:4 for discharge to stream flow.</p>	<p>Under most dry and average conditions, the mine will operate with a water deficit and controlled releases will not be required. In above average wet seasons, and exceptionally high wet seasons there will be a surplus of mine water and controlled releases may be required. Typically this will occur with a frequency with 1:10 AEP or less frequent. Controlled releases will only be made from the 12North dam under the following conditions:</p> <ul style="list-style-type: none"> <li>■ When flow in upstream Cherwell Creek is above a prescribed threshold defined in the EA;</li> </ul>

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		<ul style="list-style-type: none"> <li>■ The quality of release waters are with prescribed limits defined in the EA;</li> <li>■ The maximum controlled release flow rate will be 20% of the upstream Cherwell Creek flow.</li> </ul> <p>The criteria for the above conditions are outlined in the revised draft EM Plan and EA conditions, and the calculations to derive these criteria are outlined in Appendix H3 (Surface Water Assessment – End of Pipe Discharge Criteria).</p>
4.58	<p>Relevant Project EIS Section: Section 6.1, Appendix Q</p> <p>Receiving water monitoring is required during all times of flow to determine background levels. The EIS should discuss the design of a comprehensive receiving environment monitoring program (REMP) to monitor and record the effects of the release of contaminants on the receiving environment. The REMP should be consistent with the agreed model water conditions for coal mines in the Fitzroy Basin.</p> <p>Section 6.1.3.3, Water Quality Analysis, section 6.2.4.9, Monitoring Program, and Appendix Q, Draft EM plan, do not adequately discuss the design and implementation of a comprehensive REMP.</p>	<p>The revised draft EM Plan includes monitoring of receiving waters during controlled release discharges and these will be included in a Receiving Environment Monitoring Program.</p>
4.59	<p>Relevant Project EIS Section: Section 6</p> <p>Section 6, Surface Water, of the EIS and Draft EM plan provides insufficient information on downstream use of water resources. The EIS should identify and describe any current downstream users that may be impacted by the project. This should include reference to any licences held including, stock and domestic users. The EIS should then assess any potential impacts on downstream users, including stock and domestic users, due to changes in flow regimes or water quality. It should also propose mitigation measures for any identified impacts.</p>	<p>The hydrological and water quality impacts of the project will be minor and limited to the Cherwell Creek and Horse/Grosvenor Creek systems upstream of the Isaac River. There are no known water users relying on waters in the Cherwell Creek or Horse/Grosvenor Creek downstream of the project other than informal occasional use for stock drinking. The creeks are highly ephemeral and are not relied upon for permanent surface water source for livestock. The proposed limits for water quality will be adequate to protect the infrequent use of surface water for livestock.</p>
4.60	<p>Relevant Project EIS Section: Section 6</p> <p>Section 6, Surface Water, section 6.2.5, Decommissioning Phase, implies that some dams may remain to be used post-</p>	<p>The Fitzroy Basin WRP will be subject to at least two further revisions prior to mine closure. The need to decommission or otherwise potential benefit of retaining and decontaminating mine water dams will be reviewed in the future as</p>

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	<p>mining. The EIS should require the removal, when mining ceases, of dams that capture overland flow unless the EIS can show that the dams would be for a purpose consistent with the Fitzroy WRP.</p>	<p>part of mine closure planning.</p>
4.61	<p>Relevant Project EIS Section: Section 6, Section 9 The EIS lacks a detailed, reasoned, evidence-based assessment to support the conclusion that there would be negligible changes in the receiving water quality in the event of a discharge from the site. Quantitative predictions should be made of the receiving water quality downstream of a discharge, and if water quality would be significantly altered the EIS should also assess potential impacts on aquatic ecology. Comments made in the report 'Review of the Fitzroy River Water Quality Issues - November 2008' and 'A study of the cumulative impacts on water quality or mining activities in the Fitzroy River Basin-April 2009' on the likely impacts of discharges from mine sites should be considered in the assessment. EIS should also address the TOR with regard to the potential impacts of discharges from the site on surface water quality and ecology during and after mining.</p>	<p>The revised proposed controlled release criteria will limit the maximum EC in receiving waters to 1,000µS/cm. The DERM document "Conditions for Coal Mines in the Fitzroy Basin – Approach to Discharge Licensing version 10 June 2009" states that macroinvertebrate taxa are unlikely to be affected at or below 1,000µS/cm. Monitoring of the quality of receiving waters during discharges and the proposed Receiving Environment Monitoring Program (both in the revised draft EM Plan) will ensure impacts on downstream receiving waters are managed, and if necessary specific mitigation measures will be adaptively developed in response to concerns identified from this monitoring.</p>
4.62	<p>Relevant Project EIS Section: Section 7.2 Identify the requirement for BMA to obtain a water licence under the Water Act 2000 to authorised the extraction of water where existing users will be impacted by mine operations;</p>	<p>In Queensland, a number of subartesian areas have been declared under the <i>Water Act 2000</i>. Some have been declared within water resource plans, while most have been declared under the <i>Water Regulation 2002</i>, both of which are subordinate legislation to the Act. Water licensing and development permit requirements for subartesian areas defined in the <i>Water Regulation 2002</i> are as follows:</p> <ul style="list-style-type: none"> <li>■ A water license is required to take or interfere with subartesian water, other than for the purposes specified within Schedule 11 of the Water Regulation 2002.</li> <li>■ Under the <i>Integrated Planning Act 1997</i>, a development permit is required to construct or install works that take subartesian water, other than works</li> </ul>

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		<p>constructed or installed solely for the purposes mentioned within schedule 11 of the Water Regulation 2002.</p> <p>The project lies within the Central Highlands declared groundwater area. Therefore, a water licence and a development permit are required for all bores that take from groundwater unless it is for stock or domestic purposes.</p> <p>DERM have advised that despite groundwater inflows to the pit being minor and not likely to result in an impact to groundwater users, a water licence for the take of groundwater may be required. BMA will make the necessary application following receipt from DERM as to whether or not the licence is required.</p>
4.63	<p>Relevant Project EIS Section: Section 7.2</p> <p>Undertake a hydrogeological investigation to assess the impacts of post-mining dewatering; and</p>	<p>Appendix E2 (Long Term Void Water Quality) includes an assessment of the final void water levels and quality based on modelled flows into and out of the pit, and includes an assessment of the extent of post mining dewatering. This modelling was conducted for three final void shapes and for both dry and wet climatic conditions.</p> <p>Modelling has predicted the drawdown cones which will be created once void equilibrium water level is reached. The high evaporation and limited inflow into the void results in a drawdown cone around the final void.</p> <p>BMA will update the final void model as new information is collected during the life of the mine, including from the establishment of a groundwater monitoring network as outlined in Appendix J (Groundwater Monitoring Plan). BMA will enter into agreements with landholders whose water supply may be affected by the operation of the mine post closure and have not yet already entered into an agreement, for the provision of alternative supplies after mine closure. The agreements will include a dispute resolution process and a make good for water arrangement to deal with future impacts.</p> <p>Modelling by URS for the residual void scenarios demonstrates that the voids will probably function as sumps, hence flows of groundwater will tend to the void and not from it. See Appendix E2 – Long Term Void Water Storage and Quality. The modelling shows that the drawdown effect on groundwater levels is localised. The results of modelled drawdown at equilibrium (post mining) are shown as Groundwater contours.</p>
4.64	<p>Relevant Project EIS Section: Section 7.2</p>	<p>The coal seam will not be dewatered prior to mining. Sub-artesian water that</p>

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	Propose mitigation measures that would satisfy the make-good requirements.	<p>drains to the pit will be managed in accordance with the EM Plan and Environmental Authority.</p> <p>DERM have advised that despite groundwater inflows to the pit being minor and not likely to result in an impact to groundwater users, a water licence for the take of groundwater may be required. BMA will make the necessary application following receipt from DERM as to whether or not the licence is required.</p> <p>As discussed in Section 7.2.3 of the EIS, should a detrimental impact on landholder groundwater supplies be detected, and shown to be related to the Caval Ridge Mine operations, whether during mining or post-closure, then BMA will seek to reach mutually agreeable arrangements with affected neighbouring groundwater users for the provision of alternate supplies throughout the mine life, and after mine closure. Options for alternate supplies include:</p> <ul style="list-style-type: none"> <li>■ Installations of new pumps capable of extracting groundwater from greater depth within existing bores.</li> <li>■ Deepening of existing bores.</li> <li>■ Installation of a new bore at another location on the property.</li> <li>■ Provision of piped water sourced from the mine (i.e. surplus water from the mine pit void dewatering program, depending on quality).</li> </ul> <p>The specific arrangements for affected properties will be discussed with each relevant landholder with a view to reaching a mutually acceptable agreement.</p>
4.65	<p>Relevant Project EIS Section: Section 7</p> <p>A detailed report that describes the proposed groundwater monitoring program must be prepared and included into the EIS. This report should include the proposed monitoring bore locations, target aquifer(s), parameters to be monitored, and the proposed frequency of monitoring and reporting of data collected.</p>	<p>A general groundwater monitoring program was presented in Section 7.2.3.1 of the EIS. The detailed proposed monitoring program is outlined in Appendix J (Groundwater Monitoring Program). It includes the location of monitoring bores, the aquifers targeted as well as the parameters to be measured. BMA will provide annual reports to DERM on the results of the monitoring program which include an assessment of the impacts of mining and the need to review the predicted future impacts.</p>
4.66	<p>Relevant Project EIS Section: Section 8, Appendix Q</p> <p>The Proponent proposes to clear an area of endangered and other remnant regional ecosystems to enable construction of the overland transport conveyor, mine pits, mine infrastructure, and</p>	<p>A biodiversity offsets package (Appendix A2:Caval Ridge Biodiversity Offset Strategy) is being developed in consultation with DEWHA and DERM as a separate Biodiversity Offset Management Plan to address the objectives of both the current State &amp; Commonwealth legislative offset requirements. The Offset</p>

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	<p>road and rail transport corridors. However, the EIS proposes no viable long-term offsets for the loss of values.</p> <p>The EIS and Draft EM plan should, in detail, propose offsets, viable in the long-term and in accordance with the Queensland Government's <i>Environmental Offsets policy, June 2008</i>, for the loss of ecological values.</p>	<p>Management Plan will be implemented over an appropriate time frame to accomplish the following objectives:</p> <ul style="list-style-type: none"> <li>■ Identify suitable potential offset areas with ecological values analogous to EPBC endangered ecological communities: brigalow (<i>Acacia harpophylla</i> dominant and sub-dominant); and</li> <li>■ Natural Grasslands of the Queensland Central Highlands (formerly listed as bluegrass <i>Dichanthium</i> spp. dominant grasslands of the Brigalow Belt Bioregions);</li> <li>■ Assess the ecological value and equivalence of offsets to ensure comparable offset extent, species assemblage, floristic structure and ecological integrity utilising an appropriate biometric methodology,</li> <li>■ Develop appropriate management prescriptions to ensure long term viability of offsets (such as pest control, livestock management, access exclusion, ameliorative plantings and fire regime management);</li> <li>■ Develop appropriate covenants for the future conservation and management of offsets; and</li> <li>■ Develop appropriate monitoring and maintenance activities and performance review process to ensure long term viability of the offsets.</li> </ul> <p>The extent of significant vegetation communities proposed to be offset is detailed in Section 8.1.2.1 and Table 8.4 of the EIS; and Section 5.1.1 and 5.3 Table of Appendix K. The process of developing a suitable Biodiversity Offset Management Plan is an iterative process with State and Commonwealth regulatory bodies.</p>
4.67	<p>Relevant Project EIS Section: Section 8, Appendix Q</p> <p>The EIS and Draft EM plan do not consider alternatives to the proposed location of discretionary components of the project including overland transport conveyor, mine infrastructure, and road and rail transport corridors, which will impact on endangered and other remnant regional ecosystems.</p> <p>The EIS and Draft EM plan should consider alternative locations to those proposed components of the project which could be</p>	<p>Project alternatives are provided in detail in Section 2.4 of the EIS.</p> <p>During optimisation and following comments on the EIS the location of the overland conveyor has been reconsidered to minimise the impact on the brigalow community. The re-location and re-design of the overland conveyor has resulted in a reduction of the area of brigalow to be potentially cleared from 3.3ha to 2.1ha. It has also reduced the edge effects of the clearing and reduced fragmentation impacts.</p> <p>Options of moving the corridor further north than the current location (Figure</p>

ID	Major Issues- Summary	Response
	located outside endangered and remnant ecosystems.	1.3) were considered however the redesign would have resulted in increased noise and dust from multiple transfer stations required to achieve the alignment of the conveyor. The current area of proposed brigalow clearance of 2.1 ha is to be included within the area to be offset as part of the Caval Ridge Biodiversity Offset Strategy (Appendix A2).
4.68	<p>Relevant Project EIS Section: Section 8, Appendix Q, Appendix K</p> <p>The EIS should address the following requirements under the <i>Nature Conservation Act 1992</i>:</p> <ul style="list-style-type: none"> <li>- impacts to biodiversity values including endangered, vulnerable, rare, near threatened and least concern species;</li> <li>- fauna surveys should be completed in areas within the overland conveyor and branch railway corridors to assess fragmentation impacts (including mitigation strategies);</li> <li>- impacts on koala population and mitigation measures to reduce impact on koalas and koala habitat should be considered</li> <li>- discuss flora and fauna species listed on the DERM 'Back on Track' list</li> <li>- Species Management Plan to consider mitigation actions</li> <li>- consider long term loss of habitat/ecosystems, rehabilitation of other disturbed areas, maintenance of threatened species and maintenance or restoration of connectivity of fauna habitat</li> </ul> <p>It should significantly expand the survey effort, scope and detail of practical measures that would be undertaken to avoid or mitigate the impacts of both construction and operation on flora and fauna.</p>	A response to each of these identified requirements under the <i>Nature Conservation Act 1992</i> are provided in Appendix A3 _ Nature Conservation Act Response.
4.69	<p>Relevant Project EIS Section: Section 10</p> <p>Assessment of section 10, Air Quality, of the EIS highlighted the uncertainty in characterizing potential impacts on air quality at sensitive receptors. DERM has consistently advised that PM10</p>	Comments regarding the use of DustTrak are noted. However, estimates of background levels are not dissimilar to those used in other similar studies in the area. Perhaps more significantly, the use of a single value for background levels for the entire study domain (which is standard practice) is likely to be associated

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	<p>data from Dust Trak instruments are not acceptable for reporting PM10 data. A co-location study was not carried out at the Caval Ridge monitoring site. Consequently, the background estimates cannot be accepted with certainty. The uncertainty in background estimates is carried over to predicted ground level concentrations, and emission rate totals are unclear, the predictions and associated implications for air quality cannot be assessed with confidence.</p> <p>The impacts on air quality should be reassessed after monitoring background air quality using appropriate methods, and clarifying emission rate estimates in the EIS.</p>	<p>with a level of uncertainty which exceeds that associated with the instrumentation used to date. Moving forward, BMA is committed to the continuous monitoring of particulate matter (as PM<sub>10</sub> and PM<sub>2.5</sub>) at a minimum of two locations (airport and a location yet to be determined between the Caval Ridge mine and the Township of Moranbah) based on the Qld DERM approved method of TEOMs.</p> <p>The issue relating to the presentation of emissions rates has been addressed in Sections 1 and 2 of Appendix B (Air Quality Supplement Report).</p> <p>Potential impacts on air quality from dust associated with the Caval Ridge project has been re-assessed based on refinements to the modelling methodology as outlined in the Caval Ridge EIS supplementary air quality assessment</p>
4.70	<p>Relevant Project EIS Section: Section 10.2.5</p> <p>The EIS should consider the size and nature of the nearest sensitive receptor when comparing the Caval Ridge mine site to other similar operations.</p> <p>The following were not considered in considering emission factors:</p> <ul style="list-style-type: none"> <li>■ proximity to major sensitive receptors (e.g. township of Moranbah); and</li> <li>■ type and size of nearest sensitive receptor.</li> </ul>	<p>Receptor locations have been considered in Chapter 10 of the Caval Ridge EIS and Appendix L of the EIS.</p>
4.71	<p>Relevant Project EIS Section: Section 10.2</p> <p>The EIS should provide a discussion on coal carriage veneering as a potential mitigation measure. Modelling should be conducted to assess its appropriateness. Reference to, or collaboration with Queensland Rail and its current Coal Loss Management Project should be included. Discussion should address site specific and region wide coal dust transportation issues.</p>	<p>BMA, as part of the Industry engagement, are involved in the development of a nuisance Coal Dust Management Plan by QR as part of their TEP. This management plan is considering options of mainline wagon veneering stations versus sites load-outs veneering stations. BMA is committed to either contributing to the mainline veneering stations or the installation of veneering at the load-outs at each mine, including Caval Ridge. Veneering agents and dose rates are yet to be defined for particular coals.</p> <p>BMA will continue to consider suitable dust suppression agents to mitigate dust impacts from coal transport.</p>
4.72	<p>Relevant Project EIS Section: Section 10.2</p>	<p>ROM stockpile timers, water sprays and canons will form part of the routine</p>

ID	Major Issues- Summary	Response
	<p>The EIS should discuss how ROM stockpile timers, water sprayers and cannons will be maintained and monitored. It should discuss what actions will be taken if timers and sprayers are rendered in-operable. The EIS provides no discussion of what maintenance measures will be employed to ensure their effective operation.</p>	<p>scheduled maintenance regime. Should the timers, water sprays or canons become inoperable, in the first instance they would be replaced using spares carried on site or secondly, the system is to be fitted with manual bypass valves as a short term solution. None of these tasks are seen as difficult or require considerable time to repair.</p>
4.73	<p>Relevant Project EIS Section: Section 12, Appendix M The EIS and Draft EM plan should include further assessment of noise levels at sensitive locations where noise levels are predicted to exceed the calculated limits in DERM's Guideline, Planning for noise control, July 2004 and should propose mitigation measures that would protect the qualities of the acoustic environment.</p>	<p>There are four categories of properties (totalling 12) where exceedences of the Planning for Noise Control guidelines have been predicted.</p> <p><b>BMA Owned Properties:</b> 5 of the 12 properties are owned by BMA. The exceedences (of the most stringent Leq criterion) at these 5 locations range from 7 dBA to 37 dBA. Indeed, 4 of the 5 range between 12 dBA and 37 dBA. Any mitigation at these BMA owned properties would be complaints based (in combination with validation monitoring if required). The primary form of mitigation at these properties will be an adverse noise and vibration out clause in all leases. This will then allow BMA to progressively vacate these properties as and when any complaints arise and noise monitoring shows exceedences of the criteria.</p> <p><b>Anglo Owned Properties:</b> 3 of the 12 properties are owned by Anglo. It should be noted that Location 13 was incorrectly shown as being a privately owned property in the EIS. It is in fact owned by Anglo. The exceedences (of the most stringent Leq criterion) at these 3 locations range from a marginal 1 dBA up to 18 dBA. Any mitigation at these Anglo owned properties would be complaints based (in combination with validation monitoring). Mitigation measures may include the following: (1) vacating the premises (2) building façade upgrades (e.g. double glazing of windows) in combination with A/C to allow windows to be shut.</p> <p><b>Privately Owned Properties with Significant Exceedences of the Criteria:</b> Only 1 of the 12 properties falls into this category. The exceedence (of the most stringent Leq criterion) at this location is 17 dBA.</p>

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		<p>As stated in the EIS, there are no engineering controls available to achieve compliance at this property and as such BMA are currently in negotiations with the owners of this property.</p> <p><b>Privately Owned Properties with Marginal Exceedences of the Criteria:</b> 3 of the 12 properties fall into this category. The exceedences (of the most stringent Leq criterion) at these 3 locations range from 2 dBA to 3 dBA. It is commonly accepted in the acoustic fraternity that changes in noise levels of up to 2 dBA are undetectable to the human ear and therefore considered negligible. 3 dBA is commonly accepted as being just detectable.</p> <p>Given that all environmental noise modelling has a certain accuracy tolerance – standard practice is +/- 2 dBA and the exceedences are marginal BMA will commence an on-going noise monitoring program and implement mitigation measures as required.</p> <p>Given the costs involved in mitigation treatments, it is considered appropriate to confirm the modelling results with measurements prior to implementing such measures.</p> <p>Mitigation measures may include the following: (1) vacating the premises (2) building façade upgrades (e.g. double glazing of windows) in combination with A/C to allow windows to be shut.</p> <p>The precise locations of the noise monitoring have not been determined but as for all noise monitoring programs, an appropriate number of locations shall be chosen to ensure spatial coverage of all noise-sensitive locations surrounding the mine.</p> <p>It is cost prohibitive to monitor at all surrounding locations all the time.</p> <p>By use of the mobile noise monitoring station, all surrounding locations may be monitored for a defined period of time on a rotating basis. This mobile station is also intended to be responsive to any complaints.</p>
4.74	<p>Relevant Project EIS Section: Section 19, Appendix Q</p> <p>The EIS should provide a detailed assessment of the risks for actual hazard scenarios including those associated with water</p>	<p>The project hazard assessment (PHA) was carried out in accordance with Australian Standard AS 4360: Risk Management and New South Wales Hazardous Industry Planning Advisory Paper 6: Hazard Analysis (Consultation</p>

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	<p>management on the mine site. Hazards and potential impacts should be defined and appropriate mitigation strategies should be included in the Draft EM plan.</p>	<p>Draft) 2008.</p> <p>The PHA was carried out based on BMA experience with construction and operational projects for coal mines. Potential incident scenarios during the project were identified</p> <p>A risk assessment was conducted for the construction, operation and decommissioning phases and the results and controls measures are presented in Table 19.8. 19.9 and 19.10 of the EIS.</p> <p>A hazardous dam assessment has been prepared as part the Supplementary EIS and the results are presented in Appendix H1.</p> <p>As the project progresses toward detailed and final further risk assessment and hazard identification will occur. A HAZOP study will be carried out for the project prior to construction commencing. Operational risk assessments such as Failure Mode Effect Analysis and Job Safety Analysis will be carried out on mechanical and task based exposures. The results of these assessments will be included in the sites health and safety management and environmental management systems.</p>
4.75	<p>Relevant Project EIS Section: Section 15.3, Appendix Q Section 15.3.5.3, Impact mitigation and Recommendations, should identify a process for the mitigation of impacts to any places that may be of non-indigenous cultural heritage significance and which may be discovered during the construction, operation or decommissioning of the mine. The mechanism for the recording and reporting any such places to DERM should also be identified in accordance with the requirements of sections 89 and 90 of the Queensland Heritage Act 1992.</p> <p>The EMP should clearly identify the mitigation process in relation to the above. This should include, but not limited to: stopping work in the vicinity of any discoveries of archaeological artefacts, process of assessment of significance (e.g. will there be an archaeologist 'on-call' to assess any finds) and a process of notifying DERM.</p>	<p>Section 15.3.5.3 <i>Impact Mitigation and Recommendation</i> of the EIS states BMA commitment to addressing Cultural Heritage Management in the Construction and Site Environmental Management Plans. These plans will include a variety of management strategies to mitigate impact and potential impact to unexpected cultural heritage (Indigenous and non indigenous) material or sites found during the construction and pre-clearing activities during operations of the project:</p> <ul style="list-style-type: none"> <li>■ Provide all new employees with suitable training to provide them with the skills to identify cultural heritage sites or objects and report the find to the Site Environmental Advisor.</li> <li>■ Inform all employees of their obligations to notify the, Site Environmental Advisor of any cultural heritage finds.</li> <li>■ Implement a procedure that requires a permit before any relevant employees able to undertake any clearing or excavations activities.</li> <li>■ Development of a cultural heritage policy for management of existing cultural heritage sites or finds.</li> </ul>

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		<ul style="list-style-type: none"> <li>■ Inform the Site Environmental Advisors of their obligations to notify the DERM of any relevant finds.</li> <li>■ Undertake regular cultural heritage educational sessions and distribute educational material. This material should inform the employees of what cultural heritage material may look like, and give them clear instructions on what to do if they find anything.</li> </ul> <p>BMA will include these strategies, where appropriate, in the contractors' construction environmental management plan and the site environmental management plan.</p>
4.76	<p>Relevant Project EIS Section: Appendix Q, Appendix S The EIS should include section S, Commitments, in the Draft EM Plan.</p>	<p>The list of commitments has been sourced from the EIS and the EMP. Commitments are also identified per relevant section in the EMP.</p>
4.77	<p>Relevant Project EIS Section: Appendix Q There are some proposed success criteria and control strategies in the Draft EM plan that contain qualifiers such as "where possible". It is DERM's experience that such statements are difficult to audit, and interpretation of qualified commitments by site personnel and contractors often leads to them being ignored. The criteria and commitments should be unequivocal. All success criteria and control strategies within the Appendix Q, Draft EM plan that contain qualifiers, should be re-written to clarify the performance standards expected of those who are responsible for implementing the Draft EM plan.</p>	<p>The Draft EM Plan presented in the EIS has been revised to take into account comments received in submissions. The revised EM Plan is presented in Appendix O.</p>
4.78	<p>Relevant Project EIS Section: Section 6 Section 6.2.4.5, Creek Diversion, of the EIS states in that "licence applications have been submitted to NRW". While DERM has received a copy of the Concept Report for comment, to date no formal application has been made. The EIS should remove the comment "Licence applications have been submitted to NRW" as to date no formal application has</p>	<p>This comment is noted.</p>

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	been made to DERM.	
4.79	<p>Relevant Project EIS Section: Section 3.3</p> <p>Section 3.3, Mining Tenures, of the EIS states that MLA70403 is granted. MLA relates to a mining lease that is in 'application' stage and has not been granted.</p> <p>The EIS should be amended to clearly state that the mining lease 70403 is in the application stage pending approval.</p>	This statement is accepted and agreed to by BMA.

#### 4.1.5 Department of Environment, Water, Heritage and the Arts

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5.01	<p>Relevant Project EIS Section: Appendix C</p> <p>When referring to the EPBC Bluegrass community, the proponent needs to include the listing as it was when the referral was submitted. Suggested solution: suggest referring to the EC as 'Natural grasslands of the Queensland Central Highlands and the northern Fitzroy Basin (formerly listed as Bluegrass (<i>Dichanthium spp.</i>) dominant grasslands of the Brigalow Belt Bioregions (North and South)).</p>	All references to this community in future documentation (Appendix A, Environmental Management Plan) will refer to the community as the Natural grasslands of the Queensland Central Highlands and the northern Fitzroy Basin (formerly listed as bluegrass ( <i>Dichanthium spp.</i> ) dominant grasslands of the Brigalow Belt Bioregions).
5.02	<p>Relevant Project EIS Section: Appendix C</p> <p>The EPBC report refers only to the Brigalow being cleared being impacted not to other stands of Brigalow on the mine site that could be potentially impacted indirectly. Suggested solution: Include discussion on other Brigalow stands on the site not being cleared as to whether they will be impacted indirectly from i.e. dust, what is being done to mitigate these impacts, what is the quality and size of the stands not being cleared. Especially the stand between the two pits. Also, the Brigalow being dissected by the rail where the clearing is taking place, include more detail on the size of the stand left</p>	<p>The previous location of the coal conveyor belt in the southern area of the project dissected a stand of significant brigalow dominated vegetation (RE 11.4.9), (Figure 8.6 Section 8.1.1.3 of EIS). The previous location of the conveyor would have directly resulted in the clearing of 4.4ha of brigalow, leaving two stands of brigalow approximately 3.3ha and 19.5ha in extent to the north of the conveyor and one larger stand of contiguous vegetation of approximately 82.4ha to the south of the conveyor. Fragmentation of this stand will potentially increase edge effects to the brigalow communities from weed invasion, particularly effecting the two smaller extents of less viable brigalow to the north of the conveyor.</p> <p>A re-design of the conveyor corridor has been undertaken to minimise clearing</p>

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	<p>either of side of this clearing and justify why it is not a significant fragmentation of this ecological community.</p>	<p>impacts and fragmentation of this community. The previous conveyor corridor width was approximately 120m wide to allow for a service road and associated infrastructure. Reconsideration of the conveyor corridor design and relocation of the proposed service road has allowed for the conveyor corridor to be narrowed significantly to only 40m.</p> <p>The conveyor alignment itself has also been moved approximately 360m to the north of the previous design to minimise the area intersection the brigalow community. The re-location and narrowing of the conveyor corridor has effectively halved the brigalow proposed to be clearing, resulting in an extent of approximately 2.1ha of brigalow potentially impacted.</p> <p>Direct clearing impacts on this community previously represented approximately 0.03% of the local extent of brigalow. This has been reduced to 0.015% of the local extent with the re-alignment and reduction of width for the conveyor.</p> <p>The redesign of the conveyor corridor has also effectively increased the surface area area and extent of connectivity of the stand of remaining brigalow to the south of the conveyor. Increasing it to a single 117ha stand of contiguous vegetation. This reduces the probability of edge effects to this community and increases the long term habitat viability.</p> <p>Potential impacts associated with the operation of the overland conveyor are likely to be restricted to particulate emissions (e.g. coal dust) and their effect upon vegetation immediately adjacent to the overland conveyor (e.g. reduced photosynthetic and transpiration rates). The adoption of standard dust suppression will minimise any such impacts. It is anticipated that operation of the overland conveyor would have limited deleterious impacts on native fauna.</p> <p>Re-design of the conveyor to move it further north (and ideally out of the brigalow community) was investigated, however to do so would require the installation of transfer towers and other associated infrastructure such as a power supply and water supply for dust suppression, all of which amounts to potential significant impacts to the adjacent vegetation.</p>
5.03	<p>Relevant Project EIS Section: Appendix C The EIS doesn't mention how much of the EPBC Bluegrass ecological community is being cleared as is identified in the</p>	<p>The extent of the natural grassland (RE 11.8.11 grassland on Cainozoic igneous) (formerly listed as bluegrass (<i>Dichanthium spp.</i>) community proposed to be disturbed by vegetation clearance (124.6 ha) is detailed in Section 8.1.2.1</p>

ID	Major Issues- Summary	Response
	<p>previous section of the Brigalow EC. Suggested solution: include information on how much of the Bluegrass EC is being cleared.</p>	<p>and Table 8.4 of the EIS; and Section 5.1.1 and 5.3 Table of Appendix K. Specific detail on the nature of potential impacts to this community is outlined within section of 5.1.4, Appendix K of the EIS. Impact mitigation and Compensatory measures are detailed in Sections 5.3.2, 5.3.3, Table 5.2 and Table 5.3 in Appendix K of the EIS. Measures outlined include:</p> <ul style="list-style-type: none"> <li>▪ Only areas absolutely necessary for the construction and the operation of the project to be cleared. Clearance to be controlled by a Permit to Disturb process, and go/no-go areas will be identified on site, and managed through a GIS system.</li> <li>▪ Utilise standard dust suppression techniques to reduce dust leaving the construction area.</li> <li>▪ Utilise standard dust suppression techniques to reduce dust leaving the preparation (ROM and CHPP) and transport (conveyor / rail corridor) areas.</li> <li>▪ Strategically rehabilitate available disturbed areas to minimise the net loss of vegetative cover.</li> <li>▪ Biodiversity offset of vegetation loss that cannot be mitigated otherwise.</li> </ul>
5.04	<p>Relevant Project EIS Section: Appendix C Clearly state whether suitable habitat for each of the EPBC listed species has been identified on the site, even if the species has not been found in surveys and provide justification to back up statements as to why the species is unlikely to be significantly impacted or habitat significantly fragmented.</p>	<p>Presence of suitable habitat for conservation significant species listed under the EPBC Act is described in Section 8.2.1.1 and Table 8.8 of the EIS, and discussed in specific detail in Section 4.3.3 of Appendix K of the EIS. Habitat values for species are also discussed in detail in Section 4.3.8 of Appendix K of the EIS.</p>
5.05	<p>Relevant Project EIS Section: Appendix C Further discussion is required as to why the fragmentation occurring to the Brigalow community is not a significant fragmentation. Provide more information on the size of the entire patch that is being dissected by the rail and what size patch is left on either side. Provide sound justification as to why this fragmentation is not significant.</p>	<p>The previous location of the coal conveyor belt in the southern area of the project dissected a stand of significant brigalow dominated vegetation (RE 11.4.9), (Figure 8.6 Section 8.1.1.3 of EIS). The previous location of the conveyor would have directly resulted in the clearing of 4.4ha of brigalow, leaving two stands of brigalow approximately 3.3ha and 19.5ha in extent to the north of the conveyor and one larger stand of contiguous vegetation of approximately 82.4ha to the south of the conveyor. Fragmentation of this stand will potentially increase edge effects to the brigalow communities from weed invasion, particularly effecting the two smaller extents of less viable brigalow to</p>

ID	Major Issues- Summary	Response
		<p>the north of the conveyor.</p> <p>A re-design of the conveyor corridor has been undertaken to minimise clearing impacts and fragmentation of this community. The previous conveyor corridor width was approximately 120m wide to allow for a service road and associated infrastructure. Reconsideration of the conveyor corridor design and relocation of the proposed service road has allowed for the conveyor corridor to be narrowed significantly to only 40m.</p> <p>The conveyor alignment itself has also been moved approximately 360 m to the north of the previous design to minimise the area intersection the brigalow community. The re-location and narrowing of the conveyor corridor has effectively halved the brigalow proposed to be clearing, resulting in an extent of approximately 2.1ha of brigalow potentially impacted.</p> <p>Direct clearing impacts on this community previously represented approximately 0.03% of the local extent of brigalow. This has been reduced to 0.015% of the local extent with the re-alignment and reduction of width for the conveyor.</p> <p>The redesign of the conveyor corridor has also effectively increased the surface area area and extent of connectivity of the stand of remaining brigalow to the south of the conveyor. Increasing it to a single 117ha stand of contiguous vegetation. This reduces the probability of edge effects to this community and increases the long term habitat viability.</p> <p>Potential impacts associated with the operation of the overland conveyor are likely to be restricted to particulate emissions (e.g. coal dust) and their effect upon vegetation immediately adjacent to the overland conveyor (e.g. reduced photosynthetic and transpiration rates). The adoption of standard dust suppression will minimise any such impacts. It is anticipated that operation of the overland conveyor would have limited deleterious impacts on native fauna.</p> <p>Re-design of the conveyor to move it further north (and ideally out of the brigalow community) was investigated, however to do so would require the installation of transfer towers and other associated infrastructure such as a power supply and water supply for dust suppression, all of which amounts to potential significant impacts to the adjacent vegetation.</p>
5.06	Relevant Project EIS Section: Appendix C	A biodiversity offsets package (Appendix A2: Biodiversity Offset Strategy)is

ID	Major Issues- Summary	Response
	<p>DEWHA require more information on offsets proposed such as size and whether areas have been identified for offsets especially for Bluegrass EC. When providing proposed offset areas or indication whether there are current mining or exploration leases on that land.</p>	<p>being developed in consultation with DEWHA as a separate Biodiversity Offset Management Plan to address the requirements of both the current State &amp; Commonwealth offset policies. The Offset Management Plan will be implemented over an appropriate time frame to accomplish the following objectives:</p> <ul style="list-style-type: none"> <li>Identify suitable potential offset areas with ecological values analogous to EPBC endangered ecological communities: Brigalow (<i>Acacia harpophylla</i> dominant and sub-dominant); and Natural Grasslands of the Queensland Central Highlands;</li> <li>Assess the ecological value and equivalence of offsets to ensure comparable offset extent, species assemblage, floristic structure and ecological integrity utilising an appropriate biometric methodology;</li> <li>Develop appropriate management prescriptions to ensure long term viability of offsets (such as pest control, livestock management, access exclusion, ameliorative plantings and fire regime management);</li> <li>Develop appropriate covenants for the future conservation and management of offsets; and</li> <li>Develop appropriate monitoring and maintenance activities and performance review process to ensure long term viability of the offsets.</li> </ul> <p>The extent of significant vegetation communities proposed to be offset is detailed in Section 8.1.2.1 and Table 8.4 of the EIS; and Section 5.1.1 and 5.3 Table of Appendix K. The process of developing a suitable Biodiversity Offset Management Plan is an iterative process with State and Commonwealth regulatory bodies.</p>
5.07	<p>Relevant Project EIS Section: Appendix K In relation to Appendix K, Appendix 7, pg I onwards. Statements against criteria are not clearly justified. Suggested solution: cross reference to where evidence backing up statements is provided in the EIS.</p>	<p>A third column has been developed to add to the Assessment Table in Appendix 7 of Appendix K (EIS). This assessment against criteria indicates either the Section of EIS and Ecological Technical report (or other scientific reference) that substantiated or correlates with the assessment of impact (Appendix A1).</p>
5.08	<p>Relevant Project EIS Section: Appendix K It is suggested that BMA further discuss the approvals</p>	<p>ML 1775 is subject to various Surface Area (SA) approvals issued under the <i>Central Queensland Coal Associates Agreement Act, 1968</i> (CQCAA Act) and</p>

ID	Major Issues- Summary	Response
	<p>obtained for ML1775 prior to the EPBC Act and provide information on quantity and what type of vegetation will be cleared under the approvals obtained prior to July 2000 and what approvals were obtained at this time. BMA will need to provide evidence of the approvals obtained prior to July 2000 so that DEWHA can check whether the clearing of this vegetation is exempt from the EPBC Act and does not require offsets should the vegetation be listed under the EPBC Act.</p>	<p>the Mineral Resources Act, 1989. Surface Area approvals are applied for on an as needs basis for surface disturbance by mining and approved SAs are recorded in some instances on the ML Instrument of Grant and associated registered SA surveys plans. The first (SA 1) was issued on 22/12/1983 (ML grant date). SA 7 was issued on 11/1/2000. SAs are approved sequentially, therefore SA 1 – 7 were issued on or before 11/1/2000. Copies of SA survey plans can be provided on request.</p> <p>The extent of areas to be cleared and areas with pre-2000 SA Approval are presented in Figure 8.5 of the EIS.</p> <p>The status of vegetation (under the Vegetation Management Act and EPBC Act), area to be disturbed (Including Approved and To be Approved (offset)) areas, is provided in the Caval Ridge EIS (Table 8.4 - Approximate current extent of ground-truthed REs within the Bioregion, Local Government Area and Project Site and extent to be disturbed during the project).</p>

#### 4.1.6 Isaac Regional Council

ID	Major Issues- Summary	Response
6.01	<p>Relevant Project EIS Section: Section 4.8, Section 8</p> <p>Rehabilitation works are to be designed and implementation factored towards rapid ecosystem reestablishment on the sites to facilitate the maximum opportunity for stabilisation of the terrestrial ecosystems prior to further underlying mineral resource exploitation and disturbance. Council views a maximum period of 1 month for all disturbed surfaces to be left exposed prior to re-vegetation and stabilisation being implemented as a minimum standard to protect human amenity in the local area.</p>	<p>BMA is committed to progressive rehabilitation of areas disturbed, however a maximum period of 1 month is not practical.</p> <p>EIS (EMP (3.7.6.2)) states that rehabilitation of disturbed land will generally proceed within two years of the areas becoming available for rehabilitation. In some situations, progressive rehabilitation may not be possible because the area may be effectively integrated with areas nearby that are unavailable for rehabilitation.</p>
6.02	<p>Relevant Project EIS Section: Section 7</p> <p>The EIS should establish an analysis of managing and</p>	<p>An assessment of the impacts of the proposed mining indicated that dewatering of the coal seam aquifers will occur during the life of the mine. A groundwater</p>

ID	Major Issues- Summary	Response
	<p>protecting aquifers in the area. The present document does not reflect the ongoing sustainable management of this finite water resource. Dewatering of the operation will impact significantly on the local hydrology near and around the site for a considerable time period.</p>	<p>model, to assess the final void (Appendix E2 - Long Term Void Water Storage Quality Report), was constructed and calibrated to simulate dewatering over an envisaged 30 year life of mine. The simulated drawdown of groundwater in the Permian coal seam formations is predicted to extend up to ~ 1,800 m from the project site. The resultant drawdown is not envisaged to result in induced flow from the isolated shallow Quaternary and Tertiary aquifers due to low hydraulic connectivity between aquifers (as discussed in Section 7.2.1.1 of the EIS).</p> <p>No neighbouring bores are located within the predicted zone of influence and as these aquifers are low yielding and contain poor quality (high salinity) groundwater the potential for future use is limited.</p> <p>Based on the proposed mining plan, which includes a final void, the coal seam aquifer groundwater resources will not recover to pre-mining status. The management of this impact is, thus, to reduce the zone of influence and ensure no long term impacts on the regional groundwater resources.</p> <p>The use of a final void with a limited catchment (to reduce runoff) will ensure that groundwater levels will not rebound to pre-mining elevations and groundwater flow patterns will not revert back to pre-mining conditions. The mining void will, therefore, continue to impact on the local groundwater causing a localised drawdown cone around the final void. This will prevent any poor quality void water migrating from site and entering the regional groundwater and surface water resources.</p> <p>Consideration of reducing the final void depth and extending the catchment around the final void was given, which would have allowed for flushing and filling of the void. This may have allowed groundwater levels to reach pre-mining levels. However, the historic (100 year) rainfall data set indicates that the flooding would be too infrequent to maintain the void volumes and thus the groundwater levels. The use of clean runoff into the disturbed mining area was also considered to have an impact on down stream users.</p> <p>Appendix E2 (Long Term Void Water Storage Quality Report) includes an assessment of the final void water levels and quality based on modelled flows into and out of the pit, and includes an assessment of the extent of post mining dewatering. This modelling was conducted for three final void shapes and for</p>

ID	Major Issues- Summary	Response
		<p>both dry and wet climatic conditions.</p> <p>BMA will update the final void model as new information is collected during the life of the mine, including from the establishment of a groundwater monitoring network as outlined in Appendix J (Groundwater Monitoring Program).</p>
6.03	<p>Relevant Project EIS Section: Section 8</p> <p>Mine operation needs to satisfactorily address the ingress of invasive weed species within the lease area and implement management strategies to prevent further expansions of existing infestations into the surrounding rural landscape.</p>	<p>The EIS and the EMP have commitments for the development and implementation of construction and site environmental management plans which will include a weed management plan (Appendix Q Section 3.9.5, of EIS, and Section 4.8.6.5 of EIS). This weed management plan will include:</p> <ul style="list-style-type: none"> <li>■ Implementation of effective weed management strategies to control the spread of declared weed species across the project site (including herbicide spraying).</li> <li>■ Weed hygiene protocols for machinery and vehicles entering and leaving the project site.</li> <li>■ Ongoing monitoring of the project site to identify any new incidence of weed infestation or changes in known extents of declared weeds.</li> </ul> <p>The Caval Ridge Biodiversity Offset Plan will also include commitments for weed management. Details of weed management controls will be site specific and will be finalised once the offset locations are confirmed. However the broad guidelines detailed above will be incorporated into the plan.</p> <p>The above commitments for weed management will be added to the commitment register.</p>
6.04	<p>Relevant Project EIS Section: Section 10</p> <p>The mining operation shall not emit particulate dust contamination levels beyond the mining tenement lease above the existing pre-development background levels measure at the property boundary as the proposed operations cumulative effect will affect the health and residential amenity of Urban Residents in Moranbah is unsustainable without long term adverse effects on health and amenity.</p>	<p>A zero dust level above background at the mining lease boundary is neither achievable, a reasonable compliance level, nor has this been applied to any other mining operation within the State of Queensland.</p> <p>BMA has committed to a number of operational practices that are designed to minimise the impact of dust emissions from the site on local air quality. Realised impacts will be assessed via a comprehensive ambient air monitoring program as outlined in Section 4.3 of the Caval Ridge EIS supplementary Air Quality Assessment Appendix B.</p> <p>Cumulative impacts associated with dust-generating activities have not been explicitly modelled due to the reasons outlined in Section 4.2 of the Caval Ridge</p>

ID	Major Issues- Summary	Response
		EIS supplementary Air Quality Assessment Appendix B.
6.05	<p>Relevant Project EIS Section: Section 10</p> <p>The reduction in dust emissions shall be focused on industry best practice by enclosing all the operational components of the mine including wash plant, crushing plants and conveyors to reduce dust inputs into the environment.</p>	<p>Proposed mitigation measures were outlined in Section 10.2.6 of Chapter 10 of the Caval Ridge EIS as well as Table 3-7 of Section 3.4.2 of Appendix L of the Caval Ridge EIS.</p> <p>In addition, Section 10.2.13 of the EIS contains a much more detailed list of mitigation measures that BMA is proposing to implement. The measures in 10.2.13 include a number of engineering controls and dust suppression measures, the measures stated in this section are likely to meet or exceed industry best practice, discussed below:</p> <p>Dust mitigation for the operation of the project involves several elements to ensure adequate management of air quality in the vicinity of the mine, namely:</p> <ul style="list-style-type: none"> <li>▪ Engineering control measures</li> <li>▪ Dust suppression measures</li> <li>▪ Rehabilitation of exposed surfaces</li> <li>▪ Operational procedures</li> <li>▪ Measurement of ambient air quality.</li> </ul> <p><b>Engineering Control Measures</b></p> <p>BMA has designed engineering control measures into the project where appropriate and technically possible. In particular, these control measures have been applied at the CHPP and include the following:</p> <ul style="list-style-type: none"> <li>▪ Enclosure of transfer points and sizing stations</li> <li>▪ Roof on overland conveyors</li> <li>▪ Belt washing and belt scrapers to minimise dust from the return conveyors</li> <li>▪ Reduced drop height from stackers to stockpiles</li> <li>▪ Enclosure of raw coal surge bins.</li> </ul> <p>The dust mitigation associated with these engineering controls has been incorporated into the impact assessment for the project.</p>

ID	Major Issues- Summary	Response
		<p><b>Dust Suppression Measures</b></p> <p>Dust suppression measures primarily include the application of water to control dust emissions. The following measures will be implemented:</p> <ul style="list-style-type: none"> <li>▪ Watering of haul roads to best-practice level of more than 2 litres/m<sup>2</sup>/hour of water applied.</li> <li>▪ Watering of ROM stockpiles using water sprays and water cannons that are operated on timers. The use of timers avoids the potential for missing a scheduled watering operation. The timers can also be operated manually in particularly hot or windy conditions.</li> <li>▪ Fogging system on outlets from transfer points and sizing stations.</li> <li>▪ Water sprays on stacker/reclaimer units.</li> <li>▪ High moisture content of product coal and reject material as they leave the CHPP which avoids the need for supplementary watering. Immediately after the coal is dewatered in the CHPP, the coal will be above the dust extinction moisture limit (the lower limit at which dust-prone materials will no longer create dust) and so will not be a source of dust.</li> <li>▪ Train loadout to incorporate chemical reagent to be sprayed onto the surface of each loaded wagon. This will form a barrier that binds small dust particles together and prevents dust generation from the coal trains as they are transported from the project to the port.</li> </ul> <p><b>Rehabilitation of Exposed Surfaces</b></p> <p>Rehabilitation of exposed surfaces will be undertaken progressively as mining and stockpiling activities are completed. The effective time from first mining activities on each area of land, until that area is rehabilitated and hence has effective dust control from vegetation, has been estimated to be five years. A detailed rehabilitation plan will be developed for the project, which will include the use of fast-growing temporary cover material to accelerate the effectiveness of dust controls. Improving the effectiveness and time for rehabilitation measures will result in reduced dust emissions from exposed areas, however these benefits cannot be incorporated into modelling until the rehabilitation</p>

ID	Major Issues- Summary	Response
		<p>strategy has been formulated.</p> <p><b>Operational Procedures</b></p> <p>Operational procedures set out how the project is to be operated in order to meet targets for air quality performance. In relation to air quality, the following procedures will be incorporated into the site operational procedures:</p> <ul style="list-style-type: none"> <li>■ Use of water trucks to achieve sufficient watering of haul roads and other high-risk areas. The schedule for truck use will be developed for the project and will incorporate consideration of recent rainfall and weather conditions.</li> <li>■ Use of water sprays and foggers as directed, with additional use as determined by ambient conditions.</li> <li>■ Maintenance of water spray equipment and engineering controls to minimise dust emissions.</li> <li>■ Maintenance of all fuel-burning equipment to reduce air pollutant emissions and maximise fuel efficiency.</li> <li>■ Sufficient number of watering trucks to allow for continuation of dust suppression when one or more trucks are out of service.</li> <li>■ Monitoring of ambient air quality in the vicinity of the mine.</li> <li>■ Restrictions on pre-strip and overburden dumping in the north of Horse Pit for adverse weather conditions as assessed by visual inspection combined with on-site meteorological monitoring data.</li> </ul> <p>These procedures will be incorporated into the site EM Plan. The EM Plan will be regularly audited to ensure that these key elements for air quality management are satisfied.</p>
6.06	<p>Relevant Project EIS Section: Section 10</p> <p>A real time, on line integrated monitoring system of high volume air sampling and dust deposition will need to be established to ensure a scientific approach to the protection of residential well being within the Region.</p>	<p>A revised and expanded ambient air monitoring program has been proposed. Details are provided in Section 4.1 of the Caval Ridge Supplementary Air Quality Assessment which is located in Appendix B.</p>

ID	Major Issues- Summary	Response
6.07	<p>Relevant Project EIS Section: Section 10</p> <p>All disturbed mining areas shall be rapidly re-vegetated and stabilised to prevent dust and surface water pollution from the site exceeding the pre-development levels at the property boundary. Council views a maximum period of 1 month for all disturbed surfaces to be left exposed prior to re-vegetation and stabilisation being implemented as a minimum standard to protect local amenity and ecological integrity of rehabilitation areas.</p>	<p>BMA is committed to progressive rehabilitation of areas disturbed, however a maximum period of 1 month is not practical.</p> <p>EIS (EMP (3.7.6.2)) states that rehabilitation of disturbed land will generally proceed within two years of the areas becoming available for rehabilitation. In some situations, progressive rehabilitation may not be possible because the area may be effectively integrated with areas nearby that are unavailable for rehabilitation.</p>
6.08	<p>Relevant Project EIS Section: Section 10</p> <p>The EIS document should address how the ROM coal stock piles should be buffered to protect against dust generation. The enclosure of plant and facilities, watering of all stock piles should be fully implemented and a comprehensive analysis undertaken on the benefits to the Urban area and the links to reducing cumulative effects.</p>	<p>The CHPP facility will include fixed dust suppression systems on all Crushed ROM stockpiles and ROM stockpiles in the vicinity of the ROM dump hopper. Coal handling facilities will be enclosed by chutes and local dust suppression sprays at loading and transfer points. General conveyor and building are not fully enclosed.</p> <p>Additional mitigation measures have been incorporated and impacts re-assessed as discussed in Section 1.2 of the Caval Ridge EIS supplementary air quality assessment included as Appendix B. These mitigation measures will reduce the emission of dust from the site. Reduction in emissions will benefit sensitive receptors.</p>
6.09	<p>Relevant Project EIS Section: Section 11</p> <p>The EIS should clearly detail the cumulative effect of Greenhouse gas production of the FIFO and DIDO operational methodology of work force residency for the project.</p>	<p>As described in section 11.3.5 of the EIS, materiality is a concept used in accounting and auditing to minimise time spent verifying amounts and figures that do not impact a company's accounts or inventory in a material way. Emissions are assumed to be immaterial if they are likely to account for less than 5% of the overall emission profile.</p> <p>The emissions produced by the FIFO and DIDO (scope 3) arrangements for the project when compared to the scope 3 emissions from the other components of the project are immaterial. The table below provides the Scope 3 Life of Mine emissions for each of the sources assessed, and their percentage contribution to the overall scope 3 emissions of the project.</p>

ID	Major Issues- Summary	Response																				
		<p><b>Scope 3 Life of Mine Emissions for each of the Sources Assessed</b></p> <table border="1" data-bbox="1070 560 2011 898"> <thead> <tr> <th data-bbox="1070 560 1178 695">Scope</th> <th data-bbox="1178 560 1536 695">Source</th> <th data-bbox="1536 560 1760 695">Life of Mine Emissions (t CO<sub>2</sub>-e)</th> <th data-bbox="1760 560 2011 695">Percentage Contribution to Overall Scope 3 Emissions (%)</th> </tr> </thead> <tbody> <tr> <td data-bbox="1070 695 1178 770">3</td> <td data-bbox="1178 695 1536 770">Coal railing and terminal handling</td> <td data-bbox="1536 695 1760 770">1,445,754</td> <td data-bbox="1760 695 2011 770">0.3</td> </tr> <tr> <td data-bbox="1070 770 1178 813">3</td> <td data-bbox="1178 770 1536 813">Coal shipping</td> <td data-bbox="1536 770 1760 813">2,900,327</td> <td data-bbox="1760 770 2011 813">0.6</td> </tr> <tr> <td data-bbox="1070 813 1178 857">3</td> <td data-bbox="1178 813 1536 857">Coal end use</td> <td data-bbox="1536 813 1760 857">442,431,000</td> <td data-bbox="1760 813 2011 857">99.1</td> </tr> <tr> <td colspan="2" data-bbox="1070 857 1536 898">Total Scope 3</td> <td data-bbox="1536 857 1760 898">446,777,081</td> <td data-bbox="1760 857 2011 898">100</td> </tr> </tbody> </table> <p data-bbox="1070 898 2011 1126">As can be seen, the contribution of coal railing and terminal handling is immaterial compared to the emissions from coal end use. For the FIFO arrangement to produce the same amount of t CO<sub>2</sub>-e as for the coal railing and terminal handling, this would be equivalent to approximately 260 return flights between Brisbane and Moranbah per week over the life of the project<sup>1</sup>. Emissions produced by the FIFO and DIDO arrangements are therefore considered immaterial.</p>	Scope	Source	Life of Mine Emissions (t CO <sub>2</sub> -e)	Percentage Contribution to Overall Scope 3 Emissions (%)	3	Coal railing and terminal handling	1,445,754	0.3	3	Coal shipping	2,900,327	0.6	3	Coal end use	442,431,000	99.1	Total Scope 3		446,777,081	100
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6.10	<p data-bbox="293 1136 1032 1319">Relevant Project EIS Section: Section 13 The EIS should address the process of the road transport impacts from the change in operational work method of operating transitional work forces and not housing workers locally and the significant impact the development will have on the service levels of road infrastructure locally.</p>	<p data-bbox="1070 1136 1998 1287">Section 13 and Appendix N of the EIS provide the results of the traffic impact assessment of the impact of increased heavy and light vehicle traffic related to the Caval Ridge Mine. The EIS also provides information on the proposed mitigation measures including bussing employees between accommodation and mine site and upgrading intersections (Sections 13.4.1 and 13.4.2).</p>																				

<sup>1</sup> Based on a fuel use of 800L per one way trip (provided by subcontractors to Qantas Link), and NPI Factors, Table 3, Column C, Aviation Gasoline.

ID	Major Issues- Summary	Response
6.11	<p>Relevant Project EIS Section: Section 13</p> <p>The EIS should clearly provide for a below grade access connection between the separate mining operations on either side of the Peak Downs Highway to allow for the uninterrupted continuance of the stock route along Peak Downs Highway at the existing natural ground level.</p>	<p>Both above grade and below grade options were considered for the separation of mining operations from the Peak Downs Highway.</p> <p>Above grade separation was considered the most beneficial from public safety point of view. To minimise the impact on the stock route, BMA have proposed an alternate route which will maintain connectivity of the stock route (EIS - Fig. 3.2d). BMA is committed to work with DTMR to ensure access and egress on to the Peak Downs Highway is safe and practical.</p>
6.12	<p>Relevant Project EIS Section: Section 14</p> <p>The EIS document should address the process of disposal of additional solid and sewerage waste waters from the operation and the likely increase in the volume of this waste.</p>	<p>Waste management is discussed in Section 14 of the EIS and expected waste volumes are presented in Table 14.1.</p> <p>The sludge residue (approx 15t/yr) from the treatment plants will be removed from site by a licensed contractor and deposited in an approved location in accordance with Isaac Regional Council requirements.</p> <p>Sewage waste water will be treated to Class A+ quality and used for irrigation on the site. Recycled water will be managed in accordance with the Australian Guidelines for Water Recycling - managing health and environmental risks (Phase 1) (2006).</p>
6.13	<p>Relevant Project EIS Section: Section 17</p> <p>The EIS should address the process of the social impacts from the change in operational work method of operating transitional work forces and not housing workers locally.</p>	<p>BMA intends to offer the Caval Ridge Project workforce the opportunity to work under FIFO arrangements. This workforce will be in addition to the existing workforces who reside in Moranbah, and those who work under DIDO arrangements.</p> <p>To support an extended non-residential workforce, BMA is developing a Workforce and Community Cohesion Program to address social and community impacts. The Program is designed to ensure cohesion between BMA communities of interest and resident and non-resident workers. The Program includes elements such as: non-resident partner support programs; investigation of opportunities to increase the amount of goods and services brought locally on a cost-competitive basis, strategies to ensure accommodation villages are of a high standard and provide appropriate lifestyle attributes; and further investigation into existing support and education programs.</p> <p>BMA is also in the process of finalising its Communities Strategy which will provide a framework for ongoing community investment and community</p>

ID	Major Issues- Summary	Response
		<p>partnerships.</p> <p>By increasing the FIFO workforce, BMA expects to reduce the current high demand for residential accommodation in Moranbah and the demand on existing services and infrastructure.</p> <p>BMA will continue to support their residential workers and the community through its ongoing commitment to community investment.</p> <p>BMA will liaise with DIP's Social Impact Assessment unit wherever possible, regarding changes to operational work methods.</p>
6.14	<p>Relevant Project EIS Section: Section 17</p> <p>The assessment should address the process of allocating additional water and housing resources to the Moranbah Community from the economic stimulant the expanded operation will have on the economy, both direct and indirect. The process needs to make a firm and unbiased assessment of the triple bottom line of economical, environmental and social impacts on the Moranbah Community.</p>	<p>BMA are the major water supplier to the Moranbah community and will continue to ensure that appropriate supply is maintained in accordance with current agreements. BMA has made a significant contribution to deliver Burdekin water, via the new Burdekin Pipeline, to allow further flexibility with water delivery arrangements to the township of Moranbah and surrounding operations. Overall, water usage management is an issue for local authorities with whom BMA actively engages.</p> <p>BMA has a broader accommodation program for the region and is committed to providing suitable accommodation for the Caval Ridge Project workforce.</p> <p>The EIS is designed to address economic, environmental and social impacts.</p>
6.15	<p>Relevant Project EIS Section: Section 17</p> <p>The proposal is now located within the amalgamated Local Government Area of Isaac Regional Council and the presentation of the project in a light of isolation does not reflect the guiding intent of the integration process of the local communities.</p>	<p>The EIS recognises the council amalgamations and the formation of Isaac Regional Council, addressing potential impacts and benefits on both a local and regional level. Moranbah was considered the area most likely to experience potential impacts and benefits due to its proximity to the proposed development.</p> <p>Community engagement activities conducted during the EIS studies indicated that the Moranbah community was primarily concerned with potential localised impacts and, as such, these were given a primary focus in the social impact assessment. This helps to ensure those issues with the potential to incur the most impact are identified and concerned stakeholders are informed of strategies to reduce likely impacts and increase potential benefits to the community.</p> <p>BMA regularly liaises with Isaac Regional Council and takes a proactive role in</p>

ID	Major Issues- Summary	Response
		<p>managing growth impacts across all of its projects. BMA has a dedicated Planning and Development Manager who regularly attends Council meetings to enable two-way conversations around current activities and future requirements.</p> <p>Cumulative impacts are addressed in Section 20 of the EIS.</p>
6.16	<p>Relevant Project EIS Section: Section 17</p> <p>The EIS report should accurately address the process of ensuring that sufficient water is available of ordinary operations of the proposed mine under drought conditions.</p>	<p>A water balance has been prepared for the Caval Ridge Coal Mine. The water balance took consideration of rainfall and runoff generation, raw water supply, the various water demands and storage and associated losses. The performance of the water management system, including supply capability, was modelled using long term historical rainfall records, which include drought conditions. This is described in section 6.2.4.8 of the EIS. The water balance indicates that Caval Ridge Coal Mine experiences some risk of supply interruption during extended drought conditions. This is the case for many of the operating mines in the Bowen Basin. The level of risk is acceptable to BMA for the current design phase and further optimisation of water supply reliability will be carried out during the detailed design phase.</p>
6.17	<p>Relevant Project EIS Section: Section 20</p> <p>The EIS needs to reflect the cumulative impacts of numerous mining operations in the vicinity with a focus on the triple bottom line being economic, environmental and social outcomes. There needs to be action taken on a broad spectrum cumulative study contributed to by the mining industry's, which establishes the base line effects being experienced by the Urban Community of Moranbah.</p>	<p>The terms of reference (TOR) requires the assessment of the cumulative impacts associated with the Bowen Basin Coal Growth Project (BBCGP), and the provision of a clear and concise summary of the cumulative impacts associated with the BBCGP. A summary of the cumulative impacts associated with the BBCGP is provided in Section 20 (Table 20.1) of the EIS.</p> <p>Furthermore, individual environmental elements are assessed on the basis of existing baseline conditions, which takes into account impacts from existing industry, rural and community activities.</p> <p>The TOR did not require a full and comprehensive Triple Bottom Line assessment of all activities in the Bowen Basin.</p> <p>BMA's view is that it is the role of the Government to initiate and undertake a broad spectrum cumulative impact study, to which BMA will contribute to as necessary.</p>
6.18	<p>Relevant Project EIS Section: Section 20</p> <p>The EIS must demonstrate a clear commitment to a</p>	<p>The terms of reference (TOR) requires the assessment of the cumulative impacts associated with the Bowen Basin Coal Growth Project (BBCGP), and the provision of a clear and concise summary of the cumulative impacts</p>

ID	Major Issues- Summary	Response
	coordinated independent cumulative impact monitoring system for all off site impacts associated with the project development to protect the Moranbah Community health and amenity.	<p>associated with the BBCGP. A summary of the cumulative impacts associated with the BBCGP is provided in Section 20 (Table 20.1) of the EIS.</p> <p>Furthermore, individual environmental elements are assessed on the basis of existing baseline conditions, which takes into account impacts from existing industry, rural and community activities.</p> <p>The TOR did not require a full and comprehensive Triple Bottom Line assessment of all activities in the Bowen Basin.</p> <p>BMA's view is that it is the role of the Government to initiate and undertake a broad spectrum cumulative impact study, to which BMA will contribute to as necessary.</p> <p>BMA is committed to monitoring the potential impacts of the Caval Ridge project as part of the sites environmental management system. Detail of these monitoring programs is provided in the various submission responses in Section 5 of this supplementary report and the revised EMP.</p>
6.19	<p>Relevant Project EIS Section: Appendix Q</p> <p>The EIS should confirm a clear commitment to independent environmental monitoring of all off site environmental impacts including but not limited to Dust, Noise, Vibration and Mine Water discharges.</p>	<p>BMA is committed to monitoring the potential impacts of the Caval Ridge project as part of the sites environmental management system. Detail of these monitoring programs is provided in the various submission responses in Section 5 of this supplementary report and the revised EMP.</p>

#### 4.1.7 Department of Transport and Main Roads

ID	Major Issues- Summary	Response
7.01	<p>Relevant Project EIS Section: Executive Summary</p> <p>A map showing the proposed realigned route for the stock route should be incorporated in an appropriate section of the EIS.</p>	<p>The proposed stock route realignment is presented in Figure 3.2d of the EIS.</p>
7.02	<p>Relevant Project EIS Section: Section 3.14</p> <p>The EIS briefly mentions lighting of the mine access</p>	<p>BMA is in ongoing discussions with the DTMR regarding the aspects of the proposed road alterations along the Peak Downs highway including the lighting</p>

ID	Major Issues- Summary	Response
	<p>intersection. However, further details are not apparent in the EIS at this stage.</p> <p>To ensure road safety at intersections significantly affected by project traffic, the proponent should liaise with the regional DTMR office about requirements for adequate intersection lighting.</p>	<p>required at the entrance to the mine.</p> <p>BMA is committed to providing lighting which is appropriate and to the standard agreed with DTMR.</p> <p>This will form part of BMA's commitments and is included in the Commitments Register (Appendix P).</p>
7.03	<p>Relevant Project EIS Section: Section 3.14</p> <p>DTMR is concerned about the safety of members of the public who may stop on the overpass to view or photograph mine activity/vehicles, thus endangering themselves.</p> <p>The proponent should continue to liaise with the regional office to resolve this road safety issue with the haul road overpass e.g. through provision of "anti-gawking" screens on the overpass.</p>	<p>The Peak Downs Highway overpass has been designed to include anti gawking/anti throw screens of suitable height and as approved by the DTMR to restrict vision down onto the mine by passing motorists.</p>
7.04	<p>Relevant Project EIS Section: Section 3.7.2.3</p> <p>It is unclear to DTMR whether the two creek diversions have any potential to significantly affect stormwater discharge to the State-controlled road reserve.</p> <p>While the proponent's consultant have informally discounted the possibility of potential stormwater or other drainage impacts on the Peak Downs Hwy, some discussion in the EIS, demonstrating the unlikelihood of significant increased stormwater impact from the project should be included.</p>	<p>Further design revision of the project works that may affect the Peak Downs Highway and other areas (such as the layout of creek diversions) will be required prior to construction. As part of the future detailed design, the proponent commits to liaise with DTMR to resolve stormwater concerns for the Peak Downs Highway.</p> <p>The commitment will form part of BMA commitments and is included in the Commitments Register (Appendix P).</p>
7.05	<p>Relevant Project EIS Section: Section 4.5.1.1, Section 4.5.3.5</p> <p>These sections discuss reconnection of the stock route following the effective "severance" of the existing stock route with the construction of the Peak Downs Highway overpass of the mine haul road.</p> <p>The proponent should discuss with regional DTMR officers, arrangements for the new connections of this deviation of the stock route to the Peak Downs Hwy at both ends, to ensure</p>	<p>During final design BMA will consult with DTMR to ensure acceptable safe stock route egress/access on and off the Peak Downs Highway for live stock.</p>

ID	Major Issues- Summary	Response
	safe access/egress for stock to the public road reserve. Outcomes of discussions should be documented in the Supplementary EIS.	
7.06	<p>Relevant Project EIS Section: Section 10.2.13.2</p> <p>The last dot-point of 10.2.13.2 over-states the effectiveness of the proposed spray-on chemical reagent process to suppress dust emissions, and should be re-worded to state:</p> <ul style="list-style-type: none"> <li>- "Train load-out to incorporate chemical reagent to be sprayed onto the surface of each loaded wagon. This will form a barrier that binds small dust particles together and will significantly reduce dust generation from coal trains as they transit from the project to the port."</li> </ul>	<p>BMA is currently engaging with QRC, QR and other stakeholders in regards to this specific matter as the outcome will not only apply to the Caval Ridge project, but to operations exporting coal through the ports of Gladstone and Hay Point.</p> <p>An operation/site based chemical reagent dosing system will be considered further if a mainline chemical reagent dosing system is not implemented.</p>
7.07	<p>Relevant Project EIS Section: Section 10.2.13.2</p> <p>Dust mitigation measures to be implemented as part of the Caval Ridge Mine Project should be expanded to include the following two additional mitigation measures (should be added after dot-point 5):</p> <ul style="list-style-type: none"> <li>- The coal train load-out facility will include over-loading controls designed to prevent wagon over-loading.</li> <li>- Coal loading controls will incorporate a load-profiling process which flattens and shapes the coal load providing reduced exposure to aerodynamic (profile) drag.</li> </ul>	<p>The coal train load out (TLO) facility will be installed with outgoing load weighers that will monitor the wagon loads and provide feedback to the TLO to prevent consistent overloading.</p> <p>The TLO telescoping loader will flood load the wagon and as such provide a flattened top for the load in the wagon.</p>
7.08	<p>Relevant Project EIS Section: Section 13.4.1</p> <p>DTMR is concerned about the potential for increased road safety risk at the Moranbah Access Road intersection, should the commitment to bussing not eventuate, given the significant growth in traffic on the Peak Downs Highway.</p> <p>The proponent should detail strategies for ensuring proposed bus patronage commitments are met in the long term.</p>	<p>Caval Ridge is based on a predominantly FIFO arrangement and as such lends itself to busses as the primary mode of transportation between the accommodation and the mine site. Employees engaged on a FIFO basis can only travel to work by means provided by the company – their private motor vehicles are located back at the FIFO base. This practice not only reduces the number of vehicles but also forms part of the commitment to fatigue management. BMA remain committed to using busses for this purpose.</p>
7.09	Relevant Project EIS Section: Section 13.7.1	The traffic growth rates supplied by DTMR were used for the first 14 years of

ID	Major Issues- Summary	Response
	<p>Several subsections raise concerns about DTMR-supplied high background traffic growth figures for the Peak Downs Hwy and their potential to affect impact mitigation requirements.</p> <p>The assessment of road related impacts should continue to use the supplier traffic growth figures.</p>	<p>construction and operation. Given these rates are observed from a period of very high traffic growth, more conservative traffic growth was adopted for the final 21 years of the project life. These traffic growth rates have been discussed and agreed with DTMR.</p>
7.10	<p>Relevant Project EIS Section: Appendix N</p> <p>While acknowledging DTMR uses Highway Capacity Manual to determine levels of service for intersections, this section also details alternative analysis using NSW's Roads &amp; Traffic Authority methodology.</p> <p>DTMR is concerned using alternative assessment methodologies does not provide a consistent basis for comparison of road impacts across different projects in the region. To enable consistency of comparison, the analysis should continue to use DTMR manual and associated guidelines.</p>	<p>Assessment against the DTMR guidelines was provided in Section 6.7.1 and assessment against other industry standards was provided in Section 6.7.2. Section 6.7.1 enables DTMR to compare this project against others.</p>
7.11	<p>Relevant Project EIS Section: Appendix N</p> <p>The proponent's consultants should continue to discuss with regional DTMR officers optimal intersection designs to safely accommodate project-related traffic on the Peak Downs Hwy. One matter of concern is ensuring the optimal intersection form for the Winchester Road &amp; Moranbah Access Road.</p>	<p>BMA and their nominated traffic consultants will continue to liaise with the DTMR officers to optimise the intersection designs.</p>
7.12	<p>Relevant Project EIS Section: Appendix N-Section 8.5</p> <p>Matters being included in the Infrastructure Agreement currently being prepared include:</p> <ul style="list-style-type: none"> <li>- deviation of the Peak Downs Hwy during construction of the mine haul overpass,</li> <li>- temporary access and road crossings,</li> <li>- dealing with utilities in the road reserves,</li> <li>- ongoing maintenance of the overpass;</li> <li>- traffic management plan;</li> <li>- approvals for works under the Transport Infrastructure Act.</li> </ul>	<p>BMA acknowledges this comment by the DTMR.</p> <p>This will form part of BMA's commitments and is included in the Commitments Register (Appendix P).</p>

ID	Major Issues- Summary	Response
	<p>In so far as these mine project area issues are dealt with in an infrastructure Agreement and the Agreement is finalised prior to completion of the EIS Assessment Report, they will not require further conditioning if the project is approved.</p> <p>However, it is expected off-site matters such as contributions towards upgrading the Moranbah Access Rd &amp; Winchester Rd intersections will be dealt with separately, for example as conditions and if necessary a separate agreement.</p>	
7.13	<p>All changes or additions to utilities/services in road reserves should be negotiated and approved before commencement of works.</p>	<p>BMA is currently and will continue to work with DTMR regarding the planning and development of utilities and services in road reserves. Proposed changes will be agreed and approved by DTMR prior to commencement of works.</p>
7.14	<p>However, it is expected off-site matters such as contributions towards upgrading the Moranbah Access Rd &amp; Winchester Rd intersections will be dealt with separately, for example as conditions of approval and if necessary a separate agreement.</p>	<p>BMA is currently and will continue to work with DTMR regarding upgrades to intersections required as a result of potential impact from the Caval Ridge Project. Contributions resulting from final agreement will be separate from the EIS process.</p>
7.15	<p>Relevant Project EIS Section: Section 1 (or elsewhere PCQ occurs in the EIS)</p> <p>All references to PCQ in the document should be amended to: "North Queensland bulk Ports Corporation Limited (NQBPC) or just NQBPC".</p>	<p>This change in reference is noted by BMA.</p>
7.16	<p>Relevant Project EIS Section: Section 1.4.2</p> <p>Paragraph 2, Third sentence should be amended to read: "NQBPC has commenced a second stage expansion from 25 Mtpa to 50 Mtpa which is expected to be completed by approximately June 2011."</p>	<p>This change in statement has been noted by BMA.</p>
7.17	<p>Relevant Project EIS Section: Section 1.7.1.8</p> <p>Add an additional sentence to the paragraph on the Transport Infrastructure Act 1995 (the TIA): 'The TIA also contains provisions for the management of railways'.</p>	<p>This additional sentence is noted by BMA.</p>

#### 4.1.8 Queensland Health

ID	Major Issues- Summary	Response
8.01	<p>Relevant Project EIS Section: Section 3</p> <p>The proponent needs to determine whether they are a drinking water provider as regulated by the Water Supply (Safety and Reliability) Act 2008 and the Public Health Act 2005. If the proponent is not a Drinking Water Service Provider, then the proponent needs to develop a management system that will be used to ensure that all potable water consumed on site complies with the Australian Drinking Water Guideline 2004 (ADWG). This should include how potable water will be sourced, transported, stored, reticulated and the water quality monitored.</p>	<p>BMA is not a drinking water service provider as regulated by the <i>Water Supply (Safety and Reliability) Act 2008</i> and the <i>Public Health Act 2005</i>.</p> <p>Potable water consumed on site will comply with the Australian Drinking Water Guideline 2004 (ADWG). BMA will develop and implement procedures as part of the health and safety management system, to ensure water quality meets these requirements.</p> <p>This will form part of BMA's commitments and is included in the Commitments Register (Appendix P).</p>
8.02	<p>Relevant Project EIS Section: Section 3</p> <p>Queensland Health recommends that recycled water activities comply with the Australian Guidelines for Water Recycling-managing health and environmental risks (Phase 1) (2006) released by the National Environmental Protection Council, which provides guidance on water quality and management planning for recycled water. This document can be located at <a href="http://www.nepc.gov.au/taxonomy/term/39">http://www.nepc.gov.au/taxonomy/term/39</a></p>	<p>Waste water from the sewage treatment facility will be treated to Class A+ quality, and reused on site for irrigation. The sludge residue from the plant will be removed from site by a licensed contractor. Recycled water will be managed in accordance with the Australian Guidelines for Water Recycling - managing health and environmental risks (Phase 1) (2006).</p>
8.03	<p>Relevant Project EIS Section: Section 10</p> <p>Queensland Health recommends that the proponent reconsider the mitigation measures and mining practices necessary to achieve compliance with the PM10 and PM2.5 EPP (Air) 2008 air quality objectives at all sensitive receptors</p>	<p>Mitigation measures have been revised and expanded and re-modelling undertaken in order to demonstrate that compliance with the EPP (Air) objective for the 24-hour average ground-level concentration of 50µg/m<sup>3</sup> within the Township of Moranbah is achievable. As presented in Section 3.2.2 of the Caval Ridge EIS supplementary Air Quality Assessment (Appendix B) emissions of dust from the project based on modelling data, are predicted to contribute 21µg/m<sup>3</sup> to air quality in Moranbah under typical operating conditions.</p>
8.04	<p>Relevant Project EIS Section: Section 10</p>	<p>BMA has revised and expanded its commitment to ambient air monitoring to</p>

ID	Major Issues- Summary	Response
	Queensland Health recommends that an exceedance of the PM10 air quality objective during stage 1 monitoring should trigger additional mitigation measures to be implemented to achieve the air quality goals.	include continuous monitoring of particulate matter at a minimum of two locations as outlined in Section 4.1 of the Caval Ridge EIS supplementary air quality assessment included as Appendix B.
8.05	Relevant Project EIS Section: Section 12 Queensland Health recommends that if these sensitive receptors (three sensitive receptors where mitigation measures are not expected to meet acoustic goals) house employees of BMA they should be afforded the same air, acoustic and vibration goals as private residents.	Any mitigation at these BMA owned properties would be complaints based (in combination with validation monitoring if required). The primary form of mitigation at these properties will be an adverse noise, vibration and air quality out clause in all leases. This will then allow BMA to progressively (if required) vacate these properties as and when any complaints arise.
8.06	Relevant Project EIS Section: Section 12 Queensland Health recommends that if the properties (where mitigation measures are not expected to meet acoustic goals) cannot be resumed, the proponent need to undertake additional mitigation measures to achieve the noise criteria at those locations.	The information presented in the EIS is based on modelling. Given the costs involved in mitigation treatments, it is considered appropriate to confirm the modelling results with measurements prior to implementing such measures. BMA will commence an on-going noise monitoring program and implement mitigation measures as required.
8.07	Relevant Project EIS Section: Section 12 Queensland Health disagrees with the approach to not undertake any mitigation measures against low frequency noise and recommends that the proponent mitigates against the potential adverse health impacts from low frequency noise.	BMA's response to this submission about low frequency noise is contained in Appendix K (Low Frequency Noise).
8.08	Relevant Project EIS Section: Section 12 Queensland Health recommends that the proponent should reconsider the need to blast on Sundays and Saturday afternoons.	Given the large proportion of residents work roster patterns at surrounding mines, there is not a single period during the week that the workforce is at rest. At any stage of the week, someone is having their weekend. The effects of blasting on the community are more dependent on weather and atmospheric conditions - BMA will consider weather and atmospheric conditions when deciding whether or not to proceed with blasting which might be noticed by the community.
8.09	Relevant Project EIS Section: Section 12 Queensland Health recommends that blasting design should also be considered to reduce vibration levels.	When blasting in the northern section of Caval Ridge Mine where vibration may impact on the community, vibration levels will be considered during blast design.

ID	Major Issues- Summary	Response
8.10	<p>Relevant Project EIS Section: Section 12</p> <p>Queensland Health recommends that the proponent describe how they will achieve the vibrations objectives for human health at all seven locations (e.g. sensitive receptors location 1, 2, 3, 4, 5, 6 and 7 outlined in the EIS).</p>	<p>The only properties where exceedences of the blasting criteria have been predicted are either (a) already owned by BMA, (b) owned by Anglo where an agreement with BMA is anticipated or (c) BMA are in negotiations to purchase the property. Subject to completion of this agreement and purchase, BMA will be in a position to control occupancy at these properties. Complaints will be recorded and managed using complaints processes built into the site EMS. BMA uses standard industry practice for blast design which includes blast mitigation measures.</p>
8.11	<p>Relevant Project EIS Section: Section 12</p> <p>Queensland Health recommends that the proponent ensure that occupants within BMA properties are afforded the same air, noise and vibration quality as other sensitive receptors.</p>	<p>Any mitigation at these BMA owned properties would be complaints based (in combination with validation monitoring if required). The primary form of mitigation at these properties will be an adverse noise, vibration and air quality out clause in all leases.</p> <p>This will then allow BMA to progressively (if required) vacate these properties as and when any complaints arise.</p>
8.12	<p>Relevant Project EIS Section: Section 12</p> <p>Re: Noise and Vibration: The proponent needs to develop a complaint management strategy that includes details of how the community can lodge a complaint and the process for resolution</p>	<p>BMA will develop an ISO 14001 EMS for the Caval Ridge Mine. This management system will include a process for registering and addressing complaints regarding the potential impacts of the Caval Ridge project. In addition it is expected that the EA for the Caval Ridge mine will include a condition to investigate and report noise related complaints.</p> <p>This will form part of BMA's commitments and is included in the Commitments Register (Appendix P).</p>
8.13	<p>Relevant Project EIS Section: Section 3 and Section 17</p> <p>The proponent should clarify the apparent inconsistency in relation to the name of the accommodation facility. The proponent states that the construction and operational workforce will be housed in the Denham Village and that this village has already been approved and will be constructed prior to the commencement of the Caval Ridge Project. However in section 17.3.2, the proponent states that the majority of the workforce is to be housed in Peak Downs Area</p>	<p>Noted – Use of Peak Downs Accommodation Village is a typo, the accommodation village is Denham Village.</p> <p>It is anticipated that the construction workforce will be accommodated in the Denham Village. The operational workforce employed for Caval Ridge will be housed in a custom designed accommodation village that has yet to be named. The accommodation village will be located in an appropriate position within easy travelling distance to site. This site is not expected to be within the Moranbah township itself.</p> <p>An amendment to the purpose of ML1775 to include the construction and</p>

ID	Major Issues- Summary	Response
	Accommodation Village. The Peak Downs Accommodation Village is yet to be constructed, but has all necessary approvals to be operated.	<p>operation of accommodation facilities was granted by the former Department of Mines and Energy on 27 January 2009. Additionally, an amended Plan of Operations for the Peak Downs Mine Plan which specifically included activities associated with the construction and operation of the accommodation village was approved by the former Environmental Protection Agency on 2 October 2008.</p> <p>As all Aspects of Development authorised under the <i>Mineral Resources Act 1989</i> are exempt development under the <i>Integrated Planning Act 1997</i> (refer to Schedule 9, table 5 of the <i>Integrated Planning Act 1997</i>), no approvals under the <i>Integrated Planning Act 1997</i> for development of the village on Mining Lease 1775 are required.</p> <p>Works required for access off the Moranbah Access Road to the Denham Village have been granted approval by the Isaac Regional Council.</p>
8.14	<p>Relevant Project EIS Section: Section 20</p> <p>Queensland Health is of a view that to prevent background creep, the cumulative effects from all industries in the Moranbah region need to be considered and strategies developed to maintain the 24-hour average and the annual average of PM10 concentration at levels which are as low as reasonably possible and below those recommended by the EPP (Air) 2008.</p>	<p>Additional mitigation measures have been incorporated and impacts re-assessed as discussed in Section 1.2 of the Caval Ridge EIS supplementary air quality assessment included as Appendix B.</p>
8.15	<p>Relevant Project EIS Section: Section 20</p> <p>Queensland Health recommends that the proponent needs to address background creep in line with the EPA guidelines.</p>	<p>Cumulative impacts have not been explicitly modelled for the reasons discussed in Section 4.2 of the Caval Ridge EIS supplementary air quality assessment that is included as Appendix B.</p> <p>A revised and expanded ambient air monitoring program has been proposed to monitor air quality within the area surrounding the project. Details are provided in Section 4.1 of the Caval Ridge Supplementary Air Quality Assessment which is located in Appendix B.</p>
8.16	<p>Relevant Project EIS Section: Appendix Q</p> <p>Queensland Health recommends that the proponent develop a "Mosquito Management Plan" for the project. A comprehensive plan to manage mosquitoes is essential given the close</p>	<p>BMA will include mosquito management requirements as part of the Caval Ridge Health and Safety management.</p>

ID	Major Issues- Summary	Response
	proximity to towns and the number of itinerant workers/visitors who will be on site for varying periods of time.	
8.17	Relevant Project EIS Section: Appendix Q Periodic monitoring of ponded waters and rainwater tanks will determine if proposed control measures are effective in reducing mosquito-breeding numbers.	BMA will include mosquito management requirements as part of the Caval Ridge Health and Safety management.
8.18	Relevant Project EIS Section: Appendix Q The Queensland health document 'Guidelines to minimise mosquito and biting midge problems in new development areas' ( <a href="http://www.health.qld.gov.au/phs/Documents/cdu/14804dmp.htm">http://www.health.qld.gov.au/phs/Documents/cdu/14804dmp.htm</a> ) may be of assistance.	Noted – BMA will consider the guidelines when implementing mosquito controls.

#### 4.1.9 Queensland Police Service

ID	Major Issues- Summary	Response
9.01	Relevant Project EIS Section: Section 13 The Traffic Management Plan (TMP) should include QPS representation as part of ongoing consultation in the development of TMP's. The Officer in Charge, Mackay District Traffic Branch is the appropriate person to represent the QPS in this forum.	Noted – BMA will consult with QPS when developing the traffic management plan for Caval Ridge Mine.
9.02	Relevant Project EIS Section: Section 13 The proponent needs to identify the cumulative impact of other mining, energy and infrastructure projects in the Bowen Basin and not just those associated with the BBCGP.	The terms of reference (TOR) requires the assessment of the cumulative impacts associated with the Bowen Basin Coal Growth Project (BBCGP), and the provision of a clear and concise summary of the cumulative impacts associated with the BBCGP. A summary of the cumulative impacts associated with the BBCGP is provided in Section 20 (Table 20.1) of the EIS. Furthermore, individual environmental elements are assessed on the basis of existing baseline conditions, which takes into account impacts from existing industry, rural and community activities.

ID	Major Issues- Summary	Response
		<p>The TOR did not require a full and comprehensive Triple Bottom Line assessment of all activities in the Bowen Basin.</p> <p>BMA's view is that it is the role of the Government to initiate and undertake a broad spectrum cumulative impact study, to which BMA will contribute to as necessary.</p>
9.03	<p>Relevant Project EIS Section: Section 13</p> <p>The proponent should give consideration to the use of bus transport for FIFO and DIDO workers.</p>	<p>BMA has proposed to bus personnel between accommodation and the construction/mine site. Detail of transport options is provided in Section 3.10.3 and Section 13.4 of the EIS.</p>
9.04	<p>Relevant Project EIS Section: Section 13</p> <p>Police vehicle: consideration should be given to developer contributions to the cost of these resources. QPS has identified a need for one additional marked police vehicle for traffic patrols and wide load escorts.</p>	<p>Provision of police vehicles is a state government responsibility; however BMA would welcome the opportunity to work with QPS on a safety education campaign extending to all of the BMA communities.</p>
9.05	<p>Relevant Project EIS Section: Section 13</p> <p>The construction of higher walls on either side of the overpass to restrict the vision of passing motorists down onto the mine site and therefore reduce the risk of traffic crashes occurring as a result of distraction, is recommended.</p>	<p>The overpass has been designed to include anti gawking/anti throw screens of suitable height and as approved by the DTMR to restrict vision down onto the mine by passing motorists.</p>
9.06	<p>Relevant Project EIS Section: Section 13</p> <p>The proponent should consider the development of park-up areas within the Moranbah Police Division and also review the need in other locations along the major roads in particular Peak Downs Highway and Moranbah Access Road, as part of cumulative assessment of need.</p>	<p>BMA will identify and locate appropriate park up area/s as deemed necessary in conjunction with the DTMR and Isaac Regional Council as part of approvals associated with the proposed PD Highway overpass.</p>
9.07	<p>Relevant Project EIS Section: Section 13, Appendix Q</p> <p>The QPS encourages the proponent to develop and implement a training or awareness program on fatigue and road safety for BMA employees to assist in reducing the incidence of fatigue-related traffic crashes.</p>	<p>BMA considers fatigue management and safety of employees as a high priority. Therefore raising awareness of employees is achieved through:</p> <ul style="list-style-type: none"> <li>■ A fatigue management policy.</li> <li>■ Journey management planning (including consideration hours of rest in days prior to journey).</li> </ul>

ID	Major Issues- Summary	Response
		<ul style="list-style-type: none"> <li>■ Regular safety presentations.</li> </ul>
9.08	<p>Relevant Project EIS Section: Section 13</p> <p>The provision of the number of oversized deliveries to the QPS once the final design for the project is completed would assist the QPS in planning for capacity and resourcing in so far as wide load movements is concerned.</p>	<p>BMA will provide the number of oversized deliveries to the QPS once the final design for the project is completed to assist the QPS in planning for capacity and resourcing in so far as wide load movements are concerned.</p>
9.09	<p>Relevant Project EIS Section: Section 13</p> <p>It is suggested that the proponent advance dialogue with the QPS regarding permit approvals for over dimensional vehicles as they have with Ergon.</p>	<p>BMA will liaise with QPS regarding permit approval for over dimensional vehicles when the details of these requirements are finalised.</p>
9.10	<p>Relevant Project EIS Section: Section 17</p> <p>The proponent should allocate housing for government services such as police as part of its housing stock development to mitigate the impact to these agencies and improve attraction and retention of officers to the community.</p>	<p>Accommodation issues are discussed in Section 17.4.5 and 17.5.6.</p> <p>While BMA does not play a direct role in providing affordable housing in the community, its commitment to providing housing and accommodation for its business needs reduces demand drivers on housing, therefore decreasing housing demand and increasing housing affordability.</p> <p>Acknowledging that the housing of government employees remains the responsibility of the appropriate Government authority, BMA actively works with local service providers and agencies to provide assistance where possible.</p> <p>Through the Sustainable Resource Communities Fund, BMA has recently identified and advocated for upgrades to Government service accommodation and the provision of affordable housing.</p> <p>BMA's Planning and Development Manager attends the monthly Isaac Regional Council meetings to enable effective information sharing around future project activities including housing needs.</p>
9.11	<p>Relevant Project EIS Section: Section 17</p> <p>The QPS further recommends data obtained and relied upon by the proponent to determine police resourcing requirements be provided to the QPS for assessment in terms of the Caval Ridge Coal Mine Project Impact.</p>	<p>BMA is currently working with the Queensland Resources Council to provide the State Government with workforce projections to enable a cumulative assessment of resourcing requirements.</p>
9.12	<p>Relevant Project EIS Section: Section 17</p>	<p>BMA welcomes the opportunity to work in partnership with QPS and the</p>

ID	Major Issues- Summary	Response
	It would be appropriate for the proponent to work in partnership with the Queensland Police Service to develop and implement domestic violence projects aimed at reducing domestic violence. This would be in line with the Queensland Police Service Domestic Violence Strategy.	Manager Communities will investigate opportunities for a community safety campaign incorporating the issue of domestic violence.
9.13	<p>Relevant Project EIS Section: Section 18</p> <p>There are significant government costs associated with impact of the project to the delivery of policing services in the Moranbah Police Division and Mackay Police District. Among these are costs associated with increases in calls for service associated with good order and alcohol related violence. The QPS will work with the proponent to support the development of a code of conduct regarding good order.</p>	BMA encourages a standard of behaviour within its workforce and welcomes the opportunity to work in partnership with QPS to further develop BMA's workforce expectations.
9.14	<p>Relevant Project EIS Section: Section 19, Section 13</p> <p>Disaster Management Planning- The BMA response does not acknowledge the need to be part of the response for Disaster Management. The response provided relates to the transportation of dangerous and hazardous goods rather than the broader impacts of disasters under the Disaster management Act (Qld).</p> <p>This should be reviewed by the Proponent and the QPS engaged as part of the disaster management and planning process for the localities affected by the Caval Ridge Coal Mine Project.</p>	BMA acknowledges the needs for thorough disaster management planning (Referred to in Section 19.10 – Emergency Planning) in the EIS. BMA is committed to working with QPS during the preparation of the disaster management plan.
9.15	<p>Relevant Project EIS Section: Section 19, Section 13</p> <p>The EIS should articulate the response to disasters and incidents separately</p>	<p>BMA considers the difference between disasters and incidents to be the level of risk related to each</p> <p>The BHP Billiton Crisis and Emergency Management Organisation consist of a Crisis Management Team (CMT), Emergency Management Teams (EMTs), Incident Management Teams (IMTs) and Field Response Teams (FRTs). Rapid Deployment Teams (RDTs) and other specialist teams can be established (by the EMT) to augment the CEM Organisation as required.</p>

ID	Major Issues- Summary	Response
		The Caval Ridge Mine will have included in the emergency response plan an incident management manual, which provides a framework for managing emergency situations. It identifies those accountable for managing a situation, and provides them with step-by-step procedures and tools to assist them in considering possible impacts, affected stakeholders, and making decisions quickly, professionally and effectively.
9.16	Relevant Project EIS Section: Section 19, Section 13 Incident Management should be considered as part of the Emergency Management section	Section 19 of the EIS covers Health, Safety and Risk. The Project Risk Assessment (19.5) includes the results of the Preliminary Hazard Analysis including potential incident scenarios. This was followed by identifying mitigation requirements based on risk levels (Table 19.8, 19.0 and 19.10). Section 19.10 addresses emergency planning which includes identifying potential events, services required and control action (Table 19.13).
9.17	Relevant Project EIS Section: Section 19 The proponent should include the QPS role in response and investigation of incidents relating to death, injury or as a consequence of an unlawful act.	Noted – BMA will include the QPS role in response and investigation of incidents relating to death, injury or as a consequence of an unlawful act.
9.18	Relevant Project EIS Section: Section 19 It would be beneficial for the proponent to coordinate and develop desktop exercises for the development of response and management arrangements for incidents, emergencies and disasters that include service providers (QPS, QAS, QFRS, IRC) and the proponent.	As part of emergency response and training BMA will undertake risk assessments to ensure the development of response and management arrangements for incidents, emergencies and disasters that include service providers (QPS, QAS, QFRS, IRC).
9.19	Relevant Project EIS Section: Section 20 Cumulative Impacts- Climate Change/Protest Activity QPS expects the profile of Climate Change to increase protest activity. This will result in the need to review water police assets in the port and provide greater attention to intelligence management of protest activity. This will impact on the Caval Ridge Project as well as the Bowen Basin Coal Growth Project as a whole. It would be advantageous for the proponent to enter into	BMA will liaise with the Queensland Police Service in relation to the response and investigation associated with protest activity that may impact upon production or delivery of coal.

ID	Major Issues- Summary	Response
	dialogue with the Queensland Police Service in relation to the response and investigation associated with protest activity that may impact upon production or delivery of coal.	

#### 4.1.10 Department of Infrastructure and Planning

ID	Major Issues- Summary	Response
10.01	<p>Relevant Project EIS Section: Section 17- Social</p> <p>As currently presented, Table 17.19 does not give the reader a snapshot of the priority of impacts as identified. It would assist the reader if the table was either re-ordered to prioritise impacts by high, medium and low or if this information is presented in a separate summary table.</p>	<p>Appendix M2 (Caval Ridge EIS Issues and Mitigation Table) is an updated version of Caval Ridge EIS Table 17.19. The new table provides updated information since the initial completion of the Draft EIS.</p>
10.02	<p>Relevant Project EIS Section: Section 17- Social</p> <p>There is no link between proposed mitigation and existing regional or state plans and strategies in the human service, education and training, or health sectors. The proposed mitigation/management strategies need to be set in the context of these existing state and Australian government policies and programs to maximise their effectiveness and to demonstrate BMA's willingness to collaborate with community and government partners.</p> <p>As a result, the SIA and proposed mitigation/management strategies do not sufficiently identify social impacts in the wider region, i.e., Mackay and surrounds. This should be addressed in the SEIS (see Attachment 1 of <i>DIP Social Impact Assessment Comments</i> for references to documents and links to relevant websites that may support this task).</p>	<p>An excerpt from BMA's draft Communities Strategy is included in Appendix M1. (BMA Draft Communities Strategy Summary). For the priority projects identified in this strategy BMA will link in with Regional, State and Federal Government policies, programs and initiatives as appropriate. Underpinning this approach is the Community Investment Program which addresses community opportunities, challenges and perceptions identified through BMA's ongoing community engagement program.</p>
10.03	<p>Relevant Project EIS Section: Section 17- Social</p> <p>The proposed mitigation/management strategies are very high level and do not have timelines or performance indicators.</p>	<p>Since the completion of the SIA, BMA has developed a draft Communities Strategy which is expected to be launched in mid FY10. A summary from the draft Communities Strategy is included in Appendix M1 (BMA Draft</p>

ID	Major Issues- Summary	Response
	<p>There is also no estimate of the probability/risk of these impacts occurring. Mitigation strategies need to be re-cast as actions i.e. Enterprise and Economy – what specific actions will BMA take to encourage activities and investment in the local and regional economy to create economic diversity?</p> <p>If project actions have not been identified to date, how will BMA identify them and in what timeframe, and what might be the outcomes?</p> <p>Community infrastructure, health and services - how is BMA a strong advocate for helping the community to obtain vital services such as those listed?</p> <p>Is this a successful strategy, and how does this fit with existing local authority and state govt priorities?</p> <p>How does the \$4.7M invested by “Sites in 2008” respond to identified needs or identified impacts?</p> <p>What will be the future link between these activities and QH planning for improved services following the construction of the new \$405M Mackay hospital?</p> <p>Do they respond adequately to the community’s stated concerns about health services for older community members or those with special medical needs?</p>	<p>Communities Strategy Summary) to provide a snapshot of the priority projects and broad timelines which have been identified.</p> <p>The updated table in Appendix M2 (Caval EIS Issues and Mitigation Table) addresses other questions raised by the DIP.</p> <p>BMA is a strong advocate for helping the community and this is evidenced through BMA’s participation on the MWREDC board, attendance at interagency meetings across the Bowen Basin, periodic meetings with Government representatives and participation on the Sustainable Resource Communities Leadership Group. Across some of our communities we have proactively approached and worked with the community and Government to address community health needs. An example of this was the financial contribution BMA made towards recruiting a second doctor for Blackwater in conjunction with other mining companies.</p> <p>Appendix M3 provides a copy of BMA’s Community Donations, Sponsorships and Partnerships Guidelines which highlights the criteria used to evaluate BMA’s support for community projects.</p>
10.04	<p>Relevant Project EIS Section: Section 17- Social Culture, heritage, and tourism – how do the suggested strategies support local and regional cultural values including Indigenous cultural identity and therefore make a contribution to regionally identified tourism strategies/aspirations to develop better tourism opportunities?</p>	<p>Business development, including tourism is a key category of BMA’s suite of Community Investment Programs.</p> <p>See Appendix M1 (BMA Draft Communities Strategy Summary) for BMA’s Communities Strategy which highlights business and tourism development projects (particularly linked to the Mining Trails Program) across the Bowen Basin and Mackay.</p> <p>Opportunities for tourism related businesses are likely to be explored through BMA’s Indigenous Strategy.</p>
10.05	<p>Relevant Project EIS Section: Section 17- Social The section on responses to impacts on residential amenity</p>	<p>BMA will develop and implement an ISO 14001 Environmental Management System for the Caval Ridge Mine. This system will include objectives, targets</p>

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	<p>relating to dust, noise, and vibration needs to be strengthened considerably to respond to the large number of submissions registering increasing community concerns about cumulative dust impacts on the health and wellbeing of families and particularly children (see cumulative impact below). The proposed SIP should include a strategy that demonstrates good practice in relation to managing dust, noise and vibration on communities such as enclosing all operational components that contribute to the dust problem.</p>	<p>and performance criteria to manage significant environmental impacts within BMA's control. Reference to this environmental management system and the applicable operational controls will be included in social impact planning documentation.</p> <p>Since the submission of the Caval Ridge EIS there have been project developments in response to the submissions received as well as further optimisation of many design elements. These include development of more dust mitigation measures which are described in Sections 2 and 5 of the SEIS. Mitigation measures and detail of the proposed monitoring program are presented in the revised EMP.</p> <p>BMA's goal is to make Bowen Basin communities more liveable with a vision to contribute to safe, healthy, skilled and vibrant BMA communities, providing attractive lifestyle options for BMA's workforce.</p> <p>BMA proactively engages with and supports their communities. BMA is appreciative of the support shown for the project in many of the community submissions received during the EIS process.</p>
10.06	<p>Relevant Project EIS Section: Section 10-Air Quality, Section 17- Social</p> <p>Dust mitigation strategies should also include 1) a clear procedure to deal with community complaints on air quality 2) a BMA led study of the cumulative effects of dust, noise and vibration in Moranbah which recommends strategies to reduce cumulative effects and 3) through DERM, the development and implementation of an independent monitoring program lead by BMA and funded on a proportionate basis by all Proponents.</p>	<p>As part of the construction and site environmental plans procedures will be implemented to register complaints of potential environmental impacts (such as noise, dust and vibration) resulting from the Caval Ridge Project. As part of the sites ISO 14001 EMS, mitigation measures to address complaints will be implemented and revised as required.</p> <p>BMA is willing to discuss our participation and contribution to a cumulative impacts monitoring program conducted by a suitable independent body. However, it is considered appropriate for government to take a lead role in such a study.</p>
10.07	<p>Relevant Project EIS Section: Section 17- Social</p> <p>There is also possible scope to link responses to this issue (i.e. dust mitigation strategies) to BMA's child care initiatives through support for integration of evidence-based community and child health education and awareness strategies ie Doc-QH-DET Early Years and other initiatives delivered either at the hospital or through child care and school health services.</p>	<p>BMA will consider these suggestions.</p>

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10.08	<p>Relevant Project EIS Section: Section 17- Social</p> <p>Much greater attention needs to be made to the impact of non-resident workers on community amenity and lifestyle and the impact of mining employment practices on personal and community safety, particularly women and children.</p>	<p>During FY10/11 BMA will develop a workforce Community Cohesion Program which will incorporate a number of elements including:</p> <ul style="list-style-type: none"> <li>■ Investigating opportunities to buy local on a cost competitive basis; and</li> <li>■ Ensuring accommodation villages have the appropriate lifestyle attributes in place to attract and retain workers.</li> </ul>
10.09	<p>Relevant Project EIS Section: Section 17- Social</p> <p>It is strongly recommended that BMA build on its current community involvement and its tentative proposal to develop a workforce code of conduct with other companies through leading a partnership to progress a community safety planning approach - with a focus on reinforcing the strongly held family values of the region, promoting social order and developing crime prevention strategies (ie responsible drinking, reduction of domestic violence and sexual abuse, hospitality programs at local hotels, road safety, improved town amenity planning).</p>	<p>BMA will build on its own code of conduct policy to ensure leading practice is applied in the development of a Workforce Community Cohesion Program. Suggestions regarding community safety planning will be further explored during the development of the program.</p> <p>Within the BMA Community Partnership Program the Good Sports Programs has been appointed to work with community groups on education around responsible service of alcohol. Also within the Community Partnerships Program a partnership has been developed with Kids Safety Clubs. These clubs will engage primary school students and educate them on safety in the home and at school.</p> <p>Appendix M1 (BMA Draft Communities Strategy Summary) also outlines priority projections which BMA has identified and will work towards in the next five years.</p>
10.10	<p>Relevant Project EIS Section: Section 17- Social</p> <p>This (see above recommendation) will also enable coordinated and proactive planning to respond to issues created by the gender and age imbalances identified in the SIA and empower local community members to take control and accept responsibility for creating positive solutions in partnership with QPS and other key service providers. As QPS identified traffic accidents, domestic disputes and drunk and disorderly behaviour as the reasons for most callouts, this proactive approach should reduce demand on QPS services or at least prevent increased demand on their services as BMA growth</p>	<p>BMA is committed to proactively monitoring and mitigating potential impacts on the community and local economy.</p> <p>BMA welcomes the opportunity to work in partnership with QPS and the Manager Communities will investigate these opportunities.</p> <p>BMA will consider these suggestions in the development of its Workforce and Community Cohesion Program.</p>

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	<p>projects become operational. It should also assist QAS demand management.</p> <p>(Professor Kerry Cannington, School of Justice, QUT <a href="mailto:k.carrington@qut.edu.au">k.carrington@qut.edu.au</a> (31387112) is currently conducting comparative research related to this topic and would welcome discussion with BMA on mitigation responses to these issues).</p>	
10.11	<p>Relevant Project EIS Section: Section 17- Social Worker Accommodation: SIA section on Workforce Accommodation (17.3.2): What consultation has occurred with local and regional stakeholders about BMA worker accommodation and have the results of this consultation been documented and addressed in the SIA?</p>	<p>As identified, BMA made a significant contribution to the planning work undertaken by the MGMT process with the Belyando Shire Council. BMA has continued to engage with the Isaac Regional Council to discuss its growth projects. Minutes of these meetings are shared between BMA and the Isaac Regional Council. Outcomes from these meetings have been recorded and utilised in formulating and developing the Caval Ridge EIS.</p>
10.12	<p>Relevant Project EIS Section: Section 17- Social Section 17.3.2 infers that contractors control where workers will reside ie. there may be some workers who, should the contractor's policies allow it, choose to move to the study area or are sourced from the existing population. Unfortunately, this statement gives the impression that BMA does not accept any primary responsibility for addressing worker accommodation issues, nor adopting a proactive approach to planning and collaboratively working through issues that arise in this context, even though the social and economic impacts associated with the influx of large numbers of construction workers (1200), the siting and provision of worker accommodation, and associated increases in demand for local and regional infrastructure, services, and facilities are identified as either medium or high in table 17.19. In addition, these impacts are widely known to be among the most on-going and contentious social issues that arise in the context of large scale resource developments.</p>	<p>BMA has identified in the EIS that we expect the construction workforce to be accommodated in Denham Village. While this is BMA's solution to accommodation, it also recognises that some people involved in the construction of the mine might currently reside in Moranbah, and may continue to do so. Additionally, during the period of construction some people may choose to move to Moranbah and become involved in construction of the mine. BMA also recognises we are unable to dictate where individuals choose to reside on a permanent basis and that some people who choose to live in Moranbah may be employed in activities associated with the construction of the mine.</p> <p>In identifying that accommodation will be available for all construction workers at a purpose built construction village, BMA is accepting responsibility for, and being proactive in addressing worker accommodation issues.</p>
10.13	<p>Relevant Project EIS Section: Section 17- Social Worker Accommodation: SIA section on Workforce Accommodation (17.3.2): The SIA should be more transparent</p>	<p>Currently this project is scheduled to commence construction in mid 2011, with production commencing in 2014. During this period BMA is anticipating considerable changes to the economic environment and the availability of</p>

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	<p>about this issue and clearly explain the respective roles and responsibilities of BMA and contractors, how and when these roles and responsibilities were agreed/adopted, and why local, regional, and state government stakeholders have not been invited to contribute to, or be more closely involved in the development of these important aspects of the project early during the planning phase ie BMA and Contractor worker accommodation policies and procedures.</p>	<p>construction and operational workforces. BMA has prepared the EIS to reflect the level of uncertainty in the environment and potential variances in contractual arrangements with contractors. Contracts between BMA and contractors will be subject to commercial negotiation at some stage in the future and it is impractical for local, regional and state government to be involved in these negotiations.</p>
10.14	<p>Relevant Project EIS Section: Section 17- Social Worker Accommodation: SIA section on Workforce Accommodation (17.3.2): DIP strongly recommends that BMA adopt a more consultative/collaborative approach to this issue and describe the outcomes of this approach in the SEIS along with identified actions to address worker accommodation related issues that are more responsive to community and other stakeholders concerns. This consultation would involve discussion of issues that are identified above in the section on community safety planning ie location, facilities, services, and worker behaviour policies.</p>	<p>BMA has, and will continue to consult within the Moranbah community and with the Isaac Regional Council on workforce accommodation. Consultation has and will continue to cover a range of issues such as addressing concerns which relate to community safety planning i.e. location, facilities, services and worker behaviour expectations and impacts.</p>
10.15	<p>Relevant Project EIS Section: Section 17- Social Worker Accommodation: The section of the SIA that deals with Workforce Accommodation (17.3.2) also appears to mix together BMA activity with regard to temporary worker accommodation, the provision of BMA housing in Moranbah, and local housing affordability and availability issues more generally. As a result it is very difficult to assess the adequacy of BMA's response to these issues in the current draft. For example, it is not clear how the information supplied in 17.3.3 will address project housing impacts/ housing demand. The SIA states that existing housing demand is being met through the six dot points on page 17-6. The term "existing housing demand" is not clear. Are the listed strategies meeting demand</p>	<p>BMA continues to operate existing mines in the Moranbah region. As part of its ongoing operations BMA addresses accommodation requirements for it's workforce on an ongoing basis. The points referred to in 17.3.3 of the EIS provide solutions to current accommodation requirements via measures which have been undertaken to date. These include:</p> <ul style="list-style-type: none"> <li>■ The development of 25 transit houses and four additional houses completed in December 2008.</li> <li>■ Up to 100 blocks in Moranbah to be developed, as well as 16 new residences.</li> <li>■ Subdividing the north east of Moranbah, with at least 100 residential lots and 200 unit sites.</li> </ul>

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	<p>created from existing projects? Or will they mitigate demand generated by the proposed Daunia and Caval (and Goonyella) projects?</p>	<ul style="list-style-type: none"> <li>■ The development of an additional 84 allotments in Dysart.</li> <li>■ The development of the first stage of the Goonyella Riverside Mine accommodation village. This facility provides accommodation for 550 fixed term contractors.</li> </ul> <p>BMA is planning for future accommodation requirements through concept planning proposed for additional land holdings in Moranbah and Dysart. In this section of the EIS it also states that “Over 1500 housing units would be gradually developed to cater for the increased workforce and their families.” These latter measures are related to Caval Ridge. Daunia is not covered within the Caval Ridge EIS document.</p>
10.16	<p>Relevant Project EIS Section: Section 17- Social Worker Accommodation: SIA section on Workforce Accommodation (17.3.2): It is not clear whether construction workers will be living at the temporary workers camp just while on shift or will they be DI/DO FI/FO on their breaks? The SIA does not address this issue including impacts on towns such as Mackay where worker’s families may reside permanently. As noted above, the SIA does not consider any regional impacts on social infrastructure or link with any regional planning. These regional impacts, especially the environs of Mackay need to be addressed in the SEIS and the proposed SIP.</p>	<p>BMA does not intend for temporary workers to reside in accommodation villages while they are on their breaks.</p> <p>BMA also believes it is a matter of personal choice as to where individual temporary workers choose to reside on a permanent basis.</p> <p>This project is scheduled to commence construction in mid 2011 with production commencing in 2014. The makeup of the workforce and the primary place of residence of workers will be determined at the time of recruitment. Any attempt to assess the impacts on a specific area away from the Moranbah region at this point in time may lead to inaccurate assumptions.</p>
10.17	<p>Relevant Project EIS Section: Section 17- Social Worker Accommodation: SIA section on Workforce Accommodation (17.3.2): What standard of worker accommodation is to be provided? Has this been communicated to the community?</p>	<p>The construction workforce will be accommodated in a purpose built facility with ensuited rooms and appropriate amenities.</p> <p>Accommodation provided for the operational workforce will depend on the needs of that workforce.</p>
10.18	<p>Relevant Project EIS Section: Section 17- Social Housing Affordability and Availability: It is not clear from the information in the SIA whether BMA’s current housing strategies are making a negative or positive contribution to housing affordability and availability in Moranbah. There is not</p>	<p>Accommodation issues are discussed in Section 17.4.5 and 17.5.6 of the EIS. BMA is the largest provider of developed land and accommodation in Moranbah. BMA will continue to develop accommodation options for our workforce, including options for those who choose to reside in Moranbah. BMA also has a broader accommodation program for the region and is</p>

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	<p>enough quantitative information provided to assess this matter. For example, how has BMA conducted an analysis of accommodation supply and demand? Has this analysis taken into account only construction and operational workers, is it based on a range of workforce scenarios (ie % of local sourced employees vs DI/DO or FI/FO) or just the one presented in the SIA. Or have the needs of other residents, and PIFU population growth scenarios also been taken into account in assessing demand and supply? Levels of demand will also be influenced by other major projects that proceed. Have these been taken into account? What is the ISC view on the ability of the existing area to meeting future needs? What are strategies that BMA could contribute to that will contribute to the long term sustainability of Moranbah as a community hub?</p>	<p>committed to providing suitable accommodation for the Caval Ridge Project workforce.</p> <p>A majority FIFO workforce at the proposed Caval Ridge mine is likely to reduce the impact on existing community infrastructure and services and is not expected to add to the demand for available housing stock.</p> <p>While BMA does not play a direct role in providing affordable housing for the community, its commitment to providing housing and accommodation for its business needs reduces demand drivers on housing, therefore decreasing housing demand and increasing housing affordability.</p> <p>BMA's Planning and Development Manager attends the monthly Isaac Regional Council meetings to enable effective information sharing around future project activities including housing needs. BMA engages with Government on a range of housing initiatives to address regional concerns. BMA has a dedicated Communities Team and regularly run Community Network Groups throughout the region to provide information and feedback on community needs and requirements including issues related to accommodation affordability and demand.</p>
10.19	<p>Relevant Project EIS Section: Section 17- Social DIP understands that the Urban Land Development Authority (ULDA) has recently had discussions with BMA about progressing a housing affordability strategy for resource communities with Moranbah being considered as one possible site for the declaration of an urban development area.</p>	<p>BMA is not in a position to speculate on the outcome of State Government initiatives.</p>
10.20	<p>Relevant Project EIS Section: Section 17- Social While DIP appreciates that the development of any such strategy is at the preliminary stage, any specific housing and accommodation related actions identified through these discussions or with the Isaac Regional Council that are relevant to the Project or to the BMA BBCGMP broader housing and accommodation interests should be incorporated into the SIP.</p>	<p>BMA is not in a position to speculate on the outcome of State Government initiatives.</p>
10.21	<p>Relevant Project EIS Section: Section 15.1- Indigenous</p>	<p>BMA is developing an Indigenous Strategy aimed for release in late FY10/early</p>

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	<p>Cultural Heritage</p> <p>The BMA proposal to develop an Indigenous Engagement Strategy to address training, education, employment and business development opportunities is strongly supported. A more detailed description of this initiative including detail on Indigenous aspirations for education, training, employment and business development opportunities directly or indirectly linked to the Project should be included in the SIP. The development of this strategy should be linked to the State and Commonwealth's National Indigenous Reform strategy-Closing the Gap.</p>	<p>FY11. BMA will continue to engage with Government in the development of this strategy.</p>
10.22	<p>Relevant Project EIS Section: Section 15.1- Indigenous Cultural Heritage</p> <p>A coordinated approach will ensure that responses to impacts on the Indigenous community, and any benefit strategies are comprehensive and integrated within the overall social impact management for the Project. For example, the SIA Unit is concerned that Indigenous people employed in either cultural heritage work or in other Project-related jobs may have no choice other than to reside in workers camps with Wet Canteens when some community members have expressed the wish to stay in dry areas. This is of particular concern where young people may be accompanying elders on cultural heritage surveys to learn about their culture. Actions to address the issue of culturally appropriate accommodation facilities should be identified in the SIP.</p>	<p>BMA will take these comments into consideration during the development of the BMA Indigenous Strategy. Any strategic initiatives will be established and managed in a culturally appropriate way. The strategy will be developed in consultation with BMA's Traditional owners and the broader Indigenous community.</p>
10.23	<p>Relevant Project EIS Section: Section 15.1- Indigenous Cultural Heritage</p> <p>The cultural heritage section identifies that increased BMA activity in the region is likely to have a significant impact on Indigenous cultural property, particularly along creeks/watercourses where most artefacts still remain in situ.</p>	<p>BMA has in place a comprehensive Cultural Heritage Management Program. The BMA Permit to Disturb system is used to ensure areas are surveyed for Indigenous Cultural Heritage artefacts and mitigation measures implemented prior to disturbance of those areas.</p>

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10.24	<p>Relevant Project EIS Section: Section 15.1- Indigenous Cultural Heritage</p> <p>A holistic approach to the development of Indigenous initiatives should be pursued by BMA in the development of any strategies. For example, links between strategies to avoid or minimise the impacts of BMA Growth Projects on Indigenous cultural heritage and other Indigenous partnership initiatives aimed at strengthening and revitalising Indigenous cultural activities in the region should be explicit in the SIP given that social, cultural, spiritual, and economic issues are closely interlinked in Indigenous culture.</p>	<p>BMA will take these comments into consideration during the development of the BMA Indigenous Strategy.</p>
10.25	<p>Relevant Project EIS Section: Section 20- Cumulative Impacts</p> <p>The SIA (17.5.11) identifies that project construction and operation would contribute to cumulative impacts through increased pressures on emergency services, health care and housing.</p> <p>The cumulative impact section (page 20-9) identifies housing shortages and affordability, skill shortages, and increased traffic on the Peak Downs Highway as key issues facing the community and states that without action, these issues will result in significant social impacts in the study area.</p> <p>The links between 17.5.11 and page 20-9 should be clarified.</p> <p>BMA's response is to develop a SIP to manage the overall impacts of the project and in particular to manage the overall impacts of the project in consideration of the cumulative impacts of mining in the study area and region.</p>	<p>BMA will proactively monitor and work to mitigate potential impacts on the community and the local economy. At the same time, BMA will work to maximise the benefits of planned and sustainable growth on the resources industry in Moranbah.</p> <p>BMA is currently working with the Queensland Resources Council to provide the State Government with workforce projects to enable a cumulative assessment of resourcing requirements across agencies. BMA would be willing to discuss participation and contribution to an independent body to effectively assess the cumulative impacts of the resource industry across the various operations in the region.</p> <p>With multiple operations in the region, it is considered appropriate for BMA to manage and mitigate potential impacts of combined BMA operations.</p>
10.26	<p>Relevant Project EIS Section: Section 20- Cumulative Impacts</p> <p>There are no clear links made between the proposed SIP and the BMA proposal that the government fund a regional</p>	<p>At the time of submitting the EIS, BMA conducted meetings with representatives from the Department of Infrastructure including the Deputy Director General, Gary White (January 2008) regarding this proposal. The</p>

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	<p>economic and social infrastructure master planning exercise encompassing the northern Bowen Basin and Mackay, which takes into account the strong medium and long-term coal industry growth outlook.</p>	<p>Deputy Director General requested that the proposal be further developed in conjunction with DIP's Regional Office. BMA's Vice President of Government Relations also discussed the proposal with the Director General from DIP, and the then DTRDI.</p> <p>The proposal was developed in conjunction with the Mackay Whitsundays Regional Economic Development Corporation for whom it was identified as a priority project. Feedback to MWREDC from the regional DIP office was that it would not be supported at that time. BMA still believes this is a strategic priority Government project however BMA will not pursue this further, at this time, following Government feedback. A draft proposal is included as Appendix M4.</p>
10.27	<p>Relevant Project EIS Section: Section 20- Cumulative Impacts The SIAU, DIP is not aware of any BMA proposal made/submitted to the Queensland Government for such a study and would appreciate any further details of how this proposal has been advocated/prosecuted with government ie correspondence, records of meetings, participation in regional planning meetings etc.</p>	<p>See above.</p>
10.28	<p>Relevant Project EIS Section: Section 20- Cumulative Impacts Table 20.1 says that BMA will make contributions to road upgrades and pavement maintenance. There should be a commitment in the SIP to develop a plan in consultation with the community and local stakeholders that ties road safety issues resulting from increased traffic and the location of the mine to any investments in improving road infrastructure (listed in the transport section of the table).</p>	<p>BMA regularly engages with DTMR who are supportive of the initiatives and mitigations outlined for the Caval Ridge Project. BMA has provided DTMR with the information required by government to enable them to address the cumulative impacts of the project. BMA is supportive of initiatives to improve road safety.</p>
10.29	<p>Relevant Project EIS Section: Section 20- Cumulative Impacts The comment in relation to cumulative social impacts (increased construction and operational workforce) is very vague. All that is said is that BMA will continue consultation with a view to developing control strategies to minimise the impacts.</p>	<p>BMA is committed to providing suitable accommodation for the Caval Ridge Project and will proactively monitor and mitigate potential impacts on the community and local economy while working to maximise the benefits of planned and sustainable growth of the resources industry in Moranbah.</p>

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10.30	<p>Relevant Project EIS Section: Section 20- Cumulative Impacts The SIA should comply with page 96 of the terms of reference with respect to the cumulative impact assessment requirements. (The assessment of impacts should describe the likely response of affected communities and identify possible beneficial and adverse impacts (both immediate and cumulative. These impacts should be considered both at the regional and local level and identify measures to address the impacts by the proponent, and local and State authorities and specify the cumulative impact assessment methodology utilised including how this is underpinned by community engagement).</p>	<p>The Caval Ridge EIS recognises potential local and regional impacts as well as the cumulative impacts of operations across the region wherever the information is available.</p> <p>BMA recognises the contribution that community activities make towards overall business strategy. BMA's commitment to strong communities is embedded in its Five Year Business Plan.</p> <p>Since the completion of the SIA, BMA has developed a draft Communities Strategy intended for launch in mid FY10. A summary of the strategy is included in Appendix M1 (BMA Draft Communities Strategy Summary). The summary identifies BMA's priority projects and broad timelines. To ensure BMA's community investment is coordinated, strategic and delivers the best outcomes for the community, BMA has developed a Community Planning approach to manage community investment activities over the next five years.</p> <p>This approach has been devised with reference to Queensland Government population projections, Government policy, proposed mining development in the Bowen Basin and extensive consultation with stakeholders.</p> <p>BMA's goal is to make the Bowen Basin communities more liveable; contribute to safe, healthy, skilled and vibrant BMA communities; and provide attractive lifestyle options for BMA's workforce.</p> <p>BMA will continue to regularly consult with local government and community service agencies to ensure best outcomes for BMA operations, our employees and our communities in line with organisation polices and standards.</p> <p>BMA is currently working with Queensland Resources Council to provide the State Government with workforce projects to enable a cumulative assessment of resourcing requirements across agencies.</p>
10.31	<p>Relevant Project EIS Section: Section 10- Air Quality The Moranbah Growth Management Group (MGMG) developed a strategic plan that identified a greenfield site to the south-west of the existing Moranbah township as the site for future residential development to improve housing availability in</p>	<p>At the time of commencing the EIS and the original modelling presented in the EIS, the PM<sub>10</sub> limits were 150µg/m<sup>3</sup>. Based on this the air quality would not exceed compliance levels.</p> <p>Under normal operating conditions the Caval Ridge Project will not sterilise land identified as a future growth area for the Moranbah township through the</p>

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	<p>Moranbah.</p> <p>The air quality, in the modelling for years 2 and 20, will exceed 50<math>\mu</math>g/m<sup>3</sup> at the site identified as the future urban growth area for the Moranbah township. It appears the air quality modelling undertaken to date did not take into consideration the future urban growth area for Moranbah that was identified through the MGMT process and the planning scheme process for the Belyando Shire Integrated Planning Act 1997 (IPA) planning scheme. It is important to note BMA had involvement in both planning processes.</p> <p>Based on the air quality modelling presented in the Caval Ridge Mine EIS, the development of the Caval Ridge Mine site would adversely affect and potentially sterilise the development of the greenfield site to the south-west of the existing Moranbah township to cater for future growth in this part of the Bowen Basin.</p> <p>The Caval Ridge Coal Mine project is to operate in a manner that does not sterilise land identified as future growth areas through the MGMT planning process and IPA planning scheme process for the Moranbah township (ie reduce mine footprint and subsequently reduce air quality impacts).</p>	<p>MGMT planning process and IPA planning scheme process.</p> <p>Since the submission of the Caval Ridge EIS there have been changes to the project in response to submissions received and due to further optimisation of the project design. These include dust mitigation measures which are described in Sections 2 and 5. Mitigation measures and detail of the proposed monitoring program are presented in of the revised EMP.</p> <p>Current modelling indicates that the identified site will not be adversely affected and that the future development of this site is still viable. The potential air impacts on this area are presented in the supplement air report figures (Appendix B).</p>
10.32	<p>Relevant Project EIS Section: Section 17- Social , Section 20- Cumulative Impacts</p> <p>It is acknowledged that BMA is ensuring the construction of 55 dwellings in Moranbah and has already obtained the relevant approvals for the Denham Village construction camp which will house the vast majority of the construction workforce.</p> <p>Although the new residential developments in Moranbah will potentially help to relieve some of the housing demand pressures, the Central Region Division has some concerns about whether they can meet the cumulative demands of the proposed mining projects in the area. In adequately assessing</p>	<p>It is acknowledged that BMA is ensuring the construction of 55 dwellings in Moranbah and has already obtained the relevant approvals for the Denham Village which will accommodate the vast majority of the construction workforce. BMA is committed to providing suitable accommodation for both construction and operation workforces for all BMA growth projects.</p> <p>BMA continues to operate existing mines in the Moranbah region. As part of its ongoing operations, BMA addresses requirements for accommodation on an ongoing basis. Examples of measures undertaken to date include:</p> <ul style="list-style-type: none"> <li>■ The development of 25 transit houses and four additional houses completed in December 2008.</li> <li>■ Up to 100 blocks in Moranbah to be developed, as well as 16 new</li> </ul>

ID	Major Issues- Summary	Response
	<p>the cumulative impacts consideration is to be given to new mine, or mine expansion projects, where known for the area. For example, construction and operational workforce numbers are known for the proposed Daunia and Caval Ridge mine, as well as the Goonyella/ Riverside mine expansion. For these three projects the construction workforce during peak periods may be as high as 2,550 and the operational workforce may be 1,005.</p>	<p>residences.</p> <ul style="list-style-type: none"> <li>■ Subdividing the north east of Moranbah, with at least 100 residential lots and 200 unit sites.</li> <li>■ The development of an additional 84 allotments in Dysart.</li> <li>■ The development of the first stage of the Goonyella Riverside Mine accommodation village. This facility provides accommodation for 550 fixed term contractors.</li> </ul> <p>Planning for future accommodation requirements includes concept planning proposed for additional land holdings in Moranbah and Dysart.</p>
10.33	<p>In Section 17 and Appendix P it is noted the proponent has established a potential breakdown of where the operational workforce will be sourced from, or where they will reside. For example, the break up is 70% of the 500 operational workforce will be fly-in/fly-out or drive-in/drive-out, 10% will potentially be sourced from the existing community, with 20% being new to the community. The possible 350 persons driving to and from work has the potential to exacerbate the already stressed road network in the WHAM region, particularly the Peak Downs Highway.</p> <p>More detail about the proponent's specific strategies to mitigate accommodation impacts should be provided.</p> <p>Consideration needs to be given to the cumulative impacts on accommodation and the road network from the workforce associated with this mine and other mines in the region.</p>	<p>BMA is committed to providing suitable accommodation options for its workforces. The implementation of a structured FIFO workforce for the Caval Ridge Project is expected to reduce demand for local accommodation and also reduce the number of people choosing DIDO working arrangements.</p> <p>FIFO workers will be accommodated in a high standard, purpose built accommodation village. The accommodation village will be located within easy travelling distance to site. Travel between site and accommodation will be by bus.</p>

## 4.2 Public Submissions

### 4.2.1 Construction, Forestry, Mining & Energy Union

ID	Major Issues- Summary	Response
11.01	Relevant Project EIS Section: Section 17 – Social A scientifically based Trigger Action Response Plan (TARP) be set up to control the activities occurring on site that could impact on near neighbours to the project and the town of Moranbah.	BMA will develop and implement an ISO 14001 Environmental Management System for the Caval Ridge Mine. This system will include objectives and targets and performance criteria to manage significant environmental impacts within BMA's control. In the event that these criteria are exceeded, responses are initiated and actions/improvements documented as part of the systems continuous improvement.
11.02	Relevant Project EIS Section: Section 17 – Social BMA is to include free provision of land for housing construction for State Government and Council workers, community and emergency accommodation. If this cannot be done from the existing land stock BMA holds, then BMA must work with the relevant Local and State Government authorities to make free land available.	BMA is currently the largest provider of developed land and accommodation in Moranbah. While BMA does not play a direct role in providing affordable housing in the community, we engage with Government on a range of housing initiatives to assist in addressing regional concerns.
11.03	Relevant Project EIS Section: Section 17 – Social BMA must make a contribution to the relevant Council area for the increased infrastructure required.	BMA continues to provide regional councils with significant funds for rates and special levies. During the 2008/2009 financial year BMA provided over \$16 million in funds for rates and levies as well as contributing \$1,417 million to the Queensland Government in Coal Royalties.
11.04	Relevant Project EIS Section: Section 17 – Social That is BMA must put up the funds necessary to cater for the new housing developments in coastal population centres.	BMA is currently working with Government agencies on a range of housing initiatives to assist in addressing regional concerns.
11.05	Relevant Project EIS Section: Section 17 – Social BMA to commit to housing assistance packages in Moranbah for ALL its employees who wish to reside in Moranbah or Dysart as per existing housing schemes for these towns. As part of this commitment BMA is to ensure there are housing blocks and housing available.	BMA is the largest provider of developed land and accommodation in Moranbah and will continue to develop accommodation options for our workforce including those who choose to reside in Moranbah.
11.06	Relevant Project EIS Section: Section 17 – Social BMA make meaningful contributions to the Regional Council to	BMA continues to provide regional councils with significant funds for rates and special levies. During the 2008/2009 financial year BMA provided over

ID	Major Issues- Summary	Response
	<p>offset the costs associated with its proposed mine. This is to include but not be limited to:</p> <ol style="list-style-type: none"> <li>1. Purchase and transfer of additional water allocation to cater for the additional water supply required.</li> <li>2. Capital allocation to the Regional Council for additional waste water and rubbish disposal.</li> <li>3. Additional council road maintenance costs.</li> </ol>	<p>\$16 million in funds for rates and levies as well as contributing \$1,417 million to the Queensland Government in Coal Royalties.</p> <p>BMA are the major water supplier to the Moranbah community and will continue to ensure that appropriate supply is maintained in accordance with current agreements. BMA has made a significant contribution to deliver Burdekin water via the new Burdekin Pipeline to allow further flexibility with water delivery arrangements to the township of Moranbah and surrounding operations.</p> <p>BMA continues to work with council to ensure the community impacts of our operations are managed.</p>
11.07	<p>Relevant Project EIS Section: Section 17 – Social</p> <p>BMA make housing and infrastructure donations to upgrade and ensure sufficient accommodation for police, ambulance, hospital and other medical facilities to cater for the increased call on their services. This is to take account of multiplier effects.</p>	<p>BMA has undertaken to provide appropriate accommodation for their workforce and is committed to reducing impacts on local communities.</p> <p>BMA has a dedicated Planning and Development Manager who works closely with local councils to ensure that proposed development enhances the appeal of Bowen Basin communities and is attractive to our future generation of employees. While the housing of government employees remains the responsibility of the appropriate Government authority, BMA actively works with local service providers and agencies to provide assistance wherever possible.</p>
11.08	<p>Relevant Project EIS Section: Section 17 – Social</p> <p>Any camp construction for this mine not be placed beside the Moranbah access road with resultant high visibility to users of the road so it does not detract from the visual amenity of the town and its road access.</p>	<p>The village and location of the village will comply with relevant legislation. The design will consider visual amenity and security.</p>
11.09	<p>Relevant Project EIS Section: Section 17 – Social</p> <p>Performance indicators and triggered actions for the SIP to be finalised before any granting of approval to mine.</p>	<p>A Social Impact Plan (SIP) is not yet a legislated Government requirement. BMA will continue to engage with Government via the Queensland Resources Council (QRC) on the planned SIP intent and format.</p>
11.10	<p>Relevant Project EIS Section: Section 18 – Economic</p> <p>As a general statement in our view their assumptions about the percentage of likely employees who would wish to live in Moranbah is low and realistically they should be aiming at around 50% wishing to take up housing arrangements if given a free choice in the matter.</p>	<p>BMA intends to offer the Caval Ridge Project workforce the opportunity to work under FIFO arrangements.</p> <p>Providing a choice of employment options across the business allows BMA the greatest opportunity to attract an ongoing workforce to meet future operational needs. Feedback from our workforce studies indicate FIFO is an important attract / recruit strategy and employees working under formal FIFO</p>

ID	Major Issues- Summary	Response
		arrangements currently only make up approximately 3% of the BMA workforce. Despite BMA's ongoing commitment to community investment (over \$23 million in the 2008 / 2009 financial year) infrastructure and services in the region are already stretched. A FIFO workforce at the proposed Caval Ridge Mine is likely to reduce the impact on existing community infrastructure and services.
11.11	<p>Relevant Project EIS Section: Section 20 – Cumulative Impacts</p> <p>The cumulative impact on the township of Moranbah of all mines operating within a 40km radius to be evaluated. This especially applies to the Isaac Plains mine which also will be operating within 6km of Moranbah. Similar monitoring conditions be placed on Isaac Plains.</p>	<p>BMA will manage their operations to meet the requirement of approvals and the site environmental management system.</p> <p>BMA is committed to the continuous monitoring of particulate matter (as PM<sub>10</sub> and PM<sub>2.5</sub>) at a minimum of 2 locations (Moranbah Airport and a location yet to be determined between the Caval Ridge mine and the Township of Moranbah)</p>
11.12	<p>Relevant Project EIS Section: Section 13 - Transport</p> <p>BMA should therefore put up funding to offset the lower lifespan and immediately contribute 0.4% of the cost of replacing the road in a fund for this purpose. In addition they should immediately fund the next 2 priority overtaking lanes on the Peak Downs Highway.</p>	<p>BMA is continuing consultation with DTMR regarding the aspects of the proposed alterations along the Peak Downs Highway, including impacts to the road pavement from construction and operational activities.</p>
11.13	<p>Relevant Project EIS Section: Section 13 - Transport</p> <p>With the additional traffic generated especially with shift change and days off this left lane must be expanded to a two lane set up.</p>	<p>Section 13 of the EIS provides an assessment of the potential impact of the Caval Ridge project on the intersections in the vicinity of the project site. BMA will continue to work with DTMR to achieve a practical solution to managing the potential impacts of the project.</p>
11.14	<p>Relevant Project EIS Section: Section 10 Air Quality</p> <p>A 24hr/365 day per year real time atmospheric, noise and vibration monitoring program established within a 40km zone of Moranbah to gain this vital background information for the good of the community, current and future operation approvals. This monitoring must include permanent monitoring stations within and around the community of Moranbah for as long as mining occurs within a 40km radius. this cost should be shared by all current and proposed operators of mines within</p>	<p>BMA will manage their operations to meet the requirement of approvals and the site environmental management system.</p> <p>BMA is committed to the continuous monitoring of particulate matter (as PM<sub>10</sub> and PM<sub>2.5</sub>) at a minimum of 2 locations (Moranbah Airport and a location yet to be determined between the Caval Ridge mine and the Township of Moranbah).</p>

<b>ID</b>	<b>Major Issues- Summary</b>	<b>Response</b>
	this radius.	
11.15	Relevant Project EIS Section: Section 10 Air Quality Additional to this BMA is to commit to continuous monitoring around the Caval Ridge mine for the life of the project.	Changes to the proposed ambient air monitoring program are outlined in Section 4.1 of the Caval Ridge EIS supplementary air quality assessment included as Appendix B and includes continuous monitoring of particulate matter at a minimum of two locations (near the airport and another location to be determined) around the proposed mine.
11.16	Maintaining separation of fleets and cutting back scale of operations or ceasing operations be included as hard controls (triggers under a TARP system) for controlling the amount of dust generated.	Dust mitigation measures and operational dust controls will be developed and implemented as part of the site environmental management system. The effectiveness of the proposed controls will be evaluated on a regular basis as part of the EMS requirements. These controls are not expected to include the cessation or reduction of operations.
11.17	Relevant Project EIS Section: Section 10 Air Quality Methodology of assessment for air quality to be finalised before any granting of approval to mine.	The air quality assessment has been revised and impacts re-assessed as outlined in the Caval Ridge EIS supplementary air quality assessment included as Appendix B.

#### **4.2.2 The Autism Spectrum disorder Coalfields Support Group**

<b>ID</b>	<b>Major Issues- Summary</b>	<b>Response</b>
12.01	Relevant Project EIS Section: Section 17 – Social Expressed concern about the mine and it's affects on the liveability of the township of Moranbah.	On an annual basis BMA invests in priority projects across the Bowen Basin to enhance the liveability of its communities. This investment includes Council rates and infrastructure support, BMA's community partnerships program, local site sponsorship and donations and landmark projects. In the 2008/2009 financial year this amounted to \$23 million including regional infrastructure support; support for community programs; investing in significant projects to further improve towns; assisting in community skills growth; and local site initiatives based on each operation's support of local community initiatives and programs.  BMA is developing a workforce and community cohesion program which involves support and education programs for BMA workforces and the community. BMA is also developing a Communities Strategy to further refine and identify areas for priority. BMA is committed to ongoing investment in its

ID	Major Issues- Summary	Response
		communities of interest and Moranbah will continue to be a key area of focus for BMA.
12.02	<p>Relevant Project EIS Section: Section 17 – Social Community has a large problem with facilities and specialist help for children with autism; they do not receive and or obtain the level of care and education that is desired for them to reach their full potential; this all comes at a cost to the family, the stress of a child with a disability and then the lack of material support from their partner who has to stay and work here and the financial cost to that family with moving and starting new, take a terrible toll.</p>	<p>BMA has identified the issues with Autism related services and intends to raise the issues with other industries and the Sustainable Resource Communities Leadership Group. In addition to Autism related services, there is a clear need in our communities for increased paediatric specialist and allied health services which BMA will discuss further with Queensland Health. BMA financially supports a number of specialist services in Moranbah and has provided support to services that assist families with children who have Autism. BMA also plays a strong advocacy role in helping the community obtain vital Government services.</p>

#### 4.2.3 BBKKY Native Title Steering Committee

ID	Major Issues- Summary	Response
13.01	<p>Relevant Project EIS Section: Section 15.1 – Indigenous Cultural Heritage</p> <p>BBKKY disputes the proponent's claims in all EIS's relevant to the growth projects, that there has been comprehensive consultation and engagement process with local indigenous people and the recognised Traditional Owners (TO's).</p> <p>An agreement is suggested to be developed between the traditional owners and the proponent that centres on respect for the rights and interests of indigenous people and lays the foundation for intergenerational benefits. (BBKKY have in draft an agreement framework)</p>	<p>To date BMA has consulted with the Barada Barna Kabalbara and Yetimarla #4 group (BBKY) regarding matters of Native Title and Indigenous Cultural Heritage.</p> <p>BBKY made their application to the National Native Title Tribunal (NNTT) on 31 July 2001. The application was registered by the NNTT on 5 April 2002. The BBKY application was later dismissed.</p> <p>On 12 November 2008, a new claim over the geographical area covering the Caval Ridge project was submitted by the BaradaBarna (BB). This claim was registered by the NNTT on 9 October 2009.</p> <p>During the time when no registered claim was in place BMA maintained consultation with representatives of the previous registered claimants, the BBKY.</p> <p>BMA has entered into discussions with BB and is committed to ensuring that</p>

ID	Major Issues- Summary	Response
		the Native Title interests are captured during community consultation and the EIS process and that an agreed cultural heritage management plan (CHMP) is developed.
13.02	<p>Relevant Project EIS Section: Section 15.1 – Indigenous Cultural Heritage</p> <p>A Steering Committee consisting of TO's, proponent staff and relevant government agencies is suggested be set up for all the growth projects for the purpose of:</p> <ul style="list-style-type: none"> <li>▪achieving a strong partnership between the TO's and proponent that facilitates pathways for employment and training opportunities in collaboration with Government agencies.</li> <li>▪facilitate enhanced indigenous participation in the minerals industry and related economic activities through supported pathways from education and training to employment and enterprise.</li> <li>▪contribute to positive socio-economic outcomes for indigenous communities in supporting the Government's commitment to addressing indigenous disadvantage and strengthening indigenous economic development, the mineral industry's commitment to ensuring societal benefit through the development of natural resources and a shared minerals industry and government commitment to work with local indigenous communities and TO's and organisations to enhance community capacity and support a sustainable future.</li> <li>▪Facilitate enhance access to employment related training and supply chain opportunities.</li> </ul>	<p>BMA will continue discussions with BaradaBarna (BB) for the Caval Ridge project to continue the strong relationship between BMA and BB.</p> <p>BMA will also continue to work with the registered traditional owners for all growth projects.</p> <p>BMA is developing an Indigenous Strategy which will encourage indigenous employment and business opportunities in the community. This strategy is expected to be developed and ready for implementation by mid 2010. The strategy will investigate ways that indigenous employment can be incorporated into the project. BMA is consulting with Government (meetings have been held with DEEDI, DEIR, DEWR, DETA and QMEA) and the community to develop this strategy.</p>
13.03	<p>Relevant Project EIS Section: Section 15.1 – Indigenous Cultural Heritage</p> <p>A formalised engagement strategy should be developed in collaboration with TO's and Indigenous community members</p>	<p>BMA is developing an Indigenous Strategy which will encourage indigenous employment and business opportunities in the community. This strategy is expected to be developed and ready for implementation by mid 2010. The strategy will investigate ways that indigenous employment can be incorporated into the project. BMA is consulting with Government (meetings have been held</p>

ID	Major Issues- Summary	Response
	<p>Agreements outlining proponents commitment to employment, training and business opportunities for the TO's and Indigenous communities should be signed off pre approval of the projects. TO's have worked with mining companies for a long time and the trust in terms of the companies committing to employment and enterprise commitments is very low. There needs to be a process where there is continual monitoring and reviewing of agreed employment and business outcomes.</p>	<p>with DEEDI, DEIR, DEWR, DETA and QMEA) and the community to develop this strategy.</p>
13.04	<p>Current Cultural Heritage body does not represent all of the BBKY people as stated in the EIS. This group only represents one family group of traditional owners. BBKKY NT Steering Committee is currently in the process of removing Woora consulting under the CH Act as the BBKKY does not approve of them to act on our behalf as a CH body. Proponent need to engage with BBKKY NT Steering Committee. The Committee has requested a number of meetings with the proponent Project Manager to resolve matter with no positive actions to date. Request dates include 14 and 28th August and 7th and 21st September 2009.</p>	<p>To date BMA has consulted with the Barada Barna Kabalbara and Yetimarla #4 group (BBKY) regarding matters of Native Title and Indigenous Cultural Heritage.</p> <p>BBKY made their application to the National Native Title Tribunal (NNTT) on 31 July 2001. The application was registered by the NNTT on 5 April 2002. The BBKY application was later dismissed.</p> <p>On 12 November 2008, a new claim over the geographical area covering the Caval Ridge project was submitted by the BaradaBarna (BB). This claim was registered by the NNTT on 9 October 2009.</p> <p>During the time when no registered claim was in place BMA maintained consultation with representatives of the previous registered claimants, the BBKY.</p> <p>BMA has entered into discussions with BB and is committed to ensuring that the Native Title interests are captured during community consultation and the EIS process and that an agreed cultural heritage management plan (CHMP) is developed.</p> <p>Contact has been made with a representative of BBKKY, however, it should be noted that the BBKKY group currently has no known legal recognition, nor has any submitted Native Title Claims to the geographical area in which the Caval Ridge project is located. Such recognition or submitted claims would require BMA to either engage directly with or enter into any agreements with. BMA would maintain contact as necessary, should this situation change.</p>

#### 4.2.4 Cherwell Creek Coal Pty Ltd

ID	Major Issues- Summary	Response
14.01	<p>Relevant Project EIS Section: Section 3 Project Description Project Description TOR 1.2.2</p> <p>The EIS suggests that for the purposes of the Environmental Protect Act (EP Act) the “Project” is just that part of the MLA 70403 that is north of (but not including) the reject stockpile know as “Black Mountain”. However Section 2.2 and may other parts of the EIS confirm that the Project also includes the extraction of coal and other activities that are to be conducted on ML 1775 (as well as MLA 70411 and MLA 70412). This confirmed by the attached Slide 36 from the BHP Billiton Preliminary Results Presentation of 12 August 2009, which states that the Caval Ridge Project is in reality, an expression of the Peak Downs Project. Therefore, the Project for the purposes of the EP Act properly includes the whole of the Peak Downs Project.</p> <p>In addition, as MLA70403 includes Black Mountain, the whole of the area the subject of MLA70403 should be included as part of the Project, as well as MLA70411 and MLA70412.</p> <p>The result is that the EIS does not properly describe the Project and does not satisfy the Terms of Reference in that: The whole of the area the subject of MLA70403, ML1775, MLA70412 and MLA70411 is not described as part of the Project, or completely depicted in the EIS.</p> <p>The boundaries of MLA70403 are misdescribed.</p> <p>It does not set out the full intended purpose of MLA70403 (in relation to Black Mountain).</p> <p>It does not set out a rehabilitation or environmental management plan for the whole of the area the subject of MLA70403, ML1755, MLA70412 and MLA70411.</p> <p>The EIS is defective in that it fails to deal with the illegal mining</p>	<p>The Caval Ridge Project and the Peak Downs Mine are separate projects.</p> <p>The Caval Ridge Project footprint is properly described, except that the EIS mistakenly included the area covered by MLA 70412 as part of MLA 70403 and the Caval Ridge Project. This area is not part of the Caval Ridge Project and this mistake has now been corrected (Section 2).</p> <p>Existing Peak Downs Mine operations – whether on ML 1775 or on part of the area covered by MLA 70403 – are not part of the Caval Ridge Project and are operated under separate approvals and EMP.</p> <p>MLA 70411, which sits to the East of ML 1775, is not part of the Caval Ridge Project.</p>

ID	Major Issues- Summary	Response
	<p>that has been conducted by Peak Downs Mine by creating the reject coal stockpile known as “Black Mountain” outside of the existing mining lease areas.</p> <p>The maps contained within the EIS are incomplete and misleading in that they do not show the whole of the area the subject of MLA70403, ML1775, MLA70412 and MLA70411 and in particular that part of MLA70403 which covers Black Mountain.</p> <p>It is noted from the <b>attached</b> (<i>in submissions</i>) Slide 36 from the BHP Billiton Preliminary Results Presentation of 12 August 2009 is not intended to operate the Project until 2017 or later. There is therefore ample time to correct the above errors.</p>	
14.02	<p>Relevant Project EIS Section: Section 3 - Project Description</p> <p>Technical Studies Outstanding</p> <p>Section 2.2 of the EIS states that “...a current pre-feasibility study is nearing completion on the techno economic evaluation of extracting the resource”.</p> <p>Therefore, there will be changes to the mining operation to be conducted at the Peak Downs Expansion Project (Caval Ridge) resulting from the conclusions made in that study.</p> <p>This would result in the operations to be conducted not matching the operations as described in the EIS.</p>	<p>The current studies being undertaken are focused on Caval Ridge being a separate operation from Peak Downs Mine. All studies related to the Caval Ridge EIS have been completed and the results of the assessments have been included in the EIS and this Supplementary EIS.</p> <p>Where changes to operations have been made due to optimisation and addressing EIS submissions, these have been described in Section 2 – Amendments to the Project Description.</p>
14.03	<p>Relevant Project EIS Section: Section 4 - Land</p> <p>Land resource and location</p> <p>The location of the Project is not properly describes as required by the Terms of Reference. The boundaries of MLA70403 as shown in the EIS are inaccurate and misleading</p>	<p>The Caval Ridge project footprint is properly described, except that the EIS mistakenly included the area covered by MLA 70412 as part of MLA 70403 and the Caval Ridge project This area is not part of the Caval Ridge Project and this mistake has now been corrected (Section 2).</p>

ID	Major Issues- Summary	Response
	and the land the subject of ML1775 and MLA70412 have not been included as part of the Project.	
14.04	<p>Resource</p> <p>The costs of the Project have not been properly set out in the EIS. The resource contained with MLA70403 has not been properly described.</p> <p>In particular the resources contained within the cancelled mining tenures MDL364 and MDL366 have not been set out in the EIS. No case of justification for the sterilisation of these resources has been made.</p> <p>No alternative which would prevent the sterilisation of these resources has been set out.</p> <p>Section 18 does not discuss the economic cost of sterilisation of the coal resources contained within MLA70403.</p>	<p>BMA believes that the EIS sufficiently addresses the geological overview, coal seam geology, resource identification and resource recovery requirements of the Terms of Reference.</p> <p>This view is supported by the Department of Employment, Economic Development and Innovation (DEEDI), per the 17 August email from Jim Grundy, Executive Director, Statewide Services to the EIS Project Manager.</p> <p>The Caval Ridge Project will best develop the mineral resource, minimise resource wastage and avoid unnecessary sterilisation. The State, by passing the <i>Mineral Resources (Peak Downs Mine) Amendment Act 2008</i>, supports this view. Extracts from the second reading speech of the Minister of Mines and Energy, Geoff Wilson MP is presented in Appendix L.</p>
14.05	<p>Relevant Project EIS Section: Section 3 - Project Description</p> <p>Operations and extent of mining</p> <p>The EIS does not properly detail the proposed operations as required by the Terms of Reference. The EIS stated that the mining area for the Project is contained within ML1775 and that MLA70403 is required for 'infrastructure' purposes. This is incorrect and misleading. As can be seen from the <u>attached (in submission)</u> 3 photos, the Proponent is currently 'mining' as that term is defined in the Mineral Resources Act on land contained with the proposed boundaries of MLA70403. The EIS does not detail these illegal operations or set out these current operations.</p>	<p>The Caval Ridge Project and the Peak Downs Mine are separate projects. The EIS is focussed on the Caval Ridge project.</p> <p>The Caval Ridge Project footprint is properly described, except that the EIS mistakenly included the area covered by MLA 70412 as part of MLA 70403 and the Caval Ridge Project. This area is not part of the Caval Ridge Project and this mistake has now been corrected (Section 2).</p> <p>Existing Peak Downs Mine operations – whether on ML 1775 or on part of the area covered by MLA 70403 – are not part of the Caval Ridge Project and are operated under separate approvals and EMP.</p> <p>MLA 70411, which sits to the East of ML 1775, is not part of the Caval Ridge Project.</p>

ID	Major Issues- Summary	Response
14.06	<p>Relevant Project EIS Section: Section 3 - Project Description</p> <p>Location and impacts of Pits and Dams</p> <p>The EIS does not describe the location and environmental impacts of pit water storage, raw water storage or hazardous dams (Dams).</p>	<p>The location and environmental impacts of pit water storage, raw water storage or hazardous dams is provided in Section 6 of the EIS. Additional information regarding the hazardous dam assessment has been included in this supplementary in Appendix H1.</p>
14.07	<p>Relevant Project EIS Section: Section 4 - Land</p> <p>Rehabilitation and decommissioning</p> <p>The EIS does not set out the options, strategies and methods for progressive and final rehabilitation for all of the area the subject of MLA70403 (or ML1775, MLA70411 or MLA70412). In particular no rehabilitation is proposed for the area within MLA70403 overlapping SL12/42239 and on which the proponent have illegally mined in the form of the reject stockpile known as 'Black Mountain'.</p>	<p>Section 4 of the EIS and the Final Void Land Form Plan (Appendix E1) describe BMA commitment to progressive rehabilitation of the Caval Ridge project site.</p>
14.08	<p>Relevant Project EIS Section: Section 3 - Project Description</p> <p>Impacts on Peak Downs Highway</p> <p>Section 3.5 and Figure 3.8 of the EIS indicates that a vertical realignment of the Peak Downs Highway will be constructed. However, the EIS does not deal with:</p> <ul style="list-style-type: none"> <li>■ The public safety impacts resulting from the public having to utilise a bridge next to major mining and earthmoving operations; and</li> <li>■ The light, noise, vibration and dust impacts on the vertical realignment or the general public utilising the vertical</li> </ul>	<p>The Peak Downs Highway Overpass will be designed and constructed to safety standards approved by DTMR. Anti-gawking screens will be installed to prevent road users from being distracted by mine operations while using the overpass.</p> <p>Potential impacts from light, noise vibration and dust will be managed to minimise the impact on road users.</p>

ID	Major Issues- Summary	Response
	realignment.	
14.09	<p>Relevant Project EIS Section: Section 3 - Project Description</p> <p>Environmental value and management principles</p> <p>The current environmental value and the current use of all of the land contained within MLA70403, ML1775, MLA704012 and MLA70411 have not been fully described in the EIS.</p>	<p>The Caval Ridge Project footprint is properly described, except that the EIS mistakenly included the area covered by MLA 70412 as part of MLA 70403 and the Caval Ridge Project. This area is not part of the Caval Ridge Project and this mistake has now been corrected (Section 2).</p> <p>The environmental values and current landuse of the Caval Ridge Project is correctly described in Section 4 of the EIS.</p>
14.10	<p>Relevant Project EIS Section: Section 4 - Land</p> <p>Failure to deal with entirety of MLA 70403</p> <p>The EIS generally fails to meet the Terms of Reference in that it incorrectly describes the extent, boundaries and purpose of MLA70403, ML1775, MLA70412 and MLA70411 and does not detail or deal with the illegal mining currently occurring on SL12/42239 and within the proposed boundaries of MLA70403.</p> <p>Section 7 does not take into account all of MLA70403, ML1775, MLA70412 and MLA70411 in assessing the Project on groundwater. Section 7.2.3.1 does not refer to the reject stockpile Black Mountain.</p> <p>Section 8 does not discuss the terrestrial ecology of all of MLA70403, ML1775, MLA0412 and MLA70411. It does not detail the environmental value and potential impacts and mitigation measures for all MLA70403, ML1775, MLA70412 and MLA70411.</p>	<p>The Caval Ridge Project footprint is properly described, except that the EIS mistakenly included the area covered by MLA 70412 as part of MLA 70403 and the Caval Ridge Project. This area is not part of the Caval Ridge Project and this mistake has now been corrected (Section 2).</p> <p>The potential environmental impacts related to the project site is described in the Caval Ridge EIS and additional information is provided in this Supplementary EIS.</p>

ID	Major Issues- Summary	Response
	<p>Section 10 does not take into account all of MLA70403, ML1775, MLA70412 and MLA70411. Section 10.2.3 does not refer to or take into account the illegal mining form of Black Mountain occurring within the boundaries of MLA70403.</p> <p>In assessing the GHG emissions for the Project and climate change impacts of the Project in Section 11 not all of MLA70403, ML1775, MLA70412 and MLA70411 have been taken into account. As an example, the diesel combustion emissions of the equipment operating Black Mountain and the CO<sub>2</sub> emissions from the surface storage of this waste.</p> <p>Section 12 does not include noise and vibration logging or surveying for Black Mountain and the impact of the operational noise of Black Mountain has not been taken into account.</p> <p>Section 13 does not discuss the transport and traffic associated with the haul roads operating within MLA70403, ML1775, MLA70412 and MLA70411 or on Black Mountain.</p> <p>Section 15 does not discuss the impact of all of MLA70403, ML1775, MLA70412 and MLA70411 (see Figure 15.1)</p> <p>Section 19 does not detail or discuss the health, safety and risk issues associated with the reject stockpile known as Black Mountain, the remainder of MLA70403 or ML1775, MLA70412 and MLA70411.</p>	
14.11	<p>Relevant Project EIS Section: Section 6 – Surface Water</p> <p>Surface Water</p>	<p>Modelling for the construction and post construction phases has been undertaken and is provided in Appendix I2 of the EIS. Modelling was completed to the 1 in 100 ARI event.</p>



ID	Major Issues- Summary	Response
	<p>The EIS only shows surface water impacts for a Q50 and Q100 event.</p> <p>As well, Section 6 states that modelling has been done for construction and post construction phases, but that modelling has not been included in the EIS – only conclusions drawn from that modelling has been included.</p>	

#### 4.2.5 Community Submissions

The general community submissions made in response to the Caval Ridge EIS were presented as a combination of template petitions, template emails, letters or short reports. Many of these submissions represented the same comments and concerns and these have been presented below.

ID	Major Issues- Summary	Response
15.01	<p>Relevant Project EIS Section: Section 10 – Air Quality</p> <p>There was community concern raised about the potential health impacts that dust may have on the residents of Moranbah. This was focused on potential impacts on children’s health and an increase in the local asthma and hay fever rates. There was also concern on the potential for silicosis in the community and impacts from the blasting fumes.</p>	<p>Concern noted.</p> <p>Additional dust control measures and changes to ambient air monitoring program are outlined in the Caval Ridge EIS supplementary air quality assessment included as Appendix B.</p> <p>BMA will monitor potential dust impacts and apply additional mitigation measures if required.</p> <p>Although BMA provides significant contributions to the community through it’s community investment programs (over \$23 million in FY09) BMA is currently not involved in any health studies regarding potential dust impacts.</p>
15.02	<p>Relevant Project EIS Section: Section 10 – Air Quality</p> <p>There was community concern raised about the potential nuisance that dust deposited in the township of Moranbah may have. Some residents currently experience problems relating to increased levels of dust in the home, on the washing and cars and in the pool and rain water tanks.</p>	<p>The impacts of emissions of dust from the project site on dust levels within the Township of Moranbah and surrounding area has been re-assessed and results are presented in Appendix B of the Caval Ridge EIS Supplementary report.</p> <p>Results of the revised dispersion modelling suggest that the Caval Ridge project will contribute a maximum of 21µg/m<sup>3</sup> to the 24-hour average ground-level concentration of PM<sub>10</sub> at receptor locations within the Township of Moranbah under normal operating conditions.</p>

ID	Major Issues- Summary	Response
		<p>During worst-case 24-hour operating conditions, dust emissions from the Caval Ridge project are predicted to contribute a maximum of 33µg/m<sup>3</sup> to the 24-hour average ground-level concentration of PM<sub>10</sub> at receptor locations within the Township of Moranbah. The likelihood of optimal operational conditions (as modelled) occurring in combination with meteorological conditions that are associated with worst case dust impacts is estimated at 0.002% (equivalent to 1 day in 131.5 years).</p> <p>The annual average ground-level concentration of PM<sub>2.5</sub> is not predicted to exceed the EPP (Air) objective of 8µg/m<sup>3</sup> at any of the receptor locations under typical operations.</p> <p>Ground-level concentrations of TSP and dust deposition are not predicted to exceed the relevant project goals at any of the receptor locations included in the dispersion modelling.</p> <p>BMA have committed to a number of operational practices that are designed to minimise the impact of dust emissions from the site on local air quality. Realised impacts will be assessed via a comprehensive ambient air monitoring program as outlined in Section 4.3 of the Caval Ridge EIS supplementary Air Quality Assessment Appendix B.</p>
15.03	<p>Relevant Project EIS Section: Section 10 – Air Quality</p> <p>There was community concern raised about the potential visual impact of the mine relating to generated dust from the operation. This is in particular relating to the use of draglines and blasting.</p>	<p>The visual impacts of mining with specific relation to draglines will decrease as the mine progresses eastward towards the Moranbah Access Road. Visual plumes from blasting will be visible throughout the life of the project. However, the introduction of dust into the atmosphere during the daytime hours is preferable to other times during the day as daytime heating and convection will enhance plume dispersion. Operational practices associated with blasting require consideration of meteorological conditions at the time of blasting in order to minimise the potential for adverse impacts associated with this activity. In addition blasting at night is considered unsafe.</p> <p>The impacts of emissions of dust from the project site on dust levels within the Township of Moranbah and surrounding area has been re-assessed and results are presented in Appendix B of the Caval Ridge EIS Supplementary report.</p>
15.04	<p>Relevant Project EIS Section: Section 12 – Noise and Vibration</p> <p>There was community concern raised about the level of</p>	<p>All of these issues (blasting, off-site traffic noise and mobile machinery) have been assessed in the EIS using the appropriate guidelines/standards which</p>

ID	Major Issues- Summary	Response
	<p>potential noise generated from the mine and associated activities. This is in particular relating to blasting, additional off site traffic and mobile machinery on site particularly reversing alarms at night and the noise from the dragline operation.</p>	<p>have been developed to specifically address such issues and where practicable appropriate controls will be introduced.</p> <p>A detailed summary response to mobile machinery is provided above in Issue 4.73. In summary:</p> <ul style="list-style-type: none"> <li>■ 5 (of 12) owned by BMA where vacating the properties (when required) will be the form of mitigation.</li> <li>■ 3 (of 12) owned by Anglo where agreements need to be reached as to which form of mitigation (vacating, building treatments or silencing of plant) is applied</li> <li>■ 1 (of 12) owned privately where vacating or relocating the property is the only means of mitigation</li> <li>■ 3 (of 12) owned privately where the predicted exceedence is marginal (up to 3 dBA) where monitoring has been recommended to confirm the predictions before mitigation (vacating, building treatments) is implemented</li> </ul> <p>No mitigation measures were required to meet the noise criteria applicable to off-site traffic.</p> <p>6 locations were predicted to exceed the blasting limits. 5 of these properties are owned by BMA where vacating the premises (when required) will be the primary mitigation measure, however there are numerous changes to blasting techniques that are also available such as reducing the blast MIC and sequencing of blasts delays. The remaining property is owned by Anglo where agreements need to be reached as to which form of mitigation (vacating the property or modifying blasting techniques) is applied.</p>
15.05	<p>Relevant Project EIS Section: Section 12 – Noise and Vibration</p> <p>There was community concern raised about the level of existing ground vibration within the Moranbah township and the potential for the Caval Ridge Project to add to this disturbance. There was also concern over the damage that maybe caused by such vibration to homes and other infrastructure and the impact the vibration may have on sleep patterns especially for</p>	<p>All of these issues (ground vibration from blasting, building damage and sleep patterns) have been assessed in the EIS using the appropriate guidelines/standards which have been developed to specifically address such issues.</p> <p>By way of further explanation, the guidelines and standards cover both impacts to humans as well as to buildings.</p> <p>The site EMS will include a procedure for the management of complaints.</p>

ID	Major Issues- Summary	Response
	shift workers.	
15.06	<p>Relevant Project EIS Section: Section 13 – Transport</p> <p>There was community concern raised about the increased level of traffic that will be present on the road network around the project site as well as congestion and potential safety concerns on the Peak Downs Highway between Moranbah Access Road and Mackay.</p>	<p>The spatial extent of the proposed developments impact on the external road network has been defined in accordance with DTMR’s Guidelines for the Assessment of Road Impacts of Developments, that is where the mine’s traffic will exceed 5% of existing traffic volumes. The assessment is provided in Section 13 and Appendix N of the EIS.</p> <p>BMA will continue to work with DTMR to achieve a practical solution to potential impacts on the road networks around the project site.</p>
15.07	<p>Relevant Project EIS Section: Section 19 – Health Safety and Risk</p> <p>There was community concern about generic potential health issues that may be attributable to the project.</p>	<p>These potential health issues are addressed in the air quality and noise sections above. A comment was received about potential chemical spills being a safety issue. The handling of chemicals on site is addressed in Section 19.5.3 Hazard Identification and Assessment of the EIS.</p>
15.08	<p>Relevant Project EIS Section: Section 16 – Community</p> <p>A community member commented that the EIS is unreadable for the average community member</p>	<p>BMA recognises that an EIS document can be viewed by the community, government and various technical specialists as overly complicated and highly technical documents. To address this, BMA has produced a Community Overview booklet, providing easy-to-read summaries of each chapter in the EIS. The Community Overview is designed to provide a more accessible format for the community. A similar document will be prepared and made available for the supplementary EIS.</p> <p>In addition, the EIS document included an Executive Summary which as far as practicable presented the technical EIS information into a comprehensive summary of the key findings.</p>
15.09	<p>Relevant Project EIS Section: Section 17 - Social &amp; Section 18- Economic</p> <p>There was community concern about devaluation of homes as a result of the project.</p>	<p>The property market naturally fluctuates, depending on a variety of influences over a period of time. Increased mining activity and resource industry growth in Moranbah helps to strengthen the local economy.</p>
15.10	<p>Relevant Project EIS Section: Section 17 - Social</p> <p>There was community concern about camp accommodation for Fly-in – Fly-out (FIFO) workforces. The community raised</p>	<p>The design of the accommodation facilities is yet to be finalised, however visual amenity for both its occupants and the wider community will be considered as part of its design. Social support services will be put in place and the village facility will be of high standard and provide appropriate facilities and support</p>

ID	Major Issues- Summary	Response
	concerns about the location, visual amenity and potential behavioural issues that may be experienced at potentially male-dominated camps.	services. BMA is committed to workplace diversity and considers employment opportunities for all groups in the community. A priority for BMA is to continue its work in increasing opportunities for women within our workforce. BMA has engaged a dedicated Senior Advisor for Women's Employment to encourage greater female workforce participation. As such, the accommodation village will cater for both men and women and will be equipped with suitable facilities and management structures to promote acceptable behaviour.
15.11	Relevant Project EIS Section: Section 17- Social Community members raised concerns about impacts to community identity and lifestyle as a result of the Project and the potential loss of population as a result of negative impacts.	BMA actively supports local service providers and community groups to ensure community cohesion. BMA has a dedicated Communities Team focussed on whole-of-mine investment strategies in our communities. BMA runs Community Network Groups throughout the region to provide information and feedback on community needs and requirements. These groups are made up of community members and they are consulted on a range of community issues.
15.12	Relevant Project EIS Section: Section 17- Social Community members raised concerns about impacts to town infrastructure.	BMA continues to provide regional councils with significant funds for rates and special levies. During the 2008/2009 financial year BMA provided \$16 million in rates and special levies as well as contributing \$1,417 million to the Queensland Government in Coal Royalties. During 2008/2009 financial year, BMA worked closely with the Bowen Basin regional councils and Queensland Resources Council (QRC) to obtain approximately \$38 million for key social infrastructure projects from the Queensland Government. This included \$27 million through the Sustainable Resource Communities Fund and \$9.5 million for additional roads funding. A significant percentage of this benefited the Moranbah community including \$2 million for childcare; \$3.5 million for affordable accommodation projects; \$1.19 million to upgrade the Moranbah emergency services centre; and \$5 million for upgrades to the Peak Downs Highway.

ID	Major Issues- Summary	Response
15.13	<p>Relevant Project EIS Section: Section 17- Social and Section 18 - Economy</p> <p>Community raised concerns about the introduction of FIFO workforces, the impact on the local economy and the increase in transient workforces.</p>	<p>BMA intends to offer the Caval Ridge Project workforce the opportunity to work under FIFO arrangements. Providing a choice of employment options across the business allows BMA the greatest opportunity to attract an ongoing workforce to meet future operational needs. Feedback from our workforce studies indicate FIFO is an important recruitment strategy and employees working under formal FIFO arrangements currently only make up approximately 3% of the BMA workforce.</p> <p>This workforce will be in addition to the existing workforces who reside in Moranbah, and those who work under DIDO arrangements.</p> <p>Despite BMA's ongoing commitment to community investment (over \$23 million in the 2008 / 2009 financial year) infrastructure and services in the region are already stretched. A FIFO workforce at the proposed Caval Ridge Mine is likely to reduce the impact on existing community infrastructure and services.</p> <p>BMA is committed to proactively monitoring and mitigating potential impacts on the community and local economy. The planned and sustainable growth of the resources industry in Moranbah will assist in strengthening the local economy.</p> <p>To support an extended non-residential workforce, BMA is developing a Workforce and Community Cohesion Program to address social and community impacts. The Program is designed to ensure cohesion between BMA communities of interest and resident and non-resident workers. The Program includes elements such as: non-resident partner support programs; investigation of opportunities to increase the amount of goods and services brought locally on a cost-competitive basis, strategies to ensure accommodation villages are of a high standard and provide appropriate lifestyle attributes; and further investigation into existing support and education programs.</p> <p>BMA is also in the process of finalising its Communities Strategy which will provide a framework for ongoing community investment and community partnerships.</p> <p>BMA is committed to providing suitable accommodation for a FIFO workforce including the development of a high standard, purpose built accommodation village. The accommodation village will be located in an appropriate position</p>

ID	Major Issues- Summary	Response
		<p>within easy travelling distance to site. The design of the accommodation facilities is yet to be finalised, however visual amenity for both its occupants and the wider community will be considered as part of its design. Social support services will be implemented and the village accommodation will provide appropriate facilities for the workforce.</p> <p>The accommodation village is expected to help reduce the currently high demand for local housing and potentially improve affordability in the market, particularly for those not employed in the mining industry.</p>
15.14	<p>Relevant Project EIS Section: Section 17- Social A community member raised Lifestyle impacts as a result of an open cut mine as opposed to an underground mine.</p>	<p>The relatively shallow surface depth to coal at Caval Ridge and multi seam stratigraphy of the deposit are ideal for open cut mining extraction techniques. Underground mining was considered, however the seam geometry and thickness are not conducive to maximum resource recovery. This aspect is further discussed in Section 2.4.4 of the EIS.</p>
15.15	<p>Relevant Project EIS Section: Section 17- Social Community members raised concerns about increased rates.</p>	<p>The setting of rates is at Council discretion, however BMA continues to work with the Government to provide support and meet increased infrastructure requirements across the region.</p> <p>During the 2008/2009 financial year BMA provided \$16 million in rates and special levies as well as contributing \$1,417 million to the Queensland Government in Coal Royalties.</p> <p>During 2008/2009 financial year, BMA worked closely with the Bowen Basin regional councils and Queensland Resources Council (QRC) to obtain approximately \$38 million for key social infrastructure projects from the Queensland Government.</p>
15.16	<p>Relevant Project EIS Section: Section 17- Social Community Members raised concerns about health care and specialist medical services.</p>	<p>BMA currently supports and advocates for increases in services and facilities for the Moranbah Hospital including working to access funds through the Sustainable Resource Communities Fund.</p> <p>Through the Community Partnerships Program, BMA currently supports some medical staff in the region as well as overall community well-being.</p>
15.17	<p>Relevant Project EIS Section: Section 18- Economic Community member noted concerns that potential environmental impacts will have a negative impact on</p>	<p>BMA is committed to proactively monitoring and mitigating potential environmental impacts to reduce impacts on the community and the local economy. This includes continuing to be a good neighbour to the township of</p>



ID	Major Issues- Summary	Response
	economic development.	Moranbah and proactively managing environmental impacts to reduce potential negative outcomes. The planned and sustainable growth of the resources industry in Moranbah will assist in strengthening the local economy.
15.18	<p>Relevant Project EIS Section: Section 18- Economic</p> <p>Community member suggested BMA get more permanent workers into Moranbah to help maintain services as FIFO operations reduced growth and development possibilities.</p>	<p>Infrastructure and services in the Moranbah community are already stretched. BMA is working with Government agencies to address these issues and continues to advocate for funds for community infrastructure. At the same time BMA is committed to investing in the community. (BMA provided over \$23 million towards council rates and levies, infrastructure support and community investment programs in the 2008/2009 financial year).</p> <p>BMA has a high percentage of resident workers living in the region. Employees working under formal FIFO arrangements currently only make up approximately 3% of the overall workforce. BMA is committed to monitoring and mitigating impacts associated with an increased FIFO workforce and will continue its support for resident workers.</p> <p>To support an extended non-residential workforce, BMA is developing a Workforce and Community Cohesion Program to address social and community impacts. The Program is designed to ensure cohesion between BMA communities of interest and resident and non-resident workers. The Program includes elements such as: non-resident partner support programs; investigation of opportunities to increase the amount of goods and services brought locally on a cost-competitive basis, strategies to ensure accommodation villages are of a high standard and provide appropriate lifestyle attributes; and further investigation into existing support and education programs.</p> <p>BMA is also in the process of finalising its Communities Strategy which will provide a framework for ongoing community investment and community partnerships.</p> <p>BMA is committed to providing suitable accommodation for a FIFO workforce including the development of a high standard, purpose built accommodation village.</p> <p>The accommodation village is expected to help reduce the current high demand for local housing and potentially improve affordability in the market, particularly</p>



ID	Major Issues- Summary	Response
15.19	<p>Relevant Project EIS Section: Section 18- Economic Community members suggested a higher demand on Moranbah for supplies</p>	<p>for those not employed in the mining industry.</p> <p>BMA encourages suppliers wishing to supply business or services to contact BMA's Supply Group which is based in Mackay and which manages the procurement of goods and services for BMA operations.</p> <p>BMA Mackay Supply holds meetings with business across the Mackay and Bowen Basin regions, to detail BMA compliance requirements for prospective contractors and vendors. Mackay Supply group is well informed of the supply and business services capability within the region.</p> <p>BMA has commenced auditing its operation sites and the accommodation village that houses BMA contractors and staff, to determine existing practices with regard to buying locally and investing in local business. The audit outcomes may highlight additional local procurement opportunities.</p>



### 4.3 Errata

The following typographical errors were identified during the submission process and the corrections have been included below:

Advisory Agency	EIS Error
Department of Employment, Economic Development and Innovation	Relevant Project EIS Section: Section 1 Figure 1.2 (page (1-6) was incorrectly labelled Winchester Pit as Westminster Pit. This labelling error has been noted.
	Relevant Project EIS Section: Section 4 Figure 4.13 (page 4-23) has no legend. The revised figure is provided in the Appendix.
Department of the Environment, Water, Heritage and the Arts - Commonwealth	Relevant Project EIS Section: Appendix K Is figure 8.2a in Appendix K?- The correct reference is 4.2a
	Relevant Project EIS Section: Appendix K Is figure 8.5 in Appendix K? The correct reference is 4.2a
<b>Public Submission</b>	
Cherwell Creek Coal	The EIS mistakenly included the area covered by MLA 70412 as part of MLA 70403 and the Caval Ridge Project. This area is not part of the Caval Ridge Project and this mistake has now been corrected (Figure 3.1).

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## 5 Submissions and Responses – EIS Table of Contents

### 5.1 Introduction

#### 5.1.1 Summary of Submissions

The following submissions were received in relation to **Section 1 - Introduction** of the Project draft EIS:

- DERM requested that the proponent's environmental record and performance be described.
- DERM commented that a water licence under the *Water Act 2000* may be required to authorise the take of groundwater for dewatering purposes.
- QFRS seeks clarification from the "Authority Having Jurisdiction" (AJH) for the project on what above ground buildings and special structures will be assessed as assessable development and self-assessable development in accordance with the Integrated Planning Act (IPA) 1997 Schedule 8 and development that is exempt from assessment against a planning scheme as per the IPA 1997.

#### 5.1.2 Response to Submissions

##### 5.1.2.1 Environmental Record and Performance

All existing BMA operations have Environmental Management Systems certified to ISO14001, which means that they are subject to robust internal and external auditing programs. The Project will also operate under a certified EMS.

Information on BMA's environmental performance is provided in Appendix D1. In addition a copy of the BMA 2008 Sustainable Development Report is provided in Appendix D2. It provides details of BMA's environmental performance in the financial year ending June 2008. Key environmental performance issues since this time are outlined below.

- Blackwater Mine - Environmental Evaluation for Ramp 72 tailings decant water spill. Outcomes being implemented under a Transitional Environmental Program to address water management
- Goonyella-Riverside Mine Transitional Environmental Program for non EA compliant water releases in the 2008 Wet Season.
- South-Walker Creek Mine - Tailings line rupture incident. Investigated by Queensland DERM. Infringement notice and \$2,000 fine. Required to undertake an Environmental Evaluation / Audit of the tailings management system with outcomes to be implemented via a Transitional Environmental Program.

##### 5.1.2.2 Water Licence Requirement

In Queensland, a number of subartesian areas have been declared under the *Water Act 2000*. Some have been declared within water resource plans, while most have been declared under the *Water Regulation 2002*, both of which are subordinate legislation to the Act. Water licensing and development permit requirements for subartesian areas defined in the *Water Regulation 2002* are as follows:

- A water license is required to take or interfere with subartesian water, other than for the purposes specified within Schedule 11 of the *Water Regulation 2002*.
- Under the *Integrated Planning Act 1997*, a development permit is required to construct or install works that take subartesian water, other than works constructed or installed solely for the purposes mentioned within schedule 11 of the *Water Regulation 2002*.



The project lies within the Central Highlands declared groundwater area. Therefore, a water licence and a development permit are required for all bores that take from groundwater unless it is for stock or domestic purposes.

DERM have advised that despite groundwater inflows to the pit being minor and not likely to result in an impact to groundwater users, a water licence for the take of groundwater may be required. BMA will make the necessary application following receipt from DERM as to whether or not the licence is required.

### **5.1.2.3 Assessable and Self-Assessable Development in Accordance with the Integrated Planning Act (IPA) 1997**

An amendment to the purpose of ML1775 to include the construction and operation of accommodation facilities was granted by the former Department of Mines and Energy on 27 January 2009. Additionally, an amended Plan of Operations for the Peak Downs Mine Plan which specifically included activities associated with the construction and operation of the accommodation village was approved by the former Environmental Protection Agency on 2 October 2008.

As all Aspects of Development authorised under the *Mineral Resources Act 1989* are exempt development under the *Integrated Planning Act 1997* (refer to Schedule 9, table 5 of the *Integrated Planning Act 1997*), no approvals under the *Integrated Planning Act 1997* for development of the village on Mining Lease 1775 are required.

Works required for access off the Moranbah Access Road to the Denham Village have been granted approval by the Isaac Regional Council.

BMA has had discussions with a QFRS representative regarding this submission. The main concern raised by QFRS was that the Authority having Jurisdiction (AHJ) for the project be identified and that the AHJ engage with QFRS to allow QFRS to clearly understand the terms of reference, role and responsibilities in the IPA assessment process. QFRS stated that this should be as early as possible in the project to allow for meaningful input.

BMA will consult with QFRS during the detail design of on site buildings.

## **5.2 Project Justification and Sustainability**

### **5.2.1 Summary of Submissions**

The following submission was received in relation to **Section 2 – Project Justification and Sustainability** of the Project draft EIS:

- DERM requested that the use of excess Peak Downs mine water in the pre-production process be considered along with the potential benefits of integrating the mine water management across the two mine sites.

### **5.2.2 Response to Submissions**

The design basis of the water supply infrastructure is to provide a reliable water supply to Caval Ridge Mine in the long term. To minimise risk to operations, Caval Ridge Mine will be operated as a stand alone operation. Therefore its continued operation in the long term should not be planned to be reliant on specific conditions or management practices being implemented at other operations. As such, integrating the water management across the two mine sites is not contemplated at present.

Notwithstanding, it is recognised that from time to time conditions may arise where it is beneficial to transfer water from other operations to Caval Ridge, or vice versa. It is anticipated that transfers of this nature would be implemented in response to short term conditions on either mine site. The transfer would be constrained by water quality, safe storage levels and the volume required to restore normal operating conditions. Appropriate provisions need to be made in the Caval Ridge and other operations Environmental Authorities to allow transfers of this nature.

It has been recognised that such an opportunity may arise during construction and early operation of Caval Ridge Mine. Excess water from other operations may be used for construction purposes and/or to seed the water supply dams at Caval Ridge Mine. This will be investigated during the project execution phase.

### **5.3 Project Description**

#### **5.3.1 Summary of Submissions**

The following submissions were received in relation to **Section 3 - Project Description** of the Project draft EIS:

- DCS requested calculations to support the additional water demand required by the site for fire water, washdown water, dust suppression and potable water.
- DCS requested details regarding the capacity of the magazine, its construction, operation procedures and any access and that storage locations be identified on site maps indicating the most direct access and an alternative route for responding emergency vehicles.
- QFRS sought confirmation that the fire protection systems for the CHPP meet all of their requirements.
- QFRS requested information on the quantity of water that will be kept for fire fighting purposes when the 'fire water reserve' is reached.
- DEEDI requested further detail on the mine layout, and justification for the mining options adopted.
- DEEDI required detail on any plans to provide for coal seams west of Horse Pit to be accessible for further geological evaluation and possible future recovery. Clarification and comment to include the potential resource sterilisation associated with coal seams known to exist on this western lease (ML 1775).
- DEEDI required that the EIS should provide a description, map and a series of cross-sections of the geology of the Project area, with particular reference to the physical and chemical properties of surface and sub-surface materials and geological structures within the proposed areas of disturbance.
- DERM requested a description of the construction methods associated with containment and disposal of construction spoil and solid and liquid handling.
- DERM requested further information on reject management procedures (rejects co-disposal) within spoil emplacements, including location, placement, capping, risk assessment of failure, and long-term stability of the associated spoil dumps. Also the measures to be used for identifying and selectively managing any potential acid forming material.
- DERM required additional information on the effluent management system including whether the sewage treatment plant will treat all of the site's effluent, and how much useable water will be provided.
- DERM requested clarification of whether cleared vegetation will be required to be burned on site.
- DERM stated that the EIS should be amended to clearly state that the mining lease 70403 is in the application stage pending approval.

- DTMR recommended that in order to ensure road safety at intersections significantly affected by project traffic, the proponent should liaise with the regional DTMR office about requirements for adequate intersection lighting.
- DTMR expressed concerned about the safety of members of the public who may stop on the overpass to view or photograph mine activity/vehicles and requested the proponent liaise with the regional office to resolve this road safety issue.
- DTMR required clarification as to whether the two creek diversions have any potential to significantly affect stormwater discharge to the State-controlled road reserve. The EIS should demonstrate the unlikelihood of significant increased stormwater impact from the project should be included.
- DTMR required that all changes or additions to utilities/services in road reserves should be negotiated and approved before commencement of works. However, it is expected off-site matters such as contributions towards upgrading the Moranbah Access Rd & Winchester Rd intersections will be dealt with separately, for example as conditions of approval and if necessary a separate agreement
- QH required the proponent to determine whether they are a drinking water provider as regulated by the *Water Supply (Safety and Reliability) Act 2008* and the *Public Health Act 2005*. A management system to ensure that all potable water consumed on site complies with the Australian Drinking Water Guideline 2004 (ADWG) should be developed.
- QH recommended that recycled water activities comply with the Australian Guidelines for Water Recycling- managing health and environmental risks (Phase 1) (2006).
- Cherwell Creek Coal Pty Ltd raised issues regarding proper description of the project and satisfaction of the terms of reference. Among these are proper description and illustration of mine foot print and distinguishing the operations of Caval Ridge Mine from Peak Downs Mine. It also raised that the EIS does not properly detail the proposed operations as required by the Terms of Reference.
- Cherwell Creek Coal Pty Ltd. raised that there are technical studies outstanding , in particular, the pre feasibility study, this would result in the operations to be conducted not matching the operations as described in the EIS.
- Cherwell Creek Coal Pty Ltd. raised that the location of the Project is not properly describes as required by the Terms of Reference. The boundaries of MLA70403 as shown in the EIS are inaccurate and misleading and the land the subject of ML1775 and MLA70412 have not been included as part of the Project.
- Cherwell Creek Coal Pty Ltd raised that the EIS does not describe the location and environmental impacts of pit water storage, raw water storage or hazardous dams (Dams).
- Cherwell Creek Coal Pty Ltd raised safety issues and light, noise, vibration and dust impacts on the Peak Downs Highway Overpass.

### 5.3.2 Response to Submissions

#### 5.3.2.1 Water Demand

Water demand calculated for the preliminary design are summarised as follows:

- Fire water (0.6 ML minimum) 4 fire hydrants for 4 hours at 10L/s each
- Washdown water (77.8 ML/yr) based on 4 heavy vehicles/24hr – 360 days per year
- Dust suppression (5491.4 ML/yr) includes CHPP, process water, haul road and stockpile dust suppression and

- Potable water (5.1) ML/yr.

### **5.3.2.2 Fire protection systems for the CHPP**

The wet fire protection system will consist of a raw water dam that has dedicated fire water reserve. A combined raw and fire water pressurised main will be fed by electric pumps with diesel pumps as back up. The fire installation will comply with the requirements of AS 2419.1-2005 as appropriate.

In response to the specific queries raised:

- The materials handling washdown, firewater and dust suppression pipe work that service the facility will be included and placement is subject to final design.
- Fire hydrants and pumps will be located at appropriate spacing around the facility. These locations will be finalised during final design.
- Hose reels and fire hydrants will be located along the conveyor gantries and conveyors. These locations will be finalised during final design.
- Hose reels and fire hydrants will be located throughout the CHPP, offices and workshop buildings. The locations will be finalised during final design
- Fire extinguishers will be installed to Australian Standard. The locations will be finalised during final design.
- Manual Call Points (MCP) will be located at the exits from switch rooms and on each level of the CHPP and connected to a Fire Indicator Panel.
- Sub Fire Indicator Panels with automatic detection and alarm systems will be located in the CHPP switch room;
- A fire suppression system will be located in all CHPP switch rooms; and
- The Control Room will be supplied with fire suppression systems.

### **5.3.2.3 Fire Water Reserve**

The lower 0.6ML of the Raw Water Dam has been allocated as Fire Water reserve. The fire water reserve amount of 0.6ML was calculated using the Australian Standard 2419.1-2005 Fire Hydrant Installations. The value of 0.6ML is the required amount of water to run 4 fire hydrants for 4 hours at 10L/s each.

### **5.3.2.4 Proposed Magazine Capacity**

The magazine and Bulk explosive facilities will be designed to store sufficient detonators (estimated 6,000 and up to 12,000 tonnes of bulk explosive), These facilities will be designed and constructed in accordance with AS 2187.1 (Explosives—Storage, transport and use). BMA will develop and implement procedures for the operation of the magazine.

Operations access and emergency access is provided in Figure 3.2a (Supplement) (Appendix: Figures).

### **5.3.2.5 Further Explanation on Mine Layout**

The basal seam for the mine design has been determined as the D02, due to various technical and economic factors. There are 2 seams or plies lower in the stratigraphy, namely D00 and C01; however these are inconsequential coal seams. They are not economic due to their thin nature, variability and most importantly poor quality. The ash level of the seams means they are not an economic product.

The mining layout for Horse Pit has been determined by the location of the limit of oxidation (LOX) of the lower Dysart seam. This LOX has been determined by the historic and more recent geological drilling undertaken by BMA.

Horse Pit is limited in the north by Horse Creek. In order to maximise the extraction of the coal within the current lease, the current Horse Creek will need to be realigned to a controlled area. This area has been defined to allow sufficient area for the required parameters for stream flow to be achieved and for access criteria. Further detail is provided in Appendix C: MBCM Seam Clarification.

### **5.3.2.6 Geology of Project Area**

The regional geology is described in Section 4.3.1 of the EIS and the project geology is described in section 4.3.2.

A figure of the regional and site geology are presented in Fig 4.10 – Geological Land Zones and Fig 4.11 – Geology and Location of geological cross sections. A series of cross-sections of the geology of the Project area are presented in Fig 4.11 – Geology and Location of geological cross sections and 4.12 Geologic Cross Sections.

Physical properties are discussed in Section 4.3.4 of the EIS. Chemical properties of surface and sub-surface materials are discussed in Section 5.2 of EIS. Geological structures within the proposed areas of disturbance are discussed in Section 4.3.3 of EIS.

### **5.3.2.7 Construction Methods Associated with Containment and Disposal of Construction Spoil**

Inert construction spoil (eg Earthworks spoil concrete, timber, etc) will be placed in designated mine land fill areas as documented and identified in the construction and site environmental management plan. These areas, as with other spoil rehabilitation will be managed to minimise surface exposure.

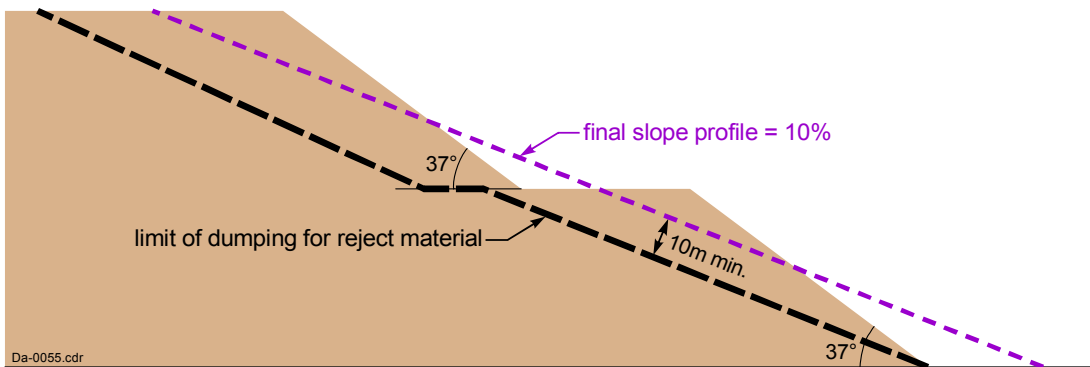
Solid & liquid waste (eg Construction fuels, oils and chemicals) will be stored, dispensed and contained within appropriately designed bunded areas in accordance AS 1940. Waste from these products will be removed by licences contactors and disposed of at an approved facility.

### **5.3.2.8 Further Information on Reject Management Procedures**

Co-disposal will not be undertaken at Caval Ridge. Rejects from the CHPP will be dewatered and mixed with spoil.

To ensure the effective management of coal rejects and tailings at Caval Ridge, the following guidelines will be implemented and monitored, further detail is provided in Appendix N (Tailings and Rejects Management Plan):

- All reject material will be trucked to in-pit waste dumps
- Dumps will be developed in line with the mine plan
- It is not planned to place reject material within 10m of the final landform slope
- Survey control will be utilised to ensure documented evidence of thickness of cover is recorded.



**Cross section of a typical spoil dump showing minimum 10m cover over coarse rejects and dewatered tailings material**

- There will be no concentrated dumping of reject materials:
  - All reject material will be dumped or mixed, either over a tiphead or paddock dumped alongside dry waste material in order to minimise potential areas of geotechnical instability.
  - The material will be dumped at the same dump face as the pre-strip material then pushed over the edge resulting in mixing.
  - No reject material will be dumped below the pre-mining groundwater table.
  - All dumps will be designed and constructed to be free-draining.

### 5.3.2.9 Additional Information on the Effluent Management System

Section 3.10.1 of the EIS describes the sewerage system. Sewage from the MIA and CHPP will be treated in the sewerage treatment plant (STP) while septic tanks will be used to treat sewage from toilet facilities in the mining area.

The STP is expected to treat approx 20,000 litres per day. The volume of water that would be recovered for reuse as process water is estimated to be approximately 90% of input, ie. 18,000 litres per day. This amount, however, may vary depending on the type of treatment plant provided through the design and construct process.

This is only a small proportion of the 17,010 KL/day water required for the project.

### 5.3.2.10 Burning of Cleared Vegetation

Burning of cleared vegetation is not proposed as standard practice at Caval Ridge Mine. However should the burning of some vegetation be required, BMA will seek approval prior to commencing the burn.

### 5.3.2.11 Coordination with DTMR office on Requirements for Adequate Intersection Lighting

BMA is in ongoing discussions with the DTMR regarding the aspects of the proposed road alterations along the Peak Downs highway including the lighting required at the entrance to the mine. BMA is committed to providing lighting which is appropriate and to the standard agreed with DTMR.

#### **5.3.2.12 Safety on Peak Downs Highway Overpass**

The Peak Downs Highway overpass has been designed to include anti gawking/anti throw screens of suitable height and as approved by the DTMR to restrict vision down onto the mine by passing motorists.

#### **5.3.2.13 Potential of Creek Diversions to Significantly Increase Stormwater Impact on Road Reserve**

Further design revision of the project works that may affect the Peak Downs Highway and other areas (such as the layout of creek diversions) will be required prior to construction. As part of the future detailed design, the proponent commits to liaise with DTMR to resolve stormwater concerns for the Peak Downs Highway.

#### **5.3.2.14 Potable Water Provision on Site**

BMA is not a drinking water service provider as regulated by the *Water Supply (Safety and Reliability) Act 2008* and the *Public Health Act 2005*.

Potable water consumed on site will comply with the Australian Drinking Water Guideline 2004 (ADWG). BMA will develop and implement procedures as part of the health and safety management system, to ensure water quality meets these requirements.

#### **5.3.2.15 Compliance with Australian Guidelines for Water Recycling**

Waste water from the sewage treatment facility will be treated to Class A+ quality, and reused on site for irrigation. The sludge residue from the plant will be removed from site by a licensed contractor. Recycled water will be managed in accordance with the Australian Guidelines for Water Recycling - managing health and environmental risks (Phase 1) (2006).

#### **5.3.2.16 Clarification on Caval Ridge Project Foot Print**

The Caval Ridge Project and the Peak Downs Mine are separate projects.

The Caval Ridge Project footprint is properly described, except that the EIS mistakenly included the area covered by MLA 70412 as part of MLA 70403 and the Caval Ridge Project. This area is not part of the Caval Ridge Project and this mistake has now been corrected (Section 2).

Existing Peak Downs Mine operations – whether on ML 1775 or on part of the area covered by MLA 70403 – are not part of the Caval Ridge Project and are operated under separate approvals and EMP.

MLA 70411, which sits to the East of ML 1775, is not part of the Caval Ridge Project.

#### **5.3.2.17 Clarification on Outstanding Technical Studies**

The current studies being undertaken are focused on Caval Ridge being a separate operation from Peak Downs Mine. All studies related to the Caval Ridge EIS have been completed and the results of the assessments have been included in the EIS and this Supplementary EIS.

Where changes to operations have been made due to optimisation and addressing EIS submissions, these have been described in Section 2 – Amendments to the Project Description.

### **5.3.2.18 Environmental Impacts of Pit Water Storage, Raw Water Storage or Hazardous Dams**

The location and environmental impacts of pit water storage, raw water storage or hazardous dams is provided in Section 6 of the EIS. Additional information regarding the hazardous dam assessment has been included in this supplementary in Appendix H1.

### **5.3.2.19 Peak Downs Highway Overpass- Safety Issues**

The Peak Downs Highway Overpass will be designed and constructed to safety standards approved by DTMR. Anti-gawking screens will be installed to prevent road users from being distracted by mine operations while using the overpass.

Potential impacts from light, noise vibration and dust will be managed to minimise the impact on road users.

## **5.4 Land Resources**

### **5.4.1 Summary of Submissions**

The following submission was received in relation to **Section 4 - Land Resources** of the Project draft EIS:

- DEEDI required further clarification on one aspect of the potential resource sterilisation considerations relating to coal seams known to exist below the basal target (Dysart) seam to be mined in the vicinity of the Horse Pit at Caval Ridge.
- DERM required that land suitability be reassessed based on soil types data, including mapping of Good Quality Agricultural Land.
- DERM required that erosion rate criteria be changed to "Average soil loss per annum is <5 tonnes/ha/yr (sheet erosion)" for final void, OEF/WEF and mine infrastructure area.
- DERM requested additional information (maps, plans and cross-sections) of the topography of the post mining landform, final drainage patterns (including control of drainage into the voids) and seepage control, and measures to ensure stability of the waste dumps.
- DERM required more information on, and illustrations of, the size and shape of the final voids.
- DERM required the EIS and Draft EM plan to outline available options should topsoil deficiencies occur at the end of mine life, including relevant investigations and rehabilitation techniques.
- DERM required more detail on the equilibrium water levels in the final voids in relation to the final, including the likely size of the residual water bodies during drought and wet climatic conditions. Information of under what conditions, if ever, water in the final voids would discharge to the surrounding environment and any associated potential impacts should be provided.
- DERM requested that final void water quality be modelled as part of the assessment of potential impacts of saline water in the void on surface and groundwater resources and quality.
- DERM required more detail on the final landform and final voids to demonstrate the ability to achieve the rehabilitation objectives required by the TOR.
- DERM requested a detailed assessment of the location of final voids, and protection measures for uncompacted overburden and workings, in regard to the probable maximum flood level for the locality.
- DTMR requested consultation regarding arrangements for the new connections of the stock route to the Peak Downs Highway at both ends, to ensure safe access/egress for stock to the public road reserve.

- Isaac Regional Council views a maximum period of 1 month for all disturbed surfaces to be left exposed prior to re-vegetation and stabilisation being implemented as a minimum standard to protect human amenity in the local area.
- CFMEU raised that any camp construction for this mine not be placed beside the Moranbah access road with resultant high visibility to users of the road so it does not detract from the visual amenity of the town and its road access.
- Cherwell Creek Coal Pty Ltd raised that the EIS does not set out the options, strategies and methods for progressive and final rehabilitation for all of the area the subject of MLA 70403 (or ML 1775, MLA 70411 or MLA 70412).
- Cherwell Creek Coal Pty Ltd raised that the current environmental value and the current use of all of the land contained within MLA 70403, ML1775, MLA 704012 and MLA 70411 have not been fully described in the EIS.
- Cherwell Creek Coal Pty Ltd raised that the EIS failed to deal with the entirety of MLA 70403. The EIS generally fails to meet the Terms of Reference in that it incorrectly describes the extent, boundaries and purpose of MLA 70403, ML1775, MLA 70412 and MLA70411 and does not detail or deal with the illegal mining currently occurring on SL 12/42239 and within the proposed boundaries of MLA 70403.

## **5.4.2 Response to Submissions**

### **5.4.2.1 Potential Resource Sterilisation- D00 and C01 seams**

D00 and C01 are inconsequential coal seams. These seams are not economic due to their thin nature, variability and most importantly low quality. These very thin seams split off so quickly as to be uneconomic to chase and the ash level of the seams means they are not an economic-product. They were only named and tenuously modelled to help in the understanding of the general structural geology of the area. They do not meet the quality or mining economic parameters to be considered a viable coal resource.

### **5.4.2.2 Land Suitability and Mapping of Good Quality Agricultural Land**

All soil and landscape parameters were considered in the land suitability assessment in accordance with Table 2.2 in Attachment 2 of Land Suitability Assessment Techniques (1995). Soil parameters are described in the soil unit description in the appendix report and Section 4 of the EIS, except the PAWC which is included in the Soils Addendum. The PAWC and rooting depth is shown in Table 1 of the Soil Addendum (Appendix F).

As part of the supplement report a new figure has been developed for the GQAL (Figure 4.16) on the site using site specific information as opposed to using the regionally available data. Through analysis of this site information, no agricultural land class A or C1 was considered to be present on the project site. An explanation of the findings is provided in Appendix F (Soils Addendum), Section 1.

### **5.4.2.3 Erosion Rate Criteria**

The 40 t/ha value has now been replaced by a more holistic approach to landform sustainability development and monitoring regime as specified in the FVLMP (Appendix E1) which covers BMA commitment to sustainable rehabilitation. Section 9 of the FVLMP aims for overall safe, stable and sustainable outcomes, rather than overly prescriptive performance limits for the final landform.

The important aspect for erosion monitoring is not tonnes per hectare – erosion monitoring is preferably and more sensibly based on visual assessment/measurement of the presence and activity of sheetwash, rills and gullies. A stable landform does not exhibit these features to such an extent that the stability of the landform is

threatened. Absence of significant active rills, gullies and sheet washed areas is the most direct and practicable measure of erosional stability. Provided these processes are not affecting surface stability, loss of soil and declining vegetation cover should not occur.

It should also be noted that the 40 tonnes/ha upper limit was implemented the Queensland Government in the 1990's and not the proponent. BMA as part of its commitments for sustainable landforms accepts that the Qld limit of 40t/ha/annum is excessive and predates a more contemporary understanding of soil loss and landform stability. The monitoring and performance program proposed for Caval Ridge includes monitoring and evaluation of the presence of sheetwash, rills and gullies as well as vegetation cover. These are the features that enable conclusions on the performance of the landform to be made.

The criteria presented in Section 9 of Appendix E1 are specific to BMA operations and transferable to the Caval Ridge Project.

#### **5.4.2.4 Additional Information- Topography of the Post Mining Landform**

The final landform of the Caval Ridge Project will ultimately depend on a number of ongoing investigations which are addressed in the Caval Ridge Mine Project EIS Supplementary Report - Final Void & Landform Management Plan (Appendix E1). Three main scenarios are provided for the spoil landform including

- A base case in which stable outcomes have been satisfied by a fence and bund arrangement around the final void;
- A steeper regrade 25% regrade; and
- A 10% regrade of the void areas.

This supplementary report provides explanation on how various final landform strategies will be developed as the mine progresses.

Drainage and landform aspects of the post mining landform are provided in more detail in the Caval Ridge Mine Project EIS Supplementary Report Long Term Void Water Storage and Quality Report (Appendix E2).

Importantly the URS study did examine two drainage scenarios for three regrade scenarios of the spoil landform. The minimal catchment models – looked at void storage behaviour when only areas sloping to the void reported runoff to the void; and also a maximum catchment scenario in which all of the spoil area reports to the final void. No spill occurred in the modelled 100 years period and even extreme event modelling did not cause a spill.

All spoil in the mined areas, other than the box cut spoil will be placed in pit on dipping shales and mudstones, hence - seepage must progress to the final void. Final void water quality becomes progressively saline, but flows from the modelled void situations did not occur.

#### **5.4.2.5 Detailed Information on Final Landform and Final Voids**

Final drainage arrangements for the spoil and void landform cannot be detailed with any level of certainty in the project development phase of a large strip mining operation. The drainage overall however is that most of the spoil runoff will report to the final void – see contour plans of the three modelled scenarios in the supplementary Caval Ridge Report- Long Term Void Water Storage and Quality (Appendix E2) and also the Caval Ridge Mine Project EIS Supplementary Report - Final Void & Landform Management Plan (Appendix



E1). It is also possible to establish all outer spoil drainage to the void and modelling shows that this does not cause a spill situation, even in extreme circumstances.

Measures to ensure stability of the waste dumps are discussed in the supplementary Caval Ridge Mine - Final Void & Landform Management Plan. Stable situations are to be achieved by use of low gradients on spoil batters and further, erosional stability will be achieved with use of a variety of measures including sustainable vegetative cover, rock mulch and in some instances graded banks and rock lined waters.

For the main BMA will not rely on cross slope structures for erosional stability as these structures for the main, can not be relied on a permanent basis. The BMA Guideline for the Design of Sustainable Mine Landforms. (EIS Appendix R5) will ultimately form the basis for strategy development for landform and drainage design.

The size shape and actual location of a final void cannot be accurately determined at a project design level. Caval Ridge Mine Project EIS Supplementary Report - Final Void & Landform Management Plan (Appendix E1) which specifically addresses this complex issue. Section 4 generally and 4.2 specifically.

However, modelled scenarios of the Caval Ridge Horse Pit final void have been prepared and provided in the Caval Ridge Mine Project EIS Supplementary Report - Long Term Void Water Storage and Quality Report (Appendix E2) and also reproduced in Caval Ridge Mine Project EIS Supplementary Report - Final Void & Landform Management Plan (Appendix E1) which discusses how the different void scenarios may be utilized in the development of the Caval Ridge final landform and void specification.

#### **5.4.2.6 Topsoil Availability at the End of Mine Life**

A top soil management plan will be developed to ensure an understanding of volumes of topsoil available. Where topsoil cannot be sourced, benign (non-acidic, non-dispersive) rocky material should be used as the surface medium and preferably sown with a tree species dominated seed mix. Such areas will be closely managed to maximise the establishment of vegetation cover and minimise the risk of erosion and degradation.

As part of the site EMS rehabilitation activities will be audited to ensure the correct processes are followed, success of the rehabilitation against set criteria will be monitored. Deviation from process or performance criteria will be managed through the EMS corrective action system.

#### **5.4.2.7 Probability of Discharge from Final Void in Extreme Precipitation Events**

The modelling determined that a spill is most improbable even in extreme events (Caval Ridge Mine Project EIS Supplementary Report Long Term Void Water Storage and Quality Appendix E2). This report examines the hydrological behaviour of three possible residual void strategies for the Caval Ridge Project.

#### **5.4.2.8 Water Quality in Final Voids**

The Caval Ridge Mine Project EIS Supplementary Report - Long Term Void Water Storage and Quality report (Appendix E2) examines water quality outcomes from three possible void scenarios and the Final Void & Landform Management Plan (Appendix E1) Section 5 reviews the results of salinity modelling undertaken at a number of BMA mine sites as well as the findings of the water and salinity balance modelling.

The modelling determined that a spill is most improbable even in extreme events. Further that in all three instances mixing of void water with aquifers is not possible, given that the equilibrium water levels are well below the groundwater table. Each modelled void scenarios act as a sump. Thus the stratification issue is not of critical concern. Stratification aspects are discussed in both documents as it is possible that stratification as a phenomena may occur in deep voids.

The ability of voids to support significant life will depend on whether there is permanent water stored in the void and the ultimate salinity of the void water. The modelling undertaken by URS and others indicates that in the longer term, void water for all cases will be very saline to extremely saline. Unless mechanisms to shed salt are available, all void modelled scenarios at Caval Ridge will not be able to sustain longer term useful habitat for freshwater species.

However, stratification of surface runoff water and incident rainfall may occur from time to time, if this is the case there may be limited potential for a hospitable water supply for native species on some occasions.

The oxygen flux of the void may also have important implications for the ability of the water to sustain aquatic fauna. Measurements of some typical mine voids with standing highwalls in Central Queensland has shown that oxygen levels may diminish rapidly as depth increases, thus limiting use of deeper voids for aquaculture without active and costly oxygenation.

Void rehabilitation is recognised as a major challenge for all open cut mines in Central Queensland. Achieving a comprehensive understanding of void hydro-geological and hydro-chemical behaviour and cost effective measures and remedies to ensure a beneficial outcome will take many more years of industry research and development.

It is unlikely that there will be a single approach or remedy for void configuration and that the final treatment of voids at Caval Ridge and elsewhere will be based on reasonable negotiated outcomes between BMA and the regulator at the time. The important aspect is that BMA expresses a willingness to continue to investigate means of improving void outcomes as demonstrated by its development of the “Sustainable landform guidelines” and major planning studies currently being undertaken at all mine sites which aim to substantially reduce the size and depth of final voids to deliver cost effective sustainable outcomes.

#### **5.4.2.9 Stock Route Connection to Peak Down Highway- Consultation with DTMR**

During final design BMA will consult with DTMR to ensure acceptable safe stock route egress/access on and off the Peak Downs Highway for live stock.

#### **5.4.2.10 Progressive Rehabilitation Works- Maximum Period Disturbed Surfaces are Left Exposed**

BMA is committed to progressive rehabilitation of areas disturbed, however a maximum period of 1 month is not practical.

EIS (EMP (3.7.6.2)) states that rehabilitation of disturbed land will generally proceed within two years of the areas becoming available for rehabilitation. In some situations, progressive rehabilitation may not be possible because the area may be effectively integrated with areas nearby that are unavailable for rehabilitation.

#### **5.4.2.11 Location of Accommodation Village and Impact on Visual Amenity**

The village and location of the village will comply with relevant legislation. The design will consider visual amenity and security.

#### **5.4.2.12 Strategies and Methods for Progressive and Final Rehabilitation**

Section 4 of the EIS and the Final Landform Plan (Appendix E1 – Supplementary EIS) describe BMA commitment to progressive rehabilitation of the Caval Ridge project site.

#### **5.4.2.13 Clarification on Project Footprint, Description of Environmental Values, Land Use**

The Caval Ridge Project footprint is properly described, except that the EIS mistakenly included the area covered by MLA 70412 as part of MLA 70403 and the Caval Ridge Project. This area is not part of the Caval Ridge Project and this mistake has now been corrected (Section 2).

The environmental values and current landuse of the Caval Ridge Project is correctly described in Section 4 of the EIS. The potential environmental impacts related to the project site is described in the Caval Ridge EIS and additional information is provided in this Supplementary EIS.

### **5.5 Mineral Waste**

#### **5.5.1 Summary of Submissions**

The following submissions were received in relation to **Section 5 - Mineral Waste** of the Project draft EIS:

- DERM requested more detail of the criteria for selection, handling, disposal, placement and capping of sodic or dispersive soil, and acid generating material.
- DERM required the provision of measures for the chemical and physical characterisation of overburden and interburden that would be adequate for the selective management of those waste materials.
- DERM requested that commitments be made to appropriate testing to ensure that a 'non-flowable' paste of the fine rejects is being produced.
- DERM requested that commitments be made for the application of appropriate operational measures to the spoil dump to guarantee a minimum standard of mixing of the rejects and tails with the spoil.
- DERM requested that commitments be made regarding the development of a contingency plan for conventional TSF storage on site in circumstances where there may be short-term or long-term failure to meet test standards for tailings and reject paste.

#### **5.5.2 Response to Submissions**

##### **5.5.2.1 Management of Sodic or Dispersive Soil**

Ideally, sodic and dispersive materials should be identified, selectively handled and placed within the core of spoil piles away from final surfaces, or returned to voids during mining. However, since most overburden and coarse reject material is expected to be marginally sodic, this method of managing potentially sodic material is inappropriate (i.e. it should be assumed that all spoil material will be sodic) (EIS – Section 5.3).

Therefore, it is likely that treatment of the sodic waste materials may be required if these were to be used as an additional source of topsoil. As part of operational planning a site environmental management plan will be developed, which will include criteria for the management of sodic or dispersive soils.

The soils report indicates that topsoil across the site has low to moderate sodicity. The most effective means to ameliorate against sodicity during rehab works is to apply and incorporate gypsum; and / or apply and

incorporate an organic amendment eg. biosolids, composted manure, mulch, straw, etc . These treatments are however, cost prohibitive in Central Qld.

Management practices to be employed would be as follows:

1. Test spoil ahead of mining and rehab. The most relevant test is exch. Na %. The approx threshold levels are as follows:

Very low	<4%
Low	5-8%
Moderate	9-12%
High	13-15%
Very High	>15%

Other tests that can be used to determine sodicity are Dispersion % or the Emerson Aggregate Test.

2. Selectively bury high to very high exch. Na% (sodic) spoil (if practicable).
3. Ensure moderately sodic material is topdressed with topsoil.
4. Low & very low sodic material can be sown with native trees & shrubs without topsoil provided that the spoil has a pH of > 4.5 & < 8.5 and is non-saline. The spoil must be coarsely ripped ie rough seedbed preparation with distinct furrows (not smooth).

### 5.5.2.2 Characterisation of Overburden and Interburden

The geochemical assessment of potential overburden (including interburden) undertaken as part of the EIS has identified that overburden is expected to be overwhelmingly non-acid forming (NAF), with very low acid-generating potential and moderate to high alkalinity.

The total and soluble metals concentrations in overburden and interburden were also very low. As such, no selective management of overburden or interburden materials is required, other than seepage and run-off water quality monitoring proposed as part of the water management program. Overburden and interburden was identified in the EIS as being moderately to strongly alkaline, moderately saline and marginally sodic. Therefore overburden and interburden reporting to final surfaces may need to be managed appropriately to enable suitable rehabilitation and revegetation to be undertaken.

As reported in Section 5.4.1 of the EIS, BMA will undertake ongoing operational geochemical characterisation of mineral waste materials in the southern section of the project area to confirm the expected geochemical characteristics of these materials.

The detail surrounding this additional work cannot yet be defined, however a suitable program may involve the sampling of one or two drillholes per year in the first five years of operation in in-fill areas, with a statistically representative number of overburden and interburden samples collected and analysed for a broad suite of geochemical parameters. The analytical suite will include at minimum:

- pH and EC (either saturated paste or 1:5 water extract)
- Total sulphur
- Sulphide sulphur

- Total organic carbon
- Acid neutralising capacity.

Selected samples (individual or composites) will likely undergo further testing to include total and water-soluble metals, exchangeable cations, and potentially additional acid-base classification (depending on the results).

Geochemical characterisation, assessment and reporting will be undertaken by a suitably qualified and experienced geochemist.

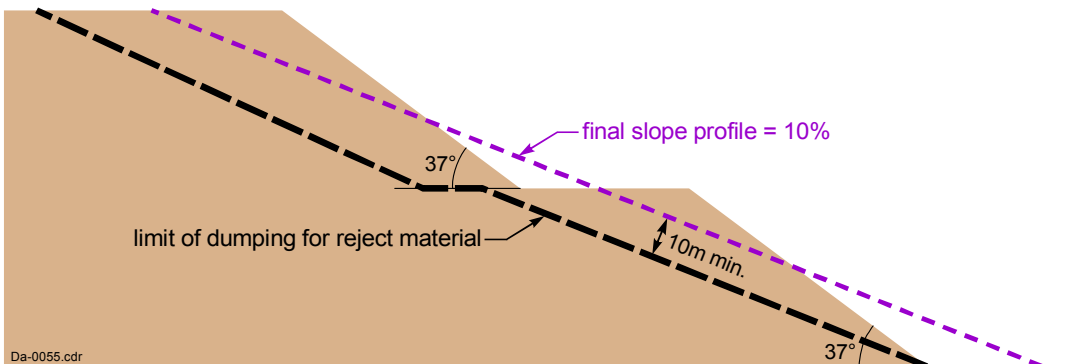
### 5.5.2.3 Tests Ensuring a 'Non-flowable' Paste of the Fine Rejects

Feed to the belt press filter supply tank is regulated by the density of the tailings thickener underflow. When the density is within the setpoint range, the feed valve is opened. When the density is outside the setpoint range or the level in is greater than the HH Alarm setpoint, the tailings thickener re-circulation valve is opened, placing the thickener underflow into re-circulation mode. If it is closed for a period greater than 900 seconds, all belt press filters will be shutdown to conserve water. Further detail is provided in Appendix G – Belt Filter Press Operating Philosophy.

### 5.5.2.4 Guidelines Ensuring the Effective Management of coal rejects and tailings

To ensure the effective management of coal rejects and tailings at Caval Ridge, the following guidelines will be implemented and monitored, further detail is provided in Appendix N (Tailings and Rejects Management Plan):

- All reject material will be trucked to in-pit waste dumps;
- Dumps will be developed in line with the mine plan;
- It is not planned to place reject material within 10m of the final landform slope;
- Survey control will be utilised to ensure documented evidence of thickness of cover is recorded.



**Cross section of a typical spoil dump showing minimum 10m cover over coarse rejects and dewatered tailings material**

- There will be no concentrated dumping of reject materials:
  - All reject material will be dumped or mixed, either over a tiphead or paddock dumped, alongside dry waste material in order to minimise potential areas of geotechnical instability;
  - The material will be dumped at the same dump face as the pre-strip material then pushed over the edge resulting in mixing;

- No reject material will be dumped below the pre-mining groundwater table; and
- All dumps will be designed and constructed to be free-draining.

### 5.5.2.5 Requirement for a Contingency Conventional TSF

The current design allows for the tailings to be recirculated back into the tailings thickener should there be operational issues with the filters Appendix G; Filter Belt Press Philosophy. In support of this the design has 24 units installed. Modelling suggests under worst case conditions only 22 units will required during operations. This allows for a redundancy for maintenance and extra capacity purposes. A test unit is currently being installed at another BMA mine and results from this test unit will be used to confirm the information above. Based on this a conventional tailings storage facility will not be required on site.

## 5.6 Surface Water Resources

### 5.6.1 Summary of Submissions

The following submissions were received in relation to **Section 6 – Surface Water Resources** of the Project draft EIS:

- DCS requested that on-site offices and accommodation have an appropriate level of flood immunity (100 year ARI) and that the on-site flood storage capacity not be reduced or changed in that way that will result in downstream impacts. Also that the storage or manufacture of bulk hazardous material takes place above design flood elevation flood levels or within structures designed to prevent the intrusion of floodwaters.
- QPI&F suggested that any creek or gully crossings required consider fish passage and do not impede fish migration.
- DERM commented that the EIS should provide additional information, illustrated by maps, plans and cross-sections at a suitable scale, of the topography of the post mining landform as required in Section 2.6, Rehabilitation and Decommissioning, of the TOR and specifically final drainage. The figure should clearly show surface water drainage patterns and seepage control systems in the post mining landscape, including the areas of rehabilitated spoil.
- DERM required that the EIS should provide details of water management system monitoring together with bases and assumptions that generated estimated volumes of storages required on site, consistent with conditions. Benchmarking against deciles analysis should also be included. Design Storage Allowance (DSA) (i.e. seasonal rainfall requirements) for those storages that will take pit and other contaminated water have not been bench marked using deciles analysis in accordance with either the Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME, 1995) or the draft Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (Version 1.0, 2008), both of which are cited in the EIS. The standards cited for such dams (e.g. Table 6.7) are either not applicable for that class of dam under DME 1995 and or the proposed methods are no longer acceptable to DERM.
- DERM commented that it will require a hazard assessment for all dams including basic performance for those dams that are assessed as 'regulated' (significant or high hazard). For hazard assessment and basic hydraulic performance of dams, the conditions should reference the current DERM guidelines.
- DERM considered that the EIS does not adequately address the issue of effective containment of saline waters and other potential leachate from spoil dumps. DERM required identification of which dams could receive pit water, and which would be used purely to trap sediment in runoff from disturbed areas. The

water management system should be redesigned so that pit water is kept separate from collected runoff in sediment dams.

- DERM commented that the EIS provides no assessment on the worst case immunity to regional or localised flooding on site - with proposed concepts in place and at AEP levels appropriate to a reasonable risk over the operational project life of 30 years (e.g. AEP 1 in 3,000 gives 1% probability), and after decommissioning and rehabilitation. DERM required the EIS to include conceptual designs for the pits and levees, and more detailed consideration of flood immunity at the impacted site.
- DERM requested that the EIS identify where, and under what circumstances, controlled discharges of water from site would be made.
- DERM required that creek diversions be redesigned in accordance with DERM's guidelines for Watercourse Diversions - Central Queensland Mining Industry, including the section of the Horse Creek diversion that is upstream of the defined watercourse.
- DERM considered that the EIS should provide the design for the entire diversion for the Caval Creek rather than sectional designs.
- DERM required that the EIS should provide further information on the proposed treatment and disinfection process to produce class A+ effluent. The EIS should describe the proposed treatment and disinfection process and propose maximum levels intended to be produced by the treatment process. These should be consistent with best practice environmental management.
- DERM required the EIS to :
  - identify which dams could receive pit water, and which would be used purely to trap sediment in runoff from disturbed areas; and
  - as necessary, redesign the water management system so that pit water is kept separate from collected runoff in sediment dams.
- DERM required a detailed assessment of the effects of inundation of the project site from at least 1 in 500 year ARI event. The EIS should provide a detailed assessment of the location of final voids, and protection measures for uncompacted overburden and workings, in regard to the probable maximum flood level for the locality.
- DERM requested full characterisation of wastewaters intended to be discharged, including TSS, TDS, pH, chemicals such as flocculants, and likely contaminants.
- DERM stated that the EIS does not discuss the potential for low pH pit water.
- DERM required reasons for choosing proposed current median EC values and pH medians upon release to surface waters and an assessment of the likely consequences. Quantitative predictions should be made of the receiving water quality downstream of a discharge. The EIS should assess the impacts on downstream environmental values from releases including on aquatic and riparian taxa, and consider appropriate mitigation strategies.
- DERM requested a detailed assessment of the impact of stream diversions on downstream environmental values, stream connectivity and opportunities for movement of aquatic fauna. DERM stated that the water quality management strategies of the project should consider and be consistent with the Queensland Government document "A study of the cumulative impacts on water quality of mining activities into the Fitzroy River Basin".
- DERM requested information on stream flow at the time of sampling and requested water quality data be reassessed and more appropriate receiving water quality limits for EC proposed based on known water

quality guidelines for aquatic ecosystem protection, biological effects data or appropriate local reference data.

- DERM recommends that the EIS should make comparison to ANZECC 2000 toxicant trigger values for metals concentrations using the 95th percentiles of test sites rather than median results. For clarity, the EIS should provide this information in a tabular form and it should include the number of exceedances, where these occur.
- DERM considered that the EIS and EM plan should include and discuss end-of-pipe limits for EC, pH, suspended solids, sulphate, metals, metalloids and other potential contaminants to be consistent with the approach adopted by relevant DERM documents.
- DERM required discussion of the design and implementation of a comprehensive receiving environment monitoring program to monitor and record the effects of the release of contaminants on the receiving environment.
- DERM requested the identification and description of current downstream water users that may be impacted by the project (including reference to any licences held), an assessment of the potential impacts, and proposal of mitigation measures for any identified impacts.
- DERM considered that the EIS should require the removal, when mining ceases, of dams that capture overland flow unless the EIS can show that the dams would be for a purpose consistent with the Fitzroy WRP.
- DERM required additional information on the final drainage of the post-mine landform. The new figure should show surface water drainage patterns and seepage control systems in the post mining landscape.
- Cherwell Creek Coal Pty Ltd pointed out that the EIS only shows surface water impacts for a Q50 and Q100 event. Section 6 states that modelling has been done for construction and post construction phases, but that modelling has not been included in the EIS – only conclusions drawn from that modelling has been included.

## **5.6.2 Response to Submissions**

### **5.6.2.1 Flood Immunity of On-Site Facilities**

BMA will provide flood immunity for onsite accommodation and offices for 100 year ARI.

The project will avoid loss of flood storage capacity and contain changes to depth duration and velocity of flood water within the subject site for all floods up to the 1:100 AEP flood event, subject to the following provisions:

- The final design of creek diversions, on-site drainage works, and flood protection works is still subject to further detailed engineering and mine layout design. Hydrodynamic flood modelling will be undertaken during detailed design to assess and mitigate the flood characteristics of concern.
- Some minor changes to flooding characteristics may be unavoidable subject to the detailed design of flood protection works required to prevent pit flooding for extreme floods. The mine pit flood protection must take precedence over minor impacts to flooding characteristics as the environmental and economic consequences of flooding the mine pits would be much more severe than minor changes to flood hydrograph characteristics and flood warning times. The potential minor impacts on flooding are not expected to pose risk to life or property as the impacts will be limited to the waterway reaches through the mine lease area (i.e. impacts will be immeasurable upstream and downstream of the mine lease).

Flooding analysis for detailed design during the Definition Phase of the project will aim to minimise impacts on flooding.

The storage of hazard materials will be within industrial area facilities near the Coal Preparation Plant and will be above the 1:100 AEP flood level or designed to prevent 1:100 AEP flood ingress into the storage areas.

#### **5.6.2.2 Waterway Barrier Works**

All of the creeks through the project site are highly ephemeral and are not significant fisheries habitat or resources.

Any works in defined watercourses which require waterway barrier works approved under the Fisheries Act, will be designed and constructed in a manner which as far as practicable, minimises the impact of the structure. Furthermore, BMA undertakes to engage with Queensland Primary Industries and Fisheries (QPI&F) on the proposed design (as is occurring currently for the Daunia project) and will submit an application for the approval of the waterway barrier works.

#### **5.6.2.3 Additional Information on Final Drainage Scenarios**

The final landform of the Caval Ridge Project will ultimately depend on a number of ongoing investigations which are addressed in the Caval Ridge Mine Project EIS Supplementary Report - Final Void & Landform Management Plan (Appendix E1). Three main scenarios are provided for the spoil landform including:

- A base case in which stable outcomes have been satisfied by a fence and bund arrangement around the final void;
- A steeper regrade 25% regrade; and
- A 10% regrade of the void areas.

This supplementary report provides explanation on how various final landform strategies will be developed as the mine progresses.

Drainage and landform aspects of the post mining landform are provided in more detail in the Caval Ridge Mine Project EIS Supplementary Report - Long Term Void Water Storage and Quality (Appendix E2).

Importantly the URS study did examine two drainage scenarios for three regrade scenarios of the spoil landform. The minimal catchment models – looked at void storage behaviour when only areas sloping to the void reported runoff to the void; and also a maximum catchment scenario in which all of the spoil area reports to the final void. No spill occurred in the modelled 100 years period and even extreme event modelling did not cause a spill.

All spoil in the mined areas, other than the Box cut spoil will be placed in pit on dipping shales and mudstones, hence - seepage must progress to the final void. Final void water quality becomes progressively saline, but flows from the modelled void situations did not occur.

#### **5.6.2.4 Bases and Assumptions Used to Determine Storage Requirements**

The storage requirements are determined in accordance with the following provision of the draft Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (Version 1.0, 2008):

“An alternative to providing available storage capacity for all required dams, is to demonstrate to the satisfaction of the DERM that a positive environmental benefit is achieved by operating a water management system that provides for storage such that agreed release limits and receiving water limits are not exceeded. Design and conditions would ensure that contingency is provided for failure or absence of a pump during critical operations, with mandatory reporting of such absence or failure”.

To determine storage requirements the mine water balance utilises over 100 years of climate data (1900 to 2009) to ensure the water system performance can cater for a wide range of climate variability.

The water balance modelling of the integrated management system takes account of:

- Runoff from all mine area and catchments draining into the integrated mine water management system, including runoff into mine pits;
- Transfers of mine water between storages;
- Re-use of mine water in plant operations and for dust suppression;
- Evaporation losses;
- Controlled releases to the environment complying with proposed controlled release discharge criteria;
- Uncontrolled overflow releases from dams.

The required total mine water system storage capacity will be determined to ensure the water management performance limits the probability of uncontrolled overflow discharges (to receiving waters) from Significant and High Hazard Dam to less than 1:100 AEP.

Water management system performance will also be evaluated for system failure risks such as failure of a pump, pipeline, or water storage to develop appropriate contingency plans. The system failure risk assessments will be prepared during detailed design for the Definition Phase of the project and outcomes will be considered as part of design criteria for the design of each element of the water management system (e.g. pumps, pipelines, dams, control systems). System failure contingency plans (actions or strategies) will be prepared for modified or restricted operation of the water management system as required to address potential failures of one or more components of the water management system which cannot be eliminated through design. The system failure contingency plans will not allow increase in the frequency of uncontrolled discharges from the mine water storages and ensure that controlled discharges remain compliant with EA conditions. The system failure risk assessment and contingency plans will be documented in an operations plan for the integrated water management system.

The approach outlined above is more robust and provides a more secure environmental safeguard than the nominated DSA analysis which does not account for mine water transfer operations, permissible controlled discharges, or ability to actually achieve DSA free storage prior to each wet season. Most of the Significant and High Hazard Dams have no catchment other than the dam itself. Exceptions include the North Catchment Dam and South Catchment Dam which do not receive pit water or mine spoil runoff and are relatively “cleaner” than other High and Significant Hazard dams. The North Catchment Dam and South Catchment Dam do not receive pumped inputs. The risk of such dams overflowing is managed by maintaining the dam level below the MRL. Inputs other than direct rainfall can be controlled by ceasing pumping operations.

The proposed EA conditions in the EM Plan include provisions for annual updating of the water balance modelling with monitoring of:

- Rainfall;
- Actual water volumes in dams, and water quality in dams and pits to review and improve model calibration;
- Confirmation of the storage capacity of dams;
- Water quality in all elements of the water management system;
- Mine water transfer operations with either flow meters or logged hours of operation of pumps;
- Controlled releases (including all monitoring requirements outlined in the EA conditions); and
- Quality and quantity of uncontrolled releases (if any occurred in the previous years operations).

The annual update of the water balance modelling is to ensure that there is sufficient operational capacity to prevent uncontrolled overflow releases to the environment, and/or to review system performance in the event of failure of any critical component of the water management system.

#### **5.6.2.5 Dams- Hazard Assessment**

A preliminary Hazard Assessment has been undertaken and is presented in Appendix H1. The proposed EA conditions in the EM Plan include provisions for regular reviews of the Hazard categories for all mine water dams.

Significant and High Hazard Regulated Dams will be designed and certified by a suitably qualified engineer. Construction of the Regulated Dams will be certified by a suitably qualified engineer. Annual surveillance inspections of Regulated Dams will be undertaken by a suitably qualified engineer.

The Draft Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (Version 1.1, 2009) is not endorsed State Government policy. Neither BMA or industry's peak representative body, The Queensland Resources Council, not endorse this guideline. The current version of this guideline could lead to detrimental impacts on downstream water resources when considered in a holistic sense and may not be sustainable. It does not recognise that controlled compliant discharges are permissible and does not recognise the equally critical role of transfer systems (e.g. pumps and pipes) for integrated mine water management.

#### **5.6.2.6 Containment of Saline Waters and Other Potential Leachate from Spoil Dumps**

All runoff and seepage (potential leachate) from spoil dumps will drain to sediment dams, into the mine pits, or the north and south catchment dams, and consequently be contained within the integrated mine water management system.

The majority of spoil dumps will be constructed in pit and the topography underlying the majority of out of pit dumps reports back to the pit. As such, potential leachate from spoil dumps is expected to predominantly report to the pit.



Networks of pipes and pumps will collect these waters for reuse in the mine operations, controlled compliant releases to the receiving waters or be lost through evaporation from dams.

Based on experience of the proponents operations at nearby Peak Downs and Goonyella Riverside mines, the integrated collection and transfer of mine water is expected to produce net water quality suitable for reuse. In the unlikely event that operations show that the mine water is too saline for reuse, contingency measures will be developed with reassessment of the mine water balance and overarching mine water strategy if required. Subject to mine water balance modelling assessment of the specific water quality issue of concern, contingency measures could include either improved mixing of mine waters, segregation of mine waters, modification of plant (to allow reuse), or mine water treatment if practical.

The mine water balance method will be the key operational tool to continually manage the integrated mine water management system, improve performance, and ensure that the risk of uncontrolled (overflow) discharge to the environment is acceptably low. Infrastructure requirements including pump and pipe capability and location will be determined from the water balance.

The specific function of each dam, whether to capture runoff from spoil dumps, runoff from around the industrial area, collection of pit water was outlined in Table 6.8 of the draft EIS.

Water storages will be strategically monitored so that their suitability for storing and transferring water from the nominated sources can be periodically reviewed. The detailed monitoring plan will be prepared during the Definition Phase of the project and will include all elements outlined in item 4.29.

#### **5.6.2.7 Immunity to Regional and Localised Flooding, Concept Designs for Pits and Levees**

A supplementary flood assessment has been completed to assess levee requirements for rare and extreme events up to 1 in 3,000. This assessment is provided in the Flood Assessment Report included as Appendix H2 of the EIS Supplement.

This modelling work indicates that levees providing the pit with 3,000 year ARI flood immunity from adjacent watercourses can be incorporated into the infrastructure design and the post mining landscape. Flood levees will be constructed to provide the pit with at least 500 year ARI flood immunity from adjacent watercourses during the operational phase of the mine. A higher level of immunity may be provided, however this is subject to feasibility investigations planned for subsequent design stages. The feasibility assessment will include consideration of any measures that are required to manage residual risk.

The final void will be provided with at least 3,000 year ARI immunity from flooding in adjacent watercourses.

#### **5.6.2.8 Circumstances for Controlled Release and Monitoring During Release**

Under most dry and average conditions, the mine will operate with a water deficit and controlled releases will not be required.

In above average wet seasons, and exceptionally high wet seasons there will be a surplus of mine water and controlled releases may be required. Typically this will occur with a frequency with 1:10 AEP or less frequent.

Controlled releases will only be made from the 12North dam under the following conditions:

- When flow in upstream Cherwell Creek is above a prescribed threshold defined in the EA;
- The quality of release waters are within prescribed limits defined in the EA;
- The maximum controlled release flow rate will be 20% of the upstream Cherwell Creek flow.

The criteria for the above conditions will be outlined in the revised draft EM Plan and EA conditions, and the calculations to derive these criteria are outlined in Appendix H3 (Surface Water Assessment – discharge criteria).

The revised draft EM Plan includes monitoring of receiving waters during controlled release discharges and these will be included in a Receiving Environment Monitoring Program.

The revised proposed controlled release criteria will limit the maximum EC in receiving waters to 1,000 $\mu$ S/cm. The DERM document “Conditions for Coal Mines in the Fitzroy Basin – Approach to Discharge Licensing version 10 June 2009” states that macroinvertebrate taxa are unlikely to be affected at or below 1,000 $\mu$ S/cm.

Monitoring of the quality of receiving waters during discharges and the proposed Receiving Environment Monitoring Program (both in the revised draft EM Plan) will ensure impacts on downstream receiving waters are managed, and if necessary specific mitigation measures will be adaptively developed in response to concerns identified from this monitoring.

#### **5.6.2.9 Redesign of Creek Diversions in Accordance with DERM’s Guidelines**

BMA’s objective for the diversion design was to adhere as closely as possible to DERM’s guidelines for water course diversions. Compliance with the guideline was achieved for the portion of Horse Creek diversion that is equivalent to that determined to be a water course for the purposes of the *Water Act 2000*.

Spatial constraints associated with the development of the Horse Pit resulted in the guideline not being fully implemented for the Caval Creek diversion. Although all hydraulic considerations of the guideline were met, there was insufficient corridor width available to provide any significant meander in the plan form without significantly impacting on the recovery of reserves. The concept design proposed a slight meander, with channel width amplitude, to mitigate any aesthetic impacts associated with a straight channel. Documentation relating to the constraints and proposed mitigation measures was provided to the (then) DNRW on 5 February 2009 and has been attached with this submission.

The above approach was considered appropriate for the following reasons:

- Discussions with the DNRW on 8 December indicated that, provided hydraulic parameters could be met, the main concern with a straight channel plan form was the aesthetic impact. The proposed channel width meander, coupled with revegetation, would break the straight channel appearance and thus significantly mitigate this impact.
- The Caval Creek catchment is relatively smaller than catchments to which the guidelines are typically applied. Hence the peak flow rates experienced by the diversion and resultant risks associated with the diversion are low.
- No practical alternatives were identified that would not impact on the recovery of reserves.

A meeting was held with Mr. Kerry Marler of DERM on 6 October 2009. At this meeting it was confirmed that the Horse Creek arrangements are satisfactory. In relation to Caval Creek, the rationale behind the concept



design proposal was further explained and justified. Mr Marler requested additional information and this information was subsequently provided by BMA.

It is BMA's understanding that DERM's diversion guideline and the ACARP study that underpins a significant portion of the guideline are only intended to apply to watercourse diversion applications under the Water Act. A watercourse for the purposes of the Water Act must exhibit features which are outlined in the act. These features were determined by the DNRW not to be present on the upstream portion of Horse Creek.

It is not considered appropriate to apply the guidelines in circumstances that are not aligned with their intended scope, particularly as the ACARP study which underpins the guidelines is based on a stochastic relationship indicative of diversion stability.

A meeting was held with Mr. Kerry Marler of DERM on 6 October 2009. At this meeting it was confirmed that Horse Creek arrangements are satisfactory and the guideline does not need to be applied to the section of Horse Creek upstream from the defined watercourse upstream limit.

#### **5.6.2.10 Provision of the Entire Diversion Final Design of Caval Creek**

BMA is only seeking approval for the portion of Caval Creek covered by the concept design. A stage 2 diversion was examined to ensure that the current proposed diversion is not incompatible with potential future mining development in the adjacent areas, if such mining were to occur. Only hydraulic parameters were considered by this examination as no such development is planned and spatial constraints are not defined. In the event such future mining development is proposed, any diversion proposal and the necessary approvals will need to be considered on their own merits.

#### **5.6.2.11 Effluent- Information on Proposed Treatment and Disinfection Process**

Waste management is discussed in Section 14 of the EIS and expected sewerage waste volumes are presented in Table 14.1.

The sewage treatment process will include bioreactors with anoxic and aerobic zones, mixed liquor return streams, mixers, aeration for carbonaceous and biological nitrogen removal. A sodium hypochlorite system shall provide disinfecting of final effluent. Membrane filtration will be provided prior to recycled water being transferred to the recycled water storage tanks. Sludge storage including digester including a supernatant recovery system for returning supernatant to the inlet works. The sludge storage digester will be designed to operate for 1 month between sludge removals at the stage 3 (2000EP) phase load.

The sludge residue (approx 15 t/yr) from the treatment plants will be removed from site by a licensed contractor and deposited in an approved location in accordance with Isaac Regional Council requirements.

Sewage waste water will be treated to Class A+ quality and used for irrigation on the site. Recycled water will be managed in accordance with the Australian Guidelines for Water Recycling - managing health and environmental risks (Phase 1) (2006).

#### **5.6.2.12 Surface Water Storages**

Surface water storages have been discussed in detail in Section 6 of the EIS. Table 6.8 *Summary of Mine Water Storages* provides a description of sediment dams and mine water storages. Pit water will be collected in mine water storages and reused in the process water system, while sediment control dams will collect stormwater runoff.

The sediment control dams will be allowed to overflow during flow events as their purpose is in-stream removal of sediment from runoff, not containment of runoff. Following a rainfall event water accumulated in sediment dams will be pumped to the pit and process water network in order to maximise their ability to contain sediment in subsequent events, facilitate maintenance and prevent any accumulation of salt. Under no circumstance will pit water be pumped into the sediment dams.

#### **5.6.2.13 Detailed Assessment of Effects of Inundation- 1 in 500 year ARI event**

A supplementary flood assessment has been completed to assess potential flooding of the site for rare (1 in 500) and up to extreme (1 in 3000) events. This assessment is provided in the Flood Assessment Report included as Appendix H2 of the EIS Supplement.

Levees will be constructed for the Horse and Heyford Pits to provide flood immunity for at least the 500 year ARI event.

#### **5.6.2.14 Wastewater Quality**

Runoff from mine spoil and other disturbed areas is not wastewater, it is simply runoff (mine water) with elevated levels of natural contaminants and should not be referred to as wastewater.

It is not possible to predict with any degree of certainty the likely quality of mine water until the mine is operational and mine water monitoring (as proposed in the Draft EIS – Figure 6.9) in the early phases of operations can be used to adapt the mine water management operations.

Past experience of BMA's operations and monitoring at Peak Downs Mine, and Goonyella Riverside Mine indicates mine water quality typically as follows:

- Runoff from mine spoil and around industrial areas typically has EC in the range of 500 to 3,000 $\mu$ S/cm and pH in the range of 6.0 to 9.5.
- Mine water pumped from mine pits (predominantly surface water with minor groundwater contribution) typically has EC in the range of 2,000 to 6,000 $\mu$ S/cm and pH in the range of 6.0 to 9.5.
- The higher EC values tend to occur in dry weather, and lower EC values tend to occur in wet weather.

Experience has shown that salinity (EC) is the water quality contaminant of concern, and that adequate management of salinity can address the concerns of metalloid contaminants. Operational monitoring will be used to continually improve knowledge and management of key contaminants.

Chemicals to be used in the coal processing include:

- Methyl Isobutyl Carbinol (MIBC);
- Anionic Flocc (acrylamide/acrylate); and
- Cationic Flocc (polydimethyl diyl ammonia chloride).

None of these chemicals will be present in any significant (detectable) quantity in the mine water because the coal processing waste (fines) will be dewatered within the CPP and recycled (i.e. closed system).

The waters that could be released from the site (either through controlled complaints releases, or very low probability uncontrolled dam overflows) will be predominantly mine water with elevated levels of natural contaminants, not wastewater.

Wastewaters will not be discharged. Mine water that may be discharged will only contain elevated levels of natural contaminants. Full characterisation of the mine water cannot occur until sampling can be conducted during mine operations.

#### **5.6.2.15 Potential for Low pH Pit Water**

Geochemical testing has shown that Permian materials (i.e. pit geology) practically have minimal potential to produce acidic (low pH) waters.

This finding is consistent with the BMA's similar existing coal mine operations in the northern portion of the Bowen Basin which show that low pH water is not a concern.

#### **5.6.2.16 Discharge Criteria**

The studies for the draft EIS and corresponding proposed release criteria were developed prior to recent studies undertaken by DERM regarding water quality issues in the Fitzroy Basin and subsequent draft documents for proposed changes to the approach to licensing of discharge from mines.

BMA's proposed discharge criteria have subsequently been revised taking account of recent changes in the approach to licensing of discharges.

There will be no mine water releases during dry periods.

There will be an infrequent need for controlled compliant releases that will be governed by:

- Flow rate in the receiving waters upstream of the discharge point
- Quality of mine water to be released
- Maximum flow rate of release related to portion of upstream receiving water flow, and
- Maximum limit of water quality in the downstream receiving waters.

The proposed controlled release criteria are outlined in the revised draft EM Plan and the basis for these criteria are presented in Appendix H3 (Surface Water- Assessment – Discharge Criteria).

There will be very rare uncontrolled (overflow) discharges from mine water dams that will be limited to 1 in 100 AEP. This recognises that fact that zero discharge is strictly theoretically impossible, (i.e. any containment system that has rainfall contribution has some small risk that it can overflow and cannot be prevented). What can be mitigated through design and operation of the water management system is the frequency of uncontrolled overflow discharges through the use of mine water balance modelling to ensure sufficient storage is available. Receiving environment flow and quality criteria will not apply to low probability uncontrolled overflow discharges because such discharges cannot be controlled by BMA.

#### **5.6.2.17 Management of Impacts on the Downstream Water Resources Including Aquatic and Riparian Taxa**

The retention of aquatic habitat and fluvial processes on the site is essential for continued ecological functionality. Therefore, to the extent practicable, areas beyond the intensive zone of development must be protected from direct impacts. Mitigation prescriptions to ensure this occurs include:

- All riparian areas and streams outside of the intensive development zones will be protected through early identification and maintenance of buffer zones;

- Adequate erosion and sediment control will be implemented where development, including construction of roads and tracks, encroaches near waterways;
- Monitoring of runoff will be undertaken to observe sediment loads and the extent of sediment distribution and to apply remediation measures where necessary;
- Vegetative stabilisation of soil throughout all non-operational zones within the mine infrastructure area will reduce potential for unanticipated erosive events; and
- Active rehabilitation of streams and riparian zones with native species will assist in ensuring impacts from the proposed works are offset in such a way that contributes to local ecological functionality.

With regards to stream diversions, Section 9.2 of the EIS indicates potential impacts on downstream ecosystems may occur due to alterations to base flows and the frequency and extent of flooding. However any diversions undertaken during dry conditions will result in minimal impacts on aquatic species, provided disturbance is minimised and natural creek bank morphology is restored. Environmental flows can also be maintained through controlled release from dams, as required.

Furthermore, while reduced water quality may result from mine run-off (e.g. from processing plants or stockpiles), most of the aquatic species within the vicinity of the project site are wide ranging and capable of withstanding a wide range of aquatic conditions.

Once appropriate mitigation measures and management plans are implemented (including those discussed above), the impacts of the construction and operational phases of the mine and associated infrastructure on aquatic ecosystems are predicted to be predominantly minor or negligible.

The revised proposed controlled release criteria will limit the maximum EC in receiving waters to 1,000 $\mu$ S/cm. The DERM document "Conditions for Coal Mines in the Fitzroy Basin – Approach to Discharge Licensing version 10 June 2009" states that macroinvertebrate taxa are unlikely to be affected at or below 1,000 $\mu$ S/cm.

Monitoring of the quality of receiving waters during discharges and the proposed Receiving Environment Monitoring Program (both in the revised draft EM Plan) will ensure impacts on downstream receiving waters are managed, and if necessary specific mitigation measures will be adaptively developed in response to concerns identified from this monitoring.

#### **5.6.2.18 Consideration of the Queensland Government Report, "A Study of the Cumulative Impacts on Water Quality of Mining Activities into the Fitzroy River Basin"**

The Queensland Government document "A study of the cumulative impacts on water quality of mining activities into the Fitzroy River Basin" has been considered for the revised discharge criteria proposed in the revised draft EM Plan. It should be noted that the Fitzroy Basin study does not provide adequate reference to basin hydrology or salt mass loads which will be essential to properly assess cumulative impacts on water quality. The study conclusions are also rather generic and non specific but recognise the important issues to gain better consistency for discharge licensing and a need to create a basin model. BMA will proactively support these initiatives.

The short term implications are that better consistency of discharge criteria are required, knowledge of salt mass load and water volume discharges from mines are required. The proponent acknowledges that the mining industry needs to be prepared to adapt to a changing regime of discharge licensing in the future as knowledge improves for the cumulative impacts or mine water discharges.



The revised discharge criteria for the project are aligned to the adaptive requirements needed to support better management of Fitzroy Basin water quality and are consistent with recently amended EA conditions for other BMA operations which are a direct outcome of the study.

#### **5.6.2.19 Stream Flow Measurements at the time of Sampling**

Stream flow measurements were not taken at the time of sampling. Stream flow will be measured during future sampling events. Sampling locations will be consistent with Section 3.4.8 Schedule C1-1 Table 1 of the draft EM plan.

#### **5.6.2.20 Use of Median Values for Water Quality Analysis**

Median values were used for the water quality analysis as insufficient samples had been collected, due to the ephemeral nature of watercourses at the site, to reliably calculate a 95<sup>th</sup> percentile. The maximum number of samples collected for any one site was six for Harrow Creek upstream site.

Implementation of the water quality monitoring regime outlined in the revised EM plan will enable the development of a continuous and long term data set from which informed comparisons to the ANZECC guidelines can be made.

#### **5.6.2.21 Consideration of Various DERM Documents in the Development of Discharge Criteria**

The revised controlled release discharge criteria in the revised draft EM Plan have been developed in accordance with these documents. A detailed assessment for the recommended EC limits is provided in Appendix H3 (Surface Water Assessment – Discharge Criteria). End-of-pipe limits for pH and suspended solids and sulfate concentrations are recommended to be the same as specified in the “*Conditions for Coal Mines in the Fitzroy Basin Approach to Discharge Licensing-Version 10, June 2009*”.

End-of-pipe limits should not apply for metals, metalloids, and other potential contaminants such as ammonia, nitrates, and hydrocarbons, at least until operational monitoring demonstrates the need for these to be applied as strict end-of-pipe limits. Nonetheless, the operations monitoring will monitor these contaminants in end-of-pipe discharges, in receiving waters (with set Trigger levels) and the potential effects of these contaminants will be monitored as part of the Receiving Environment Monitoring Program.

#### **5.6.2.22 Information on Downstream Water Users**

The hydrological and water quality impacts of the project will be minor and limited to the Cherwell Creek and Horse/Grosvenor Creek systems upstream of the Isaac River. There are no known water users relying on waters in the Cherwell Creek or Horse/Grosvenor Creek downstream of the project other than informal occasional use for stock drinking. The creeks are highly ephemeral and are not relied upon for permanent surface water source for livestock. The proposed limits for water quality will be adequate to protect the infrequent use of surface water for livestock.

#### **5.6.2.23 Removal of Dams that Capture Overland Flow at the End of Mining Operations**

The Fitzroy Basin WRP will be subject to at least two further revisions prior to mine closure. The need to decommission or otherwise potential benefit of retaining and decontaminating mine water dams will be reviewed in the future as part of mine closure planning.

#### **5.6.2.24 Inclusion of Hydraulic Modelling In the EIS**

Modelling for the construction and post construction phases has been undertaken and is provided in Appendix I2 of the EIS. Modelling was completed to the 1 in 100 ARI event.

### **5.7 Groundwater**

#### **5.7.1 Summary of Submissions**

The following submissions were received in relation to **Section 7 – Groundwater** of the Project draft EIS:

- DERM stated that the EIS should identify the requirement for BMA to obtain a water licence under the *Water Act 2000*.
- DERM required a hydrogeological investigation to assess the impacts of post-mining dewatering, and propose mitigation measures where necessary.
- DERM required a detailed description the proposed groundwater monitoring program, including monitoring bore locations, target aquifer(s), parameters to be monitored, frequency of monitoring and reporting of data collected.
- DERM required proposal of mitigation measures that would satisfy the make-good requirements.
- Isaac Regional Council suggested that the EIS reflect the sustainable management of groundwater and provide for the management and protection of aquifers in the area.

#### **5.7.2 Response to Submissions**

##### **5.7.2.1 Water Licence and Post Mining Dewatering Assessment**

In Queensland, a number of subartesian areas have been declared under the *Water Act 2000*. Some have been declared within water resource plans, while most have been declared under the *Water Regulation 2002*, both of which are subordinate legislation to the Act. Water licensing and development permit requirements for subartesian areas defined in the *Water Regulation 2002* are as follows:

- A water license is required to take or interfere with subartesian water, other than for the purposes specified within Schedule 11 of the *Water Regulation 2002*.
- Under the *Integrated Planning Act 1997*, a development permit is required to construct or install works that take subartesian water, other than works constructed or installed solely for the purposes mentioned within schedule 11 of the *Water Regulation 2002*.

The project lies within the Central Highlands declared groundwater area. Therefore, a water licence and a development permit are required for all bores that take from groundwater unless it is for stock or domestic purposes.

DERM have advised that despite groundwater inflows to the pit being minor and not likely to result in an impact to groundwater users, a water licence for the take of groundwater may be required. BMA will make the necessary application following receipt from DERM as to whether or not the licence is required.

##### **5.7.2.2 Hydrogeological Investigation to Assess the Impacts of Post-mining Dewatering**

Appendix E2 (Long Term Void Water Quality) includes an assessment of the final void water levels and quality based on modelled flows into and out of the pit, and includes an assessment of the extent of post mining dewatering. This modelling was conducted for three final void shapes and for both dry and wet climatic conditions.



Modelling has predicted the drawdown cones which will be created once void equilibrium water level is reached. The high evaporation and limited inflow into the void results in a drawdown cone around the final void.

BMA will update the final void model as new information is collected during the life of the mine, including from the establishment of a groundwater monitoring network as outlined in Appendix J (Groundwater Monitoring Plan). BMA will enter into agreements with landholders whose water supply may be affected by the operation of the mine post closure and have not yet already entered into an agreement, for the provision of alternative supplies after mine closure. The agreements will include a dispute resolution process and a make good for water arrangement to deal with future impacts.

Modelling by URS for the residual void scenarios demonstrates that the voids will probably function as sumps, hence flows of groundwater will tend to the void and not from it. Refer to Appendix E2 - Long Term Void Water Storage and Quality. The modelling shows that the drawdown effect on groundwater levels is localised. The results of modelled drawdown at equilibrium (post mining) are shown as Groundwater contours.

#### **5.7.2.3 Groundwater Monitoring Program**

A general groundwater monitoring program was presented in Section 7.2.3.1 of the EIS. The detailed proposed monitoring program is outlined in Appendix J (Groundwater Monitoring Program). It includes the location of monitoring bores, the aquifers targeted as well as the parameters to be measured. BMA will provide annual reports to DERM on the results of the monitoring program which include an assessment of the impacts of mining and the need to review the predicted future impacts.

#### **5.7.2.4 Mitigation Measures Satisfying the Make-good Requirements**

The coal seam will not be dewatered prior to mining. Sub-artesian water that drains to the pit will be managed in accordance with the EM Plan and Environmental Authority.

DERM have advised that despite groundwater inflows to the pit being minor and not likely to result in an impact to groundwater users, a water licence for the take of groundwater may be required. BMA will make the necessary application following receipt from DERM as to whether or not the licence is required.

As discussed in Section 7.2.3 of the EIS, should a detrimental impact on landholder groundwater supplies be detected, and shown to be related to the Caval Ridge Mine operations, whether during mining or post-closure, then BMA will seek to reach mutually agreeable arrangements with affected neighbouring groundwater users for the provision of alternate supplies throughout the mine life, and after mine closure. Options for alternate supplies include:

- Installations of new pumps capable of extracting groundwater from greater depth within existing bores.
- Deepening of existing bores.
- Installation of a new bore at another location on the property.
- Provision of piped water sourced from the mine (i.e. surplus water from the mine pit void dewatering program, depending on quality).

The specific arrangements for affected properties will be discussed with each relevant landholder with a view to reaching a mutually acceptable agreement.

### **5.7.2.5 Aquifer Management and Protection**

An assessment of the impacts of the proposed mining indicated that dewatering of the coal seam aquifers will occur during the life of the mine. A groundwater model, to assess the final void (Appendix E1 Final Void Study), was constructed and calibrated to simulate dewatering over an envisaged 30 year life of mine. The simulated drawdown of groundwater in the Permian coal seam formations is predicted to extend up to ~1,800m from the project site. The resultant drawdown is not envisaged to result in induced flow from the isolated shallow Quaternary and Tertiary aquifers due to low hydraulic connectivity between aquifers (as discussed in Section 7.2.1.1 of the EIS).

No neighbouring bores are located within the predicted zone of influence and as these aquifers are low yielding and contain poor quality (high salinity) groundwater the potential for future use is limited.

Based on the proposed mining plan, which includes a final void, the coal seam aquifer groundwater resources will not recover to pre-mining status. The management of this impact is, thus, to reduce the zone of influence and ensure no long term impacts on the regional groundwater resources.

The use of a final void with a limited catchment (to reduce runoff) will ensure that groundwater levels will not rebound to pre-mining elevations and groundwater flow patterns will not revert back to pre-mining conditions. The mining void will, therefore, continue to impact on the local groundwater causing a localised drawdown cone around the final void. This will prevent any poor quality void water migrating from site and entering the regional groundwater and surface water resources.

Consideration of reducing the final void depth and extending the catchment around the final void was given, which would have allowed for flushing and filling of the void. This may have allowed groundwater levels to reach pre-mining levels. However, the historic (100 year) rainfall data set indicates that the flooding would be too infrequent to maintain the void volumes and thus the groundwater levels. The use of clean runoff into the disturbed mining area was also considered to have an impact on down stream users.

Appendix E2 (Long term Void water Quality report) includes an assessment of the final void water levels and quality based on modelled flows into and out of the pit, and includes an assessment of the extent of post mining dewatering. This modelling was conducted for three final void shapes and for both dry and wet climatic conditions.

BMA will update the final void model as new information is collected during the life of the mine, including from the establishment of a groundwater monitoring network as outlined in Appendix J Groundwater Monitoring Program).

## **5.8 Terrestrial Ecology**

### **5.8.1 Summary of Submissions**

The following submissions were received in relation to **Section 8 – Terrestrial Ecology** of the Project draft EIS:

- DERM required detail of offsets, viable in the long-term and in accordance with the Queensland Government's Environmental Offsets policy, June 2008.
- DERM required consideration of alternative locations to components of the project which could be located outside endangered and remnant ecosystems (e.g. overland transport conveyor, mine infrastructure, and road and rail transport corridors).

- DERM requested additional requirements of the *Nature Conservation Act 1992* be addressed including impacts to biodiversity values, additional fauna surveys, impacts on koala populations (and mitigation measures), DERM 'Back on Track list, and a Species Management Plan.
- DERM required further consideration of the long term loss of habitat/ecosystems, rehabilitation of other disturbed areas, maintenance of threatened species and maintenance or restoration of connectivity of fauna habitat.
- DIP required that the ingress of invasive weed species within the lease area be addressed and management strategies implemented to prevent expansion of existing infestations into the surrounding landscape.
- DEWHA suggested that when referring to the EPBC Bluegrass community, the proponent needs to include the listing as it was when the referral was submitted, i.e., refer to the EC as 'Natural grasslands of the Queensland Central Highlands and the northern Fitzroy Basin (formerly listed as Bluegrass (*Dichanthium* spp.) dominant grasslands of the Brigalow Belt Bioregions (North and South).
- DEWHA suggested including a discussion on other Brigalow stands on the site not being cleared as to whether they will be impacted indirectly from i.e. dust, what is being done to mitigate these impacts, what is the quality and size of the stands not being cleared. Also, the Brigalow being dissected by the rail where the clearing is taking place, include more detail on the size of the stand left either of side of this clearing and justify why it is not a significant fragmentation of this ecological community.
- DEWHA required to clearly state whether suitable habitat for each of the EPBC listed species has been identified on the site, even if the species has not been found in surveys and provide justification to back up statements as to why the species is unlikely to be significantly impacted or habitat significantly fragmented.
- DEWHA required further discussion as to why the fragmentation occurring to the Brigalow community is not a significant fragmentation. Provide more information on the size of the entire patch that is being dissected by the rail and what size patch is left on either side. Provide sound justification as to why this fragmentation is not significant.
- DEWHA required more information on offsets proposed such as size and whether areas have been identified for offsets especially for Bluegrass EC. When providing proposed offset areas or indication whether there are current mining or exploration leases on that land.
- DEWHA required cross referencing to evidence backing up statements against criteria be provided in the EIS.
- DEWHA suggested that BMA further discuss the approvals obtained for ML1775 prior to the EPBC Act and provide information on quantity and what type of vegetation will be cleared under the approvals obtained prior to July 2000 and what approvals were obtained at this time. BMA will need to provide evidence of the approvals obtained prior to July 2000 so that DEWHA can check whether the clearing of this vegetation is exempt from the EPBC Act and does not require offsets should the vegetation be listed under the EPBC Act.
- Isaac Regional Council expressed that mine operation needs to satisfactorily address the ingress of invasive weed species within the lease area and implement management strategies to prevent further expansions of existing infestations into the surrounding rural landscape.

## 5.8.2 Response to Submissions

### 5.8.2.1 Impacts to EPBC Endangered natural grassland community

All references to this community in future documentation (EIS Addendum, Environmental Management Plan, Biodiversity Offsets strategy) will refer to the community as the 'Natural grasslands of the Queensland Central Highlands and the northern Fitzroy Basin (formerly listed as bluegrass (*Dichanthium spp.*) dominant grasslands of the Brigalow Belt Bioregions).

The extent of the natural grassland (RE 11.8.11) grassland on Cainozoic igneous) community to be proposed to be disturbed by vegetation clearance (124.6 ha) is detailed in Section 8.1.2.1 and Table 8.4 of the EIS; and Section 5.1.1 and 5.3 Table of Appendix K.

Specific detail on the nature of potential impacts to this community are outlined within section of 5.1.4, Appendix K of the EIS. Impact mitigation and Compensatory measures are detailed in Sections 5.3.2, 5.3.3, Table 5.2 and Table 5.3 in Appendix K of the EIS. Measures outlined include:

- Only areas absolutely necessary for the construction and the operation of the project to be cleared. Clearance to be controlled by a Permit to Disturb process, and go/no-go areas will be identified on site, and managed through a GIS system.
- Utilise standard dust suppression techniques to reduce dust leaving the construction area. Utilise standard dust suppression techniques to reduce dust leaving the preparation (ROM and CHPP) and transport (conveyor / rail corridor) areas.
- Strategically rehabilitate available disturbed areas to minimise the net loss of vegetative cover.
- Biodiversity offset of vegetation loss that cannot be mitigated otherwise.

### 5.8.2.2 Biodiversity Offset Management Plan

A biodiversity offsets package is being developed in consultation with DEWHA as a separate Biodiversity Offset Management Plan to address the requirements of both the current State & Commonwealth offset policies. The Offset Management Plan will be implemented over an appropriate time frame to accomplish the following objectives:

- Identify suitable potential offset areas with ecological values analogous to EPBC endangered ecological communities: Brigalow (*Acacia harpophylla* dominant and sub-dominant); and Natural Grasslands of the Queensland Central Highlands;
- assess the ecological value and equivalence of offsets to ensure comparable offset extent, species assemblage, floristic structure and ecological integrity utilising an appropriate biometric methodology,
- develop appropriate management prescriptions to ensure long term viability of offsets (such as pest control, livestock management, access exclusion, ameliorative plantings and fire regime management);
- develop appropriate covenants for the future conservation and management of offsets; and
- develop appropriate monitoring and maintenance activities and performance review process to ensure long term viability of the offsets.

The extent of significant vegetation communities proposed to be offset is detailed in Section 8.1.2.1 and Table 8.4 of the EIS; and Section 5.1.1 and 5.3 Table of Appendix K. The process of developing a suitable Biodiversity Offset Management Plan is an iterative process with State and Commonwealth regulatory bodies.

### **5.8.2.3 Relocation of Infrastructure to Minimise Impacts to Brigalow**

The previous location of the coal conveyor belt in the southern area of the project dissected a stand of significant brigalow dominated vegetation (RE 11.4.9), (Figure 8.6 Section 8.1.1.3 of EIS). The previous location of the conveyor would have directly resulted in the clearing of 4.4ha of brigalow, leaving two stands of brigalow approximately 3.3ha and 19.5ha in extent to the north of the conveyor and one larger stand of contiguous vegetation of approximately 82.4ha to the south of the conveyor. Fragmentation of this stand will potentially increase edge effects to the brigalow communities from weed invasion, particularly effecting the two smaller extents of less viable brigalow to the north of the conveyor.

A re-design of the conveyor corridor has been undertaken to minimise clearing impacts and fragmentation of this community. The previous conveyor corridor width was approximately 120m wide to allow for a service road and associated infrastructure. Reconsideration of the conveyor corridor design and relocation of the proposed service road has allowed for the conveyor corridor to be narrowed significantly to 40m.

The conveyor alignment itself has also been moved approximately 360m to the north of the previous design to minimise the area intersection the brigalow community. The re-location and narrowing of the conveyor corridor has effectively halved the brigalow proposed to be clearing, resulting in an extent of approximately 2.1ha of brigalow potentially impacted.

Direct clearing impacts on this community previously represented approximately 0.03% of the local extent of brigalow. This has been reduced to 0.015% of the local extent with the re-alignment and reduction of width for the conveyor.

The redesign of the conveyor corridor has also effectively increased the surface area and extent of connectivity of the stand of remaining brigalow to the south of the conveyor. Increasing it to a single 117 ha stand of contiguous vegetation. This reduces the probability of edge effects to this community and increases the long term habitat viability.

Potential impacts associated with the operation of the overland conveyor are likely to be restricted to particulate emissions (e.g. coal dust) and their effect upon vegetation immediately adjacent to the overland conveyor (e.g. reduced photosynthetic and transpiration rates). The adoption of standard dust suppression will minimise any such impacts. It is anticipated that operation of the overland conveyor would have limited deleterious impacts on native fauna.

Re-design of the conveyor to move it further north (and ideally out of the brigalow community) was investigated, however to do so would require the installation of transfer towers and other associated infrastructure such as a power supply and water supply for dust suppression, all of which amounts to potential significant impacts to the adjacent vegetation.

### **5.8.2.4 Assessment of Impacts to significant species and vegetation communities**

Specific and detailed assessment of impacts to all vegetation communities and conservation significant species including endangered, vulnerable, rare and near threatened species (including the koala) are identified and outlined in within Section 8.2.2, Table 8.11, Table 8.12 and Appendix K of the EIS. Assessment includes source of impact, impact type (e.g. direct, indirect, habitat loss, etc) likelihood of impact occurrence, mitigation and /or compensatory measures and residual impact classification. Specific impacts to all 'of least concern' species are not addressed specifically and are not a requirement of the TOR, however impacts to 'of least concern species' are implicitly addressed under the descriptions of overall

impacts to faunal assemblages in Section 8.2.2 of the EIS and Section 5.0 Appendix K. Specific detail on direct mechanisms for mitigation and compensatory measures for the management of conservation significant species and vegetation communities, and pest species are also outlined within the both construction and operation Environmental Management Plans.

#### **5.8.2.5 Fauna Survey**

The survey design, methodology and survey effort undertaken for the baseline flora and fauna assessments were developed and undertaken by experienced ecologists and fully meet the requirements of the ToR for the project. The survey is consistent with the currently accepted standards for full terrestrial vertebrate fauna surveys and vascular flora surveys in Queensland (EPA, 1999). The surveys undertaken effectively quantify the faunal and floral assemblages for the study area for the purpose of impact assessment. Surveys include review of fourteen previous ecological surveys of the site (Appendix 1 of Appendix K the EIS) under different seasonal and climatic conditions. Further fauna surveys conducted in the proposed overland conveyor area are not expected to reveal further data on faunal assemblages of potential for conservation significant species that cannot not be derived or extrapolated from current survey data. Pre-clearing fauna surveys within appropriate habitat will be conducted to mitigate potential impacts to conservation significant species. Measures for pre-clearing surveys will be outlined within the fauna section of Construction Environmental Management Plan.

#### **5.8.2.6 'Back on Track' Species.**

Discussion of the DERM 'back on track' species list has not previously been addressed in the EIS as it was not a requirement of the ToR. It should also be noted that the 'back on track' species listings and associated Recovery Actions Database (RAD) is still under development as a framework for DERM to prioritise conservation tasks for significant species. DERM have been contacted (pers. comm. Senior Conservation Officer, Threatened Species and Ecosystems Unit, Conservation Services Division) and have undertaken to provide any draft information that may be available for relevant 'back on track species'. This information will be considered, and incorporated into mitigation strategies where appropriate, as it comes to hand.

#### **5.8.2.7 Identification of EPBC Listed Species Habitat on Site**

Presence of suitable habitat for conservation significant species listed under the EPBC act is described in Section 8.2.1.1 and Table 8.8 of the EIS, and discussed in specific detail in Section 4.3.3 of Appendix K of the EIS. Habitat values for species are also discussed in detail in Section 4.3.8 of Appendix K of the EIS.

#### **5.8.2.8 Rehabilitation and Long Term Maintenance of Habitat**

Long term re-establishment of ecosystem functionality is a key objective of the rehabilitation plan for the project (Section 4.8.6 of the EIS). Steps identified to meet this objective include:

- Success criteria and targets (Section 4.8.6.1, Table 4.30 and Section 3.7.5 of Appendix Q of the EIS)
- Specific rehabilitation prescriptions and (Section 4.8.6.5 of the EIS)
- Maintenance requirements (Section 4.8.6.5 of the EIS)
- Monitoring requirements (Section 4.8.7, and Section 3.7.7 of Appendix Q of the EIS)
- Rehabilitation commitments (Section 3.7.8 of Appendix Q of the EIS)

The above steps are outlined to guide progressive rehabilitation of disturbed areas in order to ensure the long term re-establishment of ecosystems and habitat. Opportunities to enhance or restore connectivity of

habitat across the landscape will be identified during development of a detailed Rehabilitation Management Plan that addresses site specific rehabilitation issues and requirements relevant to operations as they progress. The above commitments are proposed to be listed as Environmental Authority Conditions for the Project (Section 3.7.9 of Appendix Q of the EIS).

The above includes a commitment to undertake progressive rehabilitation of disturbed ground within 2 years of disturbance, this timeframe for rehabilitation is in keeping with industry best standard, and complies with the objectives of the BMA Guideline for the Design of Sustainable Mine Landforms (Appendix R5). The commitment is also proposed in the EMP (Appendix Q of the EIS) to be a condition of the mine Environmental Authority.

#### **5.8.2.9 EPBC MNES Assessment of Significant Impacts**

A third column has been developed to add to the Assessment Table in Appendix 7 of Appendix K (EIS). This assessment against criteria indicates either the Section of EIS and Ecological Technical report (or other scientific reference) that substantiated or correlates with the assessment of impact (Appendix A1).

#### **5.8.2.10 Approvals Obtained for ML 1775**

ML 1775 is subject to various Surface Area (SA) approvals issued under the Central Queensland Coal Associates Agreement Act, 1968 (CQCAA Act) and the Mineral Resources Act, 1989. Surface Area approvals are applied for on an as needs basis for surface disturbance by mining and approved SAs are recorded in some instances on the ML Instrument of Grant and associated registered SA surveys plans. The first (SA 1) was issued on 22/12/1983 (ML grant date). SA 7 was issued on 11/1/2000. SAs are approved sequentially, therefore SA 1 – 7 were issued on or before 11/1/2000. Copies of SA survey plans can be provided on request.

The extent of areas to be cleared and areas with pre-2000 SA Approval are presented in Figure 8.5 of the EIS.

The status of vegetation (under the Vegetation Management Act and EPBC Act), area to be disturbed (Including Approved and To be Approved (offset)) areas, is provided in the Caval Ridge EIS (Table 8.4 - Approximate current extent of ground-truthed REs within the Bioregion, Local Government Area and Project Site and extent to be disturbed during the Project).

#### **5.8.2.11 Weed Management**

The EIS and the EMP have commitments for the development and implementation of construction and site environmental management plans which will include a weed management plan (Appendix Q Section 3.9.5, of EIS, and Section 4.8.6.5 of EIS). This weed management plan will include:

- Implementation of effective weed management strategies to control the spread of declared weed species across the project site (including herbicide spraying).
- Weed hygiene protocols for machinery and vehicles entering and leaving the project site.
- Ongoing monitoring of the project site to identify any new incidence of weed infestation or changes in known extents of declared weeds.

The Caval Ridge Biodiversity Offset Plan will also include commitments for weed management. Details of weed management controls will be site specific and will be finalised once the offset locations are confirmed. However the broad guidelines detailed above will be incorporated into the plan.

The above commitments for weed management will be added to the commitment register.

## **5.9 Aquatic Ecology**

### **5.9.1 Summary of Submissions**

The following submissions were received in relation to **Section 9 – Aquatic Ecology** of the Project draft EIS:

- QPI&F suggested that any creek or gully crossings required provide for fish passage and do not impede fish migration.
- QPI&F suggested that best practice controls for erosion and sedimentation be implemented and any riparian zone vegetation or badly eroded creek systems be rehabilitated to minimise impacts on fish habitat, although it considered that the immediate area surrounding the mine offers minimal fisheries habitat value.
- DERM required an assessment of the impacts on downstream environmental values (including analysis of which aquatic and riparian taxa are likely to be impacted) of controlled releases of surface waters, and discharges during and after mining. The EIS should also consider appropriate mitigation strategies to manage identified impacts.
- DERM required a detailed assessment of the impact of stream diversions on downstream environmental values, stream connectivity and opportunities for movement of aquatic fauna. The EIS and Draft EM plan should propose mitigation strategies for any identified impacts.

### **5.9.2 Response to Submissions**

An assessment for aquatic values associated with the waterways of the site is detailed within Section 4.4 of Appendix K of the EIS.

#### **5.9.2.1 Potential Impacts**

##### ***Loss of habitat***

All watercourses in the study area are ephemeral and as such offer little year-round habitat opportunities for aquatic fauna. When creeks do run, flows are often short lived and opportunities for aquatic fauna to breed and disperse are limited. As a result, impacts to aquatic fauna due to loss of habitat are likely to be limited. There are no records of significant aquatic fauna or flora on the project site that will be impacted by the proposed works.

##### ***Sedimentation***

Mobilisation of sediment into watercourses has the potential to impact on aquatic fauna despite the ephemeral nature of the streams. Flows can often be of large volume at high velocity. This, in conjunction with the variable dispersive and erosive nature of the soils, indicates there is potential for major sediment mobilisation. Local loss of habitat features such as gravel beds and in-stream timber by smothering with sediment could potentially occur. Transport of sediment throughout the catchment into the larger rivers and marine environments could also result in impacts to aquatic ecosystems although run-off from the project site will only be minor contributor to sediment load in the entire catchment.

##### ***Transport of Pollutants***

Given the ephemeral nature of the waterways within the project site, the large-scale and long distance transport of pollutants is unlikely. However, during high flow events, pollutants may be transported into the

Isaac River and to the Fitzroy River system. Depending upon the nature and volume of the release, impacts to the receiving environment may or may not be significant. Thorough site water management planning will minimise the likelihood of mobilisation of chemicals or wastes into the waterways. This is covered in detail in the Surface Water chapter of the EIS (Section 6).

### ***Mine Water Discharges***

Proposed discharge criteria for the mine water management system is detailed above in Section 5.6.2. Discharge criteria has been revised to comply with the recommendations of recent DERM guidelines, including:

- A study of the cumulative impacts on water quality of the mining activities into the Fitzroy Basin;
- Conditions for Coal Mines in the Fitzroy Basin – Approach to Discharge Licensing Ver10 June 2009; and
- Final Model Water Conditions for Coal Mine in the Fitzroy Basin July 2009”.

Discharge criteria is designed to ensure maintain downstream receiving water EC is maintained at 1,000µS/cm or less to protect aquatic ecosystems, as per the above guidelines. Refer above to the surface water resources section, (Section 5.6.2) for further detail on the proposed control release criteria and associated monitoring program.

### **5.9.2.2 Impact Mitigation and Management**

The retention of aquatic habitat and fluvial processes on the site is essential for continued ecological functionality. Therefore, to the extent practicable, areas beyond the intensive zone of development must be protected from direct impacts. Mitigation prescriptions to ensure this occurs include:

- All riparian areas and streams outside of the intensive development zones will be protected through early identification and maintenance of buffer zones;
- Adequate erosion and sediment control will be implemented where development, including construction of roads and tracks, encroaches near waterways;
- Monitoring of runoff will be undertaken to observe sediment loads and the extent of sediment distribution and to apply remediation measures where necessary;
- Vegetative stabilisation of soil throughout all non-operational zones within the mine infrastructure area will reduce potential for unanticipated erosive events; and
- Active rehabilitation of streams and riparian zones with native species will assist in ensuring impacts from the proposed works are offset in such a way that contributes to local ecological functionality.

### **5.9.2.3 Waterway crossings**

Construction of creek or gully crossings will provide for fish passage where deemed appropriate. Construction of minor and major diversions will be in designed in accordance with the Department Natural Resources and Water (DNRW) 2005 Watercourse Diversions - Central Queensland Mining Industry Guideline Version No 1 and the Bowen Basin River Diversions, Design and Rehabilitation Criteria, Australian Coal Association Research Program (ACARP).

### **5.9.2.4 Erosion and sedimentation control**

Best Practice for erosion and sediment control is outlined within the mine Construction and Operation EMP's and will be under taken in accordance wit the guideline as for construction of river way diversions within the BMA Guideline for the Design of Sustainable Mine Landforms (EIS Appendix R5). Guidelines include:

- Where dispersive earth forms the embankments, batter slopes of less than 15%, are required unless the batters are lined with competent coarse durable sandstone, volcanic rock or some other equivalent permanently durable rock material; and
- Maintenance of vegetative buffer around existing creeks, rivers and diversions sufficient to demonstrate that there is a 50 m wide clearance between crest of the creek, river or diversion embankment and the projected toe of the spoil emplacement after it has been regraded to <10% for Tertiary spoil and <12% for Permian spoil.

## 5.10 Air Quality

### 5.10.1 Summary of Submissions

The following submissions were received in relation to **Section 10 – Air Quality** of the Project draft EIS:

- DEEDI requested more detailed mitigation measures and a clear procedure to deal with community complaints on air quality.
- DERM required that the impacts on air quality be reassessed after monitoring background air quality using appropriate methods, and clarifying emission rate estimates in the EIS. The EIS should consider the size and nature of the nearest sensitive receptor when comparing the Caval Ridge mine site to other similar operations.
- DERM stated that proximity to major sensitive receptors and the type and size of the nearest sensitive receptor were not considered in considering emission factors.
- DERM requested a discussion on coal carriage veneering as a potential mitigation measure, with modelling undertaken to assess its appropriateness. Reference should be had to Queensland Rail and its current Coal Loss Management Project. DERM also required a discussion on site specific and region wide coal dust transportation issues.
- DERM requested discussion on maintenance and monitoring of ROM stockpile timers, water sprayers and cannons.
- Isaac Regional Council requested that the operation not emit particulate dust contamination levels beyond the mining tenement lease above the existing pre-development background levels measured at the property boundary due to the impact on amenity and health of residents in Moranbah. The council also requested that the EIS address how the ROM coal stock piles should be buffered to protect against dust generation.
- Isaac Regional Council recommended that all the operational components of the mine be enclosed to minimise dust and that a real time, on line integrated monitoring system of high volume air sampling and dust deposition be established.
- Isaac Regional Council requested that all disturbed mining areas be rapidly re-vegetated and stabilised to prevent dust and surface water pollution from the site exceeding the pre-development levels at the property boundary.
- DTMR expressed that the EIS over-states the effectiveness of the proposed spray-on chemical reagent process to suppress dust emissions; recommendations were given to reword the statement.
- DTMR requested that dust mitigation measures be expanded to include overloading controls designed to prevent wagon over-loading and that incorporate a load-profiling process which flattens and shapes the coal load reducing aerodynamic drag.

- QH recommended that the mitigation measures and mining practices necessary to achieve compliance with the PM<sub>10</sub> and PM<sub>2.5</sub> EPP (Air) 2008 air quality objectives at all sensitive receptors be reconsidered. An exceedance of the PM<sub>10</sub> air quality objective during stage 1 monitoring should trigger additional mitigation measures to be implemented to achieve the air quality goals.
- CFMEU commented that a 24hr/365 day per year real time atmospheric, noise and vibration monitoring program established within a 40km zone of Moranbah to gain this vital background information for the good of the community, current and future operation approvals. This monitoring must include permanent monitoring stations within and around the community of Moranbah for as long as mining occurs within a 40 km radius. This cost should be shared by all current and proposed operators of mines within this radius. Additional to this BMA is to commit to continuous monitoring around the Caval Ridge mine for the life of the project.
- CFMEU commented that maintaining separation of fleets and cutting back scale of operations or ceasing operations be included as hard controls (triggers under a TARP system) for controlling the amount of dust generated.
- CFMEU commented that the methodology of assessment for air quality to be finalised before any granting of approval to mine.
- Community members were concerned about the potential health impacts that dust may have on the residents of Moranbah, particularly on children and those suffering from asthma and hay fever. There was also concern about the potential for silicosis in the community and impacts from the blasting fumes.
- Community members raised concerns about the potential nuisance that dust deposited in the township of Moranbah may cause.
- Community members were concerned about the potential visual impact of the mine relating to dust generated by the operation, particularly relating to the use of draglines and blasting.
- DIP required that the Caval Ridge Coal Mine project is to operate in a manner that does not sterilise land identified as future growth areas through the MGGM planning process and IPA planning scheme process for the Moranbah township (reduce mine footprint and subsequently reduce air quality impacts).

## **5.10.2 Response to Submissions**

### **5.10.2.1 Procedure on Dealing With Community Complaints on Air Quality**

Since the submission of the Caval Ridge EIS, there have been changes to the project due to ongoing optimisation of the design as well as in response to submissions received. These include dust mitigation measures which are described in Sections 2 and 5. Mitigations measure and detail of the proposed monitoring program is presented in Section 3 of the revised EMP.

In addition, as part of the construction and site environmental management plans there will be procedures in place to register and where appropriate respond to complaints of potential environmental impacts resulting from the Caval Ridge Project. As part of the sites ISO 14001 EMS mitigation measures to address complaints will be implemented and revised as required.

### **5.10.2.2 Reassessment of Air Quality Impacts, Use of Appropriate Air Quality Monitoring Methods and Clarification of Emission Rate Estimates**

Comments regarding the use of DustTrak are noted. However, estimates of background levels are not dissimilar to those used in other similar studies in the area. Perhaps more significantly, the use of a single value for background levels for the entire study domain (which is standard practice) is likely to be associated with a level of uncertainty which exceeds that associated with the instrumentation used to date. Moving



forward, BMA is committed to the continuous monitoring of particulate matter (as PM<sub>10</sub> and PM<sub>2.5</sub>) at a minimum of two locations (airport and a location yet to be determined between the Caval Ridge mine and the Township of Moranbah) based on the Qld DERM approved method of TEOMs.

The issue relating to the presentation of emissions rates has been addressed in Sections 1 and 2 of Appendix B.

Potential impacts on air quality from dust associated with the Caval Ridge project has been re-assessed based on refinements to the modelling methodology as outlined in the Caval Ridge EIS supplementary air quality assessment.

#### **5.10.2.3 Consideration for the Size and Nature of the Nearest Sensitive Receptor**

Receptor locations have been considered in Chapter 10 of the Caval Ridge EIS and Appendix L of the EIS.

#### **5.10.2.4 Coal Carriage Veneering Option**

BMA, as part of the Industry engagement, are involved in the development of a nuisance Coal Dust Management Plan by QR as part of their TEP. This management plan is considering options of mainline wagon veneering stations versus sites load-outs veneering stations. BMA is committed to either contributing to the mainline veneering stations or the installation of veneering at the load-outs at each mine, including Caval Ridge. Veneering agents and dose rates are yet to be defined for particular coals.

BMA will continue to consider suitable dust suppression agents to mitigate dust impacts from coal transport.

#### **5.10.2.5 Maintenance and Monitoring of ROM stockpile timers, water sprayers and cannons**

ROM stockpile timers, water sprays and canons will form part of the routine scheduled maintenance regime. Should the timers, water sprays or canons become inoperable, in the first instance they would be replaced using spares carried on site or secondly, the system is to be fitted with manual bypass valves as a short term solution. None of these tasks are seen as difficult or require considerable time to repair.

#### **5.10.2.6 Minimising the Impact of Dust Emissions From Site on Local Air Quality**

A zero dust level above background at the mining lease boundary is neither achievable, a reasonable compliance level, nor has this been applied to any other mining operation within the State of Queensland.

BMA have committed to a number of operational practices that are designed to minimise the impact of dust emissions from the site on local air quality. Realised impacts will be assessed via a comprehensive ambient air monitoring program as outlined in Section 4.3 of the Caval Ridge EIS supplementary Air Quality Assessment Appendix B.

Cumulative impacts associated with dust-generating activities have not been explicitly modelled due to the reasons outlined in Section 4.2 of the Caval Ridge EIS supplementary Air Quality Assessment Appendix B.

#### **5.10.2.7 Reduction in Dust Emissions Through Industry Best Practice Measures**

Proposed mitigation measures were outlined in Section 10.2.6 of Chapter 10 of the Caval Ridge EIS as well as Table 3-7 of Section 3.4.2 of Appendix L of the Caval Ridge EIS.

In addition, Section 10.2.13 of the EIS contains a much more detailed list of mitigation measures that BMA is proposing to implement. The measures in 10.2.13 include a number of engineering controls and dust

suppression measures, the measures stated in this section are likely to meet or exceed industry best practice, discussed below:

Dust mitigation for the operation of the project involves several elements to ensure adequate management of air quality in the vicinity of the mine, namely:

- Engineering control measures
- Dust suppression measures
- Rehabilitation of exposed surfaces
- Operational procedures
- Measurement of ambient air quality.

### ***Engineering Control Measures***

BMA has designed engineering control measures into the project where appropriate and technically possible. In particular, these control measures have been applied at the CHPP and include the following:

- Enclosure of transfer points and sizing stations
- Roof on overland conveyors
- Belt washing and belt scrapers to minimise dust from the return conveyors
- Reduced drop height from stackers to stockpiles
- Enclosure of raw coal surge bins.

The dust mitigation associated with these engineering controls has been incorporated into the impact assessment for the project.

### ***Dust Suppression Measures***

Dust suppression measures primarily include the application of water to control dust emissions. The following measures will be implemented:

- Watering of haul roads to best-practice level of more than 2 litres/m<sup>2</sup>/hour of water applied.
- Watering of ROM stockpiles using water sprays and water cannons that are operated on timers. The use of timers avoids the potential for missing a scheduled watering operation. The timers can also be operated manually in particularly hot or windy conditions.
- Fogging system on outlets from transfer points and sizing stations.
- Water sprays on stacker/reclaimer units.
- High moisture content of product coal and reject material as they leave the CHPP which avoids the need for supplementary watering. Immediately after the coal is dewatered in the CHPP, the coal will be above the dust extinction moisture limit (the lower limit at which dust-prone materials will no longer create dust) and so will not be a source of dust.

- Train load out to incorporate chemical reagent to be sprayed onto the surface of each loaded wagon. This will form a barrier that binds small dust particles together and prevents dust generation from the coal trains as they are transported from the project to the port.

### ***Rehabilitation of Exposed Surfaces***

Rehabilitation of exposed surfaces will be undertaken progressively as mining and stockpiling activities are completed. The effective time from first mining activities on each area of land, until that area is rehabilitated and hence has effective dust control from vegetation, has been estimated to be five years. A detailed rehabilitation plan will be developed for the project, which will include the use of fast-growing temporary cover material to accelerate the effectiveness of dust controls. Improving the effectiveness and time for rehabilitation measures will result in reduced dust emissions from exposed areas, however these benefits cannot be incorporated into modelling until the rehabilitation strategy has been formulated.

### ***Operational Procedures***

Operational procedures set out how the project is to be operated in order to meet targets for air quality performance. In relation to air quality, the following procedures will be incorporated into the site operational procedures:

- Use of water trucks to achieve sufficient watering of haul roads and other high-risk areas. The schedule for truck use will be developed for the project and will incorporate consideration of recent rainfall and weather conditions.
- Use of water sprays and foggers as directed, with additional use as determined by ambient conditions.
- Maintenance of water spray equipment and engineering controls to minimise dust emissions.
- Maintenance of all fuel-burning equipment to reduce air pollutant emissions and maximise fuel efficiency.
- Sufficient number of watering trucks to allow for continuation of dust suppression when one or more trucks are out of service.
- Monitoring of ambient air quality in the vicinity of the mine.
- Restrictions on pre-strip and overburden dumping in the north of Horse Pit for adverse weather conditions as assessed by visual inspection combined with on-site meteorological monitoring data.

These procedures will be incorporated into the site EM Plan. The EM Plan will be regularly audited to ensure that these key elements for air quality management are satisfied.

### ***Dust Suppression Measures at CHPP Facility and ROM Stockpiles***

The CHPP facility will include fixed dust suppression systems on all Crushed ROM stockpiles and ROM stockpiles in the vicinity of the ROM dump hopper. Coal handling facilities will be enclosed by chutes and local dust suppression sprays at loading and transfer points. General conveyor and building are not fully enclosed.

Additional mitigation measures have been incorporated and impacts re-assessed as discussed in Section 1.2 of the Caval Ridge EIS supplementary air quality assessment included as Appendix B. These mitigation



measures will reduce the emission of dust from the site. Reduction in emissions will benefit sensitive receptors.

#### **5.10.2.8 Revised and Expanded Ambient Air Monitoring Program**

A revised and expanded ambient air monitoring program has been proposed. Details are provided in Section 4.1 of the Caval Ridge Supplementary Air Quality Assessment which is located in Appendix B.

#### **5.10.2.9 Rapid Revegetation and Stabilisation of Disturbed Areas to Prevent Dust Pollution**

BMA is committed to progressive rehabilitation of areas disturbed, however a maximum period of 1 month is not practical.

The EIS EMP (3.7.6.2) states that rehabilitation of disturbed land will generally proceed within two years of the areas becoming available for rehabilitation. In some situations, progressive rehabilitation may not be possible because the area may be effectively integrated with areas nearby that are unavailable for rehabilitation.

#### **5.10.2.10 Effectiveness of Proposed Spray-on Chemical Reagent Process for Dust Suppression**

BMA is currently engaging with QRC, QR and other stakeholders in regards to this specific matter as the outcome will not only apply to the Caval Ridge project, but to operations exporting coal through the ports of Gladstone and Hay Point.

An operation/site based chemical reagent dosing system will be considered further if a mainline chemical reagent dosing system is not implemented.

#### **5.10.2.11 Train Load Out (TLO) Facility Overloading Controls and Load Profiling**

The coal train load out (TLO) facility will be installed with outgoing load weighers that will monitor the wagon loads and provide feedback to the TLO to prevent consistent overloading.

The TLO telescoping loader will flood load the wagon and as such provide a flattened top for the load in the wagon.

#### **5.10.2.12 Revision of Mitigation Measures to Demonstrate Compliance with EPP Air Objectives**

Mitigation measures have been revised and expanded and re-modelling undertaken in order to demonstrate that compliance with the EPP (Air) objective for the 24-hour average ground-level concentration of  $50\mu\text{g}/\text{m}^3$  within the Township of Moranbah is achievable. As presented in Section 3.2.2 of the Caval Ridge EIS supplementary Air Quality Assessment (Appendix B) emissions of dust from the project based on modelling data are predicted to contribute  $21\mu\text{g}/\text{m}^3$  to air quality in Moranbah under typical operating conditions.

#### **5.10.2.13 Commitment to Continuous Monitoring of Particulate Matter**

Changes to the proposed ambient air monitoring program are outlined in Section 4.1 of the Caval Ridge EIS supplementary air quality assessment included as Appendix B. BMA will manage their operations to meet the requirement of approvals and the site environmental management system.

BMA is committed to the continuous monitoring of particulate matter (as  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$ ) at a minimum of two locations (Moranbah Airport and a location yet to be determined between the Caval Ridge mine and the Township of Moranbah).



#### **5.10.2.14 Dust Mitigation Measures, Cessation/Reduction of Operations**

Dust mitigation measures and operational dust controls will be developed and implemented as part of the site environmental management system. The effectiveness of the proposed controls will be evaluated on a regular basis as part of the EMS requirements. These controls are not expected to include the cessation or reduction of operations.

#### **5.10.2.15 Revision of Air Quality Assessment**

The air quality assessment has been revised and impacts re-assessed as outlined in the Caval Ridge EIS supplementary air quality assessment included as Appendix B.

#### **5.10.2.16 Community Concerns Over Impacts of Dust on Health and Amenity**

These concerns have been noted and additional dust control measures and changes to ambient air monitoring program are outlined in the Caval Ridge EIS supplementary air quality assessment included as Appendix B.

BMA will monitor potential dust impacts and apply additional mitigation measures if required.

Although BMA provides significant contributions to the community through its community investment programs (over \$23 million in FY09) BMA is currently not involved in any health studies regarding potential dust impacts.

The visual impacts of mining with specific relation to draglines will decrease as the mine progresses eastward towards the Moranbah Access Road. Visual plumes from blasting will be visible throughout the life of the project. However, the introduction of dust into the atmosphere during the daytime hours is preferable to other times during the day as daytime heating and convection will enhance plume dispersion. Operational practices associated with blasting require consideration of meteorological conditions at the time of blasting in order to minimise the potential for adverse impacts associated with this activity. In addition blasting at night is considered unsafe.

The impacts of emissions of dust from the project site on dust levels within the Township of Moranbah and surrounding area has been re-assessed and results are presented in Appendix B of the Caval Ridge EIS Supplementary report.

Results of the revised dispersion modelling suggest that the Caval Ridge project will contribute a maximum of  $21\mu\text{g}/\text{m}^3$  to the 24-hour average ground-level concentration of  $\text{PM}_{10}$  at receptor locations within the Township of Moranbah under normal operating conditions.

During worst-case 24-hour operating conditions, dust emissions from the Caval Ridge project are predicted to contribute a maximum of  $33\mu\text{g}/\text{m}^3$  to the 24-hour average ground-level concentration of  $\text{PM}_{10}$  at receptor locations within the Township of Moranbah. The likelihood of optimal operational conditions (as modelled) occurring in combination with meteorological conditions that are associated with worst case dust impacts is estimated at 0.002% (equivalent to 1 day in 131.5 years).

The annual average ground-level concentration of  $\text{PM}_{2.5}$  is not predicted to exceed the EPP(Air) objective of  $8\mu\text{g}/\text{m}^3$  at any of the receptor locations under typical operations.



Ground-level concentrations of TSP and dust deposition are not predicted to exceed the relevant project goals at any of the receptor locations included in the dispersion modelling.

BMA have committed to a number of operational practices that are designed to minimise the impact of dust emissions from the site on local air quality. Realised impacts will be assessed via a comprehensive ambient air monitoring program as outlined in Section 4.3 of the Caval Ridge EIS supplementary Air Quality Assessment Appendix B.

#### **5.10.2.17 Non-sterilisation of MGMT-identified Future Growth Areas**

At the time of commencing the EIS and the original modelling presented in the EIS, the PM<sub>10</sub> limits were 150µg/m<sup>3</sup>. Based on this the air quality would not exceed compliance levels.

Under normal operating conditions the Caval Ridge Project will not sterilise land identified as a future growth area for the Moranbah township through the MGMT planning process and IPA planning scheme process.

Since the submission of the Caval Ridge EIS there have been changes to the project in response to submissions received and due to further optimisation of the project design. These include dust mitigation measures which are described in Sections 2 and 5. Mitigation measures and detail of the proposed monitoring program are presented in of the revised EMP.

Current modelling indicates that the identified site will not be adversely affected and that the future development of this site is still viable.

### **5.11 Greenhouse Gases and Climate Change**

#### **5.11.1 Summary of Submissions**

The following submissions were received in relation to **Section 11 – Greenhouse Gases and Climate Change** of the Project draft EIS:

- DIP requested detail of the cumulative effect of greenhouse gas production of the FIFO and DIDO arrangements for the project.

#### **5.11.2 Response to Submissions**

As described in section 11.3.5 of the EIS, materiality is a concept used in accounting and auditing to minimise time spent verifying amounts and figures that do not impact a company's accounts or inventory in a material way. Emissions are assumed to be immaterial if they are likely to account for less than 5% of the overall emission profile.

The emissions produced by the FIFO and DIDO (scope 3) arrangements for the project when compared to the scope 3 emissions from the other components of the project are immaterial. The table below provides the Scope 3 Life of Mine emissions for each of the sources assessed, and their percentage contribution to the overall scope 3 emissions of the project.

### Scope 3 Life of Mine Emissions for each of the Sources Assessed

Scope	Source	Life of Mine Emissions (t CO <sub>2</sub> -e)	Percentage Contribution to Overall Scope 3 Emissions (%)
3	Coal railing and terminal handling	1,445,754	0.3
3	Coal shipping	2,900,327	0.6
3	Coal end use	442,431,000	99.1
Total Scope 3		446,777,081	100

As can be seen, the contribution of coal railing and terminal handling is immaterial compared to the emissions from coal end use. For the FIFO arrangement to produce the same amount of t CO<sub>2</sub>-e as for the coal railing and terminal handling, this would be equivalent to approximately 260 return flights between Brisbane and Moranbah per week over the life of the project<sup>2</sup>. Emissions produced by the FIFO and DIDO arrangements are therefore considered immaterial.

## 5.12 Noise and Vibration

### 5.12.1 Summary of Submissions

The following submissions were received in relation to **Section 12 – Noise and Vibration** of the Project draft EIS:

- DERM required further assessment of noise levels at sensitive locations where noise levels are predicted to exceed the calculated limits in DERM's Guideline. Mitigation measures that would protect the qualities of the acoustic environment should be proposed.
- QH recommended that sensitive receptors housing BMA employees be afforded the same air, acoustic and vibration goals as private residents.
- QH recommended that where properties cannot be resumed, additional mitigation measures are employed to achieve the noise criteria at those locations.
- QH recommended that the potential adverse health impacts from low frequency noise be mitigated.
- QH recommended that the need to blast on Sundays and Saturday afternoons be reconsidered and that blasting design to reduce vibration levels be investigated.
- QH recommends that blasting design should also be considered to reduce vibration levels.
- QH required a description of how vibrations objectives for human health at all seven sensitive receptors locations will be achieved.
- QH recommends that the proponent ensure that occupants within BMA properties are afforded the same air, noise and vibration quality as other sensitive receptors.
- QH required a complaint management strategy to be developed that includes details of how the community can lodge a complaint and the process for resolution.

<sup>2</sup> Based on a fuel use of 800L per one way trip (provided by subcontractors to Qantas Link), and NPI Factors, Table 3, Column C, Aviation Gasoline.

- Community members raised concerns about the level of potential noise generated from the mine and associated activities (especially at night).
- Community members were concerned about the level of existing ground vibration within the Moranbah township and the potential for the project to add to this disturbance (particularly with regard to damage to infrastructure and sleep disturbance).

## **5.12.2 Response to Submissions**

### **5.12.2.1 Mitigating Measures For Low Frequency Noise**

BMA's response to this submission about low frequency noise is contained in Appendix K (Low Frequency Noise).

### **5.12.2.2 Affording the same air, acoustic and vibration goals to BMA employees as with private residents**

Any mitigation at these BMA owned properties would be complaints based (in combination with validation monitoring if required). The primary form of mitigation at these properties will be an adverse noise, vibration and air quality out clause in all leases.

This will then allow BMA to progressively (if required) vacate these properties as and when any complaints arise.

### **5.12.2.3 Further Assessment of Noise Levels at Sensitive Locations Where Exceedance is Predicted**

There are four categories of properties (totalling 12) where exceedances of the Planning for Noise Control guidelines have been predicted.

#### **BMA Owned Properties**

Five of the 12 properties are owned by BMA. The exceedances (of the most stringent Leq criterion) at these 5 locations range from 7 dBA to 37 dBA. Indeed, 4 of the 5 range between 12 dBA and 37 dBA.

Any mitigation at these BMA owned properties would be complaints based (in combination with validation monitoring if required). The primary form of mitigation at these properties will be an adverse noise and vibration out clause in all leases.

This will then allow BMA to progressively vacate these properties as and when any complaints arise and noise monitoring shows exceedances of the criteria.

#### **Anglo Owned Properties**

Three of the 12 properties are owned by Anglo. It should be noted that Location 13 was incorrectly shown as being a privately owned property in the EIS. It is in fact owned by Anglo.

The exceedances (of the most stringent Leq criterion) at these 3 locations range from a marginal 1 dBA up to 18 dBA.

Any mitigation at these Anglo owned properties would be complaints based (in combination with validation monitoring). Mitigation measures may include the following: (1) vacating the premises (2) building façade upgrades (e.g. double glazing of windows) in combination with A/C to allow windows to be shut.



This will then allow BMA to progressively address any noise issues as and when complaints arise and noise monitoring shows exceedences of the criteria.

#### **Privately Owned Properties with Significant Exceedences to the Criteria**

Only 1 of the 12 properties falls into this category. The exceedence (of the most stringent Leq criterion) at this location is 17 dBA.

As stated in the EIS, there are no engineering controls available to achieve compliance at this property and as such BMA are currently in negotiations with the owners of this property.

#### **Privately Owned Properties with Marginal Exceedences to the Criteria**

Three of the 12 properties fall into this category. The exceedences (of the most stringent Leq criterion) at these 3 locations range from 2 dBA to 3 dBA. It is commonly accepted in the acoustic fraternity that changes in noise levels of up to 2 dBA are undetectable to the human ear and therefore considered negligible. 3 dBA is commonly accepted as being just detectable.

Given that:

- All environmental noise modelling has a certain accuracy tolerance – standard practice is +/- 2 dBA and
- The exceedences are marginal

BMA will commence an on-going noise monitoring program and implement mitigation measures as required.

Given the costs involved in mitigation treatments, it is considered appropriate to confirm the modelling results with measurements prior to implementing such measures.

Mitigation measures may include the following: (1) vacating the premises (2) building façade upgrades (e.g. double glazing of windows) in combination with A/C to allow windows to be shut.

The precise locations of the noise monitoring have not been determined but as for all noise monitoring programs, an appropriate number of locations shall be chosen to ensure spatial coverage of all noise-sensitive locations surrounding the mine.

It is cost prohibitive to monitor at all surrounding locations all the time.

By use of the mobile noise monitoring station, all surrounding locations may be monitored for a defined period of time on a rotating basis. This mobile station is also intended to be responsive to any complaints.

#### **5.12.2.4 Additional Mitigation Measures to Achieve Noise Criteria**

The information presented in the EIS is based on modelling. Given the costs involved in mitigation treatments, it is considered appropriate to confirm the modelling results with measurements prior to implementing such measures. BMA will commence an on-going noise monitoring program and implement mitigation measures as required.

#### **5.12.2.5 Blasting on Sundays and Saturday afternoons**

Given the large proportion of residents work roster patterns at surrounding mines, there is not a single period during the week that the workforce is at rest. At any stage of the week, someone is having their weekend. The effects of blasting on the community are more dependent on weather and atmospheric conditions - BMA



will consider weather and atmospheric conditions when deciding whether or not to proceed with blasting which might be noticed by the community.

#### **5.12.2.6 Consideration of Blast Design to Reduce Vibration**

When blasting in the northern section of Caval Ridge Mine where vibration may impact on the community, vibration levels will be considered during blast design.

The only properties where exceedences of the blasting criteria have been predicted are either (a) already owned by BMA, (b) owned by Anglo where an agreement with BMA is anticipated or (c) BMA are in negotiations to purchase the property. Subject to completion of this agreement and purchase, BMA will be in a position to control occupancy at these properties. Complaints will be recorded and managed using complaints processes built into the site EMS.

BMA uses standard industry practice for blast design which includes blast mitigation measures.

#### **5.12.2.7 Complaint Management Strategy**

BMA will develop an ISO 14001 EMS for the Caval Ridge Mine. This management system will include a process for registering and addressing complaints regarding the potential impacts of the Caval Ridge project. In addition it is expected that the EA for the Caval Ridge mine will include a condition to investigate and report noise related complaints.

#### **5.12.2.8 Community Concerns On Noise and Ground Vibration**

All of these issues (blasting, off-site traffic noise and mobile machinery) have been assessed in the EIS using the appropriate guidelines/standards which have been developed to specifically address such issues and where practicable appropriate controls will be introduced.

A detailed summary response to mobile machinery is provided above in Issue 4.73. In summary:

- 5 (of 12) owned by BMA where vacating the properties (when required) will be the form of mitigation.
- 3 (of 12) owned by Anglo where agreements need to be reached as to which form of mitigation (vacating, building treatments) is applied.
- 1 (of 12) owned privately where vacating or relocating the property is the only means of mitigation.
- 3 (of 12) owned privately where the predicted exceedence is marginal (up to 3 dBA) where monitoring has been recommended to confirm the predictions before mitigation (vacating, building treatments) is implemented.

No mitigation measures were required to meet the noise criteria applicable to off-site traffic.

Six locations were predicted to exceed the blasting limits. Five of these properties are owned by BMA where vacating the premises (when required) will be the primary mitigation measure, however there are numerous changes to blasting techniques that are also available such as reducing the blast MIC and sequencing of blasts delays. The remaining property is owned by Anglo where agreements need to be reached as to which form of mitigation (vacating the property or modifying blasting techniques) is applied.

## 5.13 Infrastructure and Traffic

### 5.13.1 Summary of Submissions

The following submissions were received in relation to **Section 13 – Infrastructure and Traffic** of the Project draft EIS:

- DCS raised concern that a significant increase in the usage of the road network coupled with an increase of 'oversized vehicles' utilised during the construction phase, will put an increased pressure on existing emergency response capabilities.
- Isaac Regional Council requested that the impacts on road transport and the service levels of road infrastructure resulting from the transport of transitional workforces be assessed.
- Isaac Regional Council requested a below grade access connection between the separate mining operations on either side of the Peak Downs Highway to allow for the uninterrupted continuance of the stock route along Peak Downs Highway at the existing natural ground level.
- DTMR required detail strategies for ensuring bus patronage commitments are met in the long term.
- DTMR expressed that several subsections raise concerns about DTMR-supplied high background traffic growth figures for the Peak Downs Hwy and their potential to affect impact mitigation requirements. The assessment of road related impacts should continue to use the supplier traffic growth figures.
- DTMR required that all changes or additions to utilities/services in road reserves should be negotiated and approved before commencement of works.
- DTMR expressed that it is expected off-site matters such as contributions towards upgrading the Moranbah Access Rd & Winchester Rd intersections will be dealt with separately, for example as conditions of approval and if necessary a separate agreement.
- QPS requested to be involved in the development of the Traffic Management Plan and that bus transport be considered for FIFO and DIDO workers.
- QPS raised that consideration should be given by developers regarding contributions to the cost of police vehicles. QPS has identified a need for one additional marked police vehicle for traffic patrols and wide load escorts.
- QPS recommends the construction of higher walls on either side of the overpass to restrict the vision of passing motorists down onto the mine site and therefore reduce the risk of traffic crashes occurring as a result of distraction, is recommended.
- QPS required that the cumulative impact of other mining, energy and infrastructure projects in the Bowen Basin be identified and not just those associated with the BBCGP.
- QPS requested higher walls be constructed on either side of the overpass to restrict the vision of passing motorists down onto the mine site and minimise distraction.
- QPS requested consideration of park-up areas within the Moranbah Police Division and in other locations along the major roads, in particular Peak Downs Highway and Moranbah Access Road.
- QPS encouraged the development and implementation of a training or awareness program on fatigue and road safety for BMA employees.
- QPS requested information on the number of oversized deliveries to assist in planning for police capacity and resourcing. QPS requested the proponent open dialogue regarding permit approvals for over dimensional vehicles.

- CFMEU expressed that BMA should put up funding to offset the lower lifespan and immediately contribute 0.4% of the cost of replacing the road in a fund for this purpose. In addition they should immediately fund the next 2 priority overtaking lanes on the Peak Downs Highway.
- Community members raised concerns about the increased level of traffic that will be present on the road network around the project site as well as congestion and potential safety on the Peak Downs Highway between Moranbah Access Road and Mackay.

## **5.13.2 Response to Submissions**

### **5.13.2.1 Minimising Potential Traffic Impact to Road Network**

The traffic assessment presented in Section 13 and Appendix N of the EIS assesses the impact of increased traffic generated from the project on the road network. Mitigation measures such as intersection upgrades and development of traffic management plans for movements of oversized vehicles have been included.

BMA will continue to work with DTMR to minimise the potential impact of the Caval Ridge Project on the surrounding road network and ensure that emergency response requirements are not adversely impacted.

BMA is committed to developing emergency response plans in consultation with the appropriate agencies and organisations such as QFRS.

Section 13 and Appendix N of the EIS provide the results of the traffic impact assessment of the impact of increased heavy and light vehicle traffic related to the Caval Ridge Mine. The EIS also provides information on the proposed mitigation measures including bussing employees between accommodation and mine site and upgrading intersections (Sections 13.4.1 and 13.4.2).

### **5.13.2.2 Access Connection Between the Separate Mining Operations on Either side of the Peak Downs Highway**

Both above grade and below grade options were considered for the separation of mining operations from the Peak Downs Highway.

Above grade separation was considered the most beneficial from public safety point of view. To minimise the impact on the stock route, BMA have proposed an alternate route which will maintain connectivity of the stock route (EIS - Fig. 3.2d). BMA are committed to work with DTMR to ensure access and egress on to the Peak Downs Highway is safe and practical.

### **5.13.2.3 Strategies for Ensuring Bus Patronage Commitments**

Caval Ridge is based on a predominantly FIFO arrangement and as such lends itself to busses as the primary mode of transportation between the accommodation and the mine site. Employees engaged on a FIFO basis can only travel to work by means provided by the company – their private motor vehicles are located back at the FIFO base. This practice not only reduces the number of vehicles but also forms part of the commitment to fatigue management. BMA remain committed to using busses for this purpose.

### **5.13.2.4 Use of Traffic Growth Rates Provided by DTMR**

The traffic growth rates supplied by DTMR were used for the first 14 years of construction and operation. Given these rates are observed from a period of very high traffic growth, more conservative traffic growth was adopted for the final 21 years of the project life. These traffic growth rates have been discussed and agreed with DTMR.

#### **5.13.2.5 Working with DTMR- Planning and Development of Utilities/Services in Road Reserves; Intersection Upgrades**

BMA is currently and will continue to work with DTMR regarding the planning and development of utilities and services in road reserves. Proposed changes will be agreed and approved by DTMR prior to commencement of works.

BMA is currently and will continue to work with DTMR regarding upgrades to intersections required as a result of potential impact from the Caval Ridge Project. Contributions resulting from final agreement will be separate from the EIS process.

#### **5.13.2.6 Involvement of QPS in the development of Traffic Management Plan**

BMA will consult with QPS when developing the traffic management plan for Caval Ridge Mine.

#### **5.13.2.7 Developer Contributions Towards the Cost of Police Vehicles**

Provision of police vehicles is a state government responsibility; however BMA would welcome the opportunity to work with QPS on a safety education campaign extending to all of the BMA communities.

#### **5.13.2.8 Overpass anti-gawking/anti throw screens**

The overpass has been designed to include anti gawking/anti throw screens of suitable height and as approved by the DTMR to restrict vision down onto the mine by passing motorists.

#### **5.13.2.9 Park up Areas**

BMA will identify and locate appropriate park up area/s as deemed necessary in conjunction with the DTMR and Isaac Regional Council as part of approvals associated with the proposed PD Highway overpass.

#### **5.13.2.10 Training or awareness program on fatigue and road safety**

BMA considers fatigue management and safety of employees as a high priority. Therefore raising awareness of employees is achieved through:

- A fatigue management policy
- Journey management planning (including consideration hours of rest in days prior to journey)
- Regular safety presentations

#### **5.13.2.11 Provision of the Number of Oversize Deliveries to QPS, Permits for Over dimensional Vehicles**

BMA will provide the number of oversized deliveries to the QPS once the final design for the project is completed to assist the QPS in planning for capacity and resourcing in so far as wide load movements are concerned.

BMA will liaise with QPS regarding permit approval for over dimensional vehicles when the details of these requirements are finalised.

#### **5.13.2.12 Provision of Funding for Road Maintenance and Upgrade**

BMA is continuing consultation with DTMR regarding the aspects of the proposed alterations along the Peak Downs Highway, including impacts to the road pavement from construction and operational activities.

### **5.13.2.13 Community Concern Over Increased Level of Traffic**

The spatial extent of the proposed developments impact on the external road network has been defined in accordance with DTMR's Guidelines for the Assessment of Road Impacts of Developments, that is where the mine's traffic will exceed 5% of existing traffic volumes. The assessment is provided in Section 13 and Appendix N of the EIS.

BMA will continue to work with DTMR to achieve a practical solution to potential impacts on the road networks around the project site.

## **5.14 Waste Management**

### **5.14.1 Summary of Submissions**

The following submission was received in relation to **Section 14 - Waste Management** of the Project draft EIS:

- DERM requested a description of the construction methods associated with containment and disposal of construction spoil and solid and liquid handling.
- Isaac Regional Council requested information on the process of disposing additional solid and sewerage waste waters from the operation and the likely increase in the volume of this waste.

### **5.14.2 Response to Submissions**

#### **5.14.2.1 Containment and Disposal of Construction Spoil**

Inert construction spoil will be placed and mixed in designated mine spoil areas. Waste will be dumped in spoil and mixed into spoil with dozers. These areas will then be covered with prestrip and rehabilitated.

The designated areas will be documented and identified in the construction and site environmental management plans. These areas, as with other spoil rehabilitation will be managed to minimise surface exposure.

Solid & liquid waste (e.g. Construction fuels, oils and chemicals) will be stored, dispensed and contained within appropriately designed bunded areas in accordance AS 1940. Waste from these products will be removed by licenced contractors and disposed of at an approved facility.

#### **5.14.2.2 Process of Disposing Additional Solid and Sewage Waste Water**

Waste management is discussed in Section 14 of the EIS and expected waste volumes are presented in Table 14.1.

The sludge residue (approx 15t/yr) from the treatment plants will be removed from site by a licensed contractor and deposited in an approved location in accordance with Isaac Regional Council requirements.

Sewage waste water will be treated to Class A+ quality and used for irrigation on the site. Recycled water will be managed in accordance with the Australian Guidelines for Water Recycling - managing health and environmental risks (Phase 1) (2006).

## 5.15 Cultural Heritage

### 5.15.1 Summary of Submissions

The following submissions were received in relation to **Section 15 – Cultural Heritage** of the Project draft EIS:

- DERM required that a process be identified for the mitigation of impacts to any places of non-indigenous cultural heritage significance and which may be discovered during the construction, operation or decommissioning of the mine, including the recording and reporting of such places to DERM under the *Queensland Heritage Act 1992*.
- BBKKY Native Title Steering Committee suggests that an agreement be developed between the traditional owners and the proponent that centres on respect for the rights and interests of indigenous people and lays the foundation for intergenerational benefits. (BBKKY have in draft an agreement framework).
- BBKKY Native Title Steering Committee suggests that a Steering Committee consisting of TO's, proponent staff and relevant government agencies is suggested be set up for all the growth projects for the purpose of:
  - Achieving a strong partnership between the TO's and proponent that facilitates pathways for employment and training opportunities in collaboration with Government agencies.
  - Facilitating enhanced indigenous participation in the minerals industry and related economic activities through supported pathways from education and training to employment and enterprise.
  - Contributing to positive socio-economic outcomes for indigenous communities in supporting the Government's commitment to addressing indigenous disadvantage and strengthening indigenous economic development, the mineral industry's commitment to ensuring societal benefit through the development of natural resources and a shared minerals industry and government commitment to work with local indigenous communities and TO's and organisations to enhance community capacity and support a sustainable future.
  - Facilitating enhance access to employment related training and supply chain opportunities.
- BBKKY Native Title Steering Committee suggests that a formalised engagement strategy should be developed in collaboration with TO's and Indigenous community members outlining proponents commitment to employment, training and business opportunities for the TO's.
- BBKKY Native Title Steering Committee expressed that the current Cultural Heritage body does not represent all of the BBKY people as stated in the EIS. It suggests that proponent engage with BBKKY NT Steering Committee.
- DIP raises concern that increased BMA activity in the region is likely to have a significant impact on Indigenous cultural property, particularly along creeks/watercourses where most artefacts still remain in situ.

## **5.15.2 Response to Submissions**

### **5.15.2.1 Construction, Pre-Clearing, Operational Activities: Strategies to mitigate impact to unexpected cultural heritage material or sites**

Section 15.3.5.3 *Impact Mitigation and Recommendation* of the EIS states BMA commitment to addressing Cultural Heritage Management in the Construction and Site Environmental Management Plans. These plans will include a variety of management strategies to mitigate impact and potential impact to unexpected cultural heritage (Indigenous and non indigenous) material or sites found during the construction and pre-clearing activities during operations of the project:

- Provide all new employees with suitable training to provide them with the skills to identify cultural heritage sites or objects and report the find to the Site Environmental Advisor.
- Inform all employees of their obligations to notify the, Site Environmental Advisor of any cultural heritage finds.
- Implement a procedure that requires a permit before any relevant employees able to undertake any clearing or excavations activities.
- Development of a cultural heritage policy for management of existing cultural heritage sites or finds.
- Inform the Site Environmental Advisors of their obligations to notify the DERM of any relevant finds.
- Undertake regular cultural heritage educational sessions and distribute educational material. This material should inform the employees of what cultural heritage material may look like, and give them clear instructions on what to do if they find anything.

BMA will include these strategies, where appropriate, in the contractors' construction environmental management plan and the site environmental management plan

### **5.15.2.2 Development of an Agreement Between the Traditional Owners and the Proponent; Engagement/Coordination with BBKKY Native Title Steering Committee**

To date BMA has consulted with the Barada Barna Kabalbara and Yetimarla #4 group (BBKY) regarding matters of Native Title and Indigenous Cultural Heritage.

BBKY made their application to the National Native Title Tribunal (NNTT) on 31 July 2001. The application was registered by the NNTT on 5 April 2002. The BBKY application was later dismissed.

On 12 November 2008, a new claim over the geographical area covering the Caval Ridge project was submitted by the BaradaBarna (BB). This claim was registered by the NNTT on 9 October 2009.

During the time when no registered claim was in place BMA maintained consultation with representatives of the previous registered claimants, the BBKY.

BMA has entered into discussions with BB and is committed to ensuring that the Native Title interests are captured during community consultation and the EIS process and that an agreed cultural heritage management plan (CHMP) is developed.

Contact has been made with a representative of BBKKY, however, it should be noted that the BBKKY group currently has no known legal recognition, nor has any submitted Native Title Claims to the geographical area in which the Caval Ridge project is located. Such recognition or submitted claims would require BMA to either engage directly with or enter into any agreements with. BMA would maintain contact as necessary, should this situation change.

### **5.15.2.3 Possibility of Setting up of a Steering Committee for Growth Projects**

BMA will continue discussions with BaradaBarna (BB) for the Caval Ridge project to continue the strong relationship between BMA and BB.

BMA will also continue to work with the registered traditional owners for all growth projects.

BMA is developing an Indigenous Strategy which will encourage indigenous employment and business opportunities in the community. This strategy is expected to be developed and ready for implementation by mid 2010. The strategy will investigate ways that indigenous employment can be incorporated into the project. BMA is consulting with Government (meetings have been held with DEEDI, DEIR, DEWR, DETA and QMEA) and the community to develop this strategy.

### **5.15.2.4 Development of a Formalised Engagement Strategy**

BMA is developing an Indigenous Strategy which will encourage indigenous employment and business opportunities in the community. This strategy will investigate ways that indigenous employment can be incorporated into the project.

### **5.15.2.5 Concern Regarding Impact of BMA activity on Indigenous Cultural Property**

BMA has in place a comprehensive Cultural Heritage Management Program. The BMA Permit to Disturb system is used to ensure areas are surveyed for Indigenous Cultural Heritage artefacts and mitigation measures implemented prior to disturbance of those areas.

## **5.16 Community Consultation**

### **5.16.1 Summary of Submissions**

The following submissions were received in relation to **Section 16 - Community Consultation** of the Project draft EIS:

- A community member commented that the EIS is unreadable for the average community member

### **5.16.2 Response to Submissions**

BMA recognises that an EIS document can be viewed by the community, government and various technical specialists as overly complicated and highly technical documents. To address this, BMA has produced a Community Overview booklet, providing easy-to-read summaries of each chapter in the EIS. The Community Overview is designed to provide a more accessible format for the community. A similar document will be prepared and made available for the supplementary EIS.

In addition, the EIS document included an Executive Summary which as far as practicable presented the technical EIS information into a comprehensive summary of the key findings.

## **5.17 Social**

### **5.17.1 Summary of Submissions**

The following comments were received in relation to **Section 17 - Social** of the Project draft EIS:

- QFRS sought confirmation that water infrastructure will be upgraded to cope with the increased residential lots and unit sites within Moranbah and Dysart townships.
- QFRS supported the recruitment of BMA personnel as auxiliary fire-fighters.

- Department of Communities advised that BMA provide adequate affordable housing as well as housing choice within the township of Moranbah.
- Department of Communities argues that the drive in/drive out component constitutes a workplace health and safety issue, which could, in part, be alleviated by securing permanent accommodation within the township of Moranbah. The department advises that the EIS should reflect his mitigation strategy by acceding to the Isaac Regional Council's housing policy objectives.
- Department of Communities advises that the proponent should continue to develop workforce strategies to attract and retain women, people from different cultural backgrounds, and people with disabilities as stated in Section 17.5.3.1 of the EIS.
- Department of Communities advises that the proponent should continue to consult with local government, community and service agencies on all matters of community concern.
- DEEDI recommended a commitment be made to Indigenous employment opportunities throughout the project. The Indigenous Workforce Strategy guideline should be applied under the Project Assurance Framework.
- DEEDI offered its assistance to the project to maximise employment opportunities for local people,
- DEEDI requested more detailed mitigation measures and a clear procedure to deal with community complaints on air quality as a social and economic impact.
- Isaac Regional Council requested that the social impacts resulting from transitional workforces and not housing workers locally be addressed.
- Isaac Regional Council requested that economic benefits of the project be used to allocate additional water and housing resources to Moranbah.
- Isaac Regional Council stated that the presentation of the project in a light of isolation does not reflect the guiding intent of the integration process of the local communities (within the amalgamated Isaac Regional Council).
- Isaac Regional Council required that the EIS accurately address the process of ensuring that sufficient water is available of ordinary operations of the mine under drought conditions.
- QH recommended the name of the accommodation facility and approvals required be clarified (Denham Village/ Peak Downs Accommodation Village) in Sections 3 and 17.
- QPS recommended housing be allocated for government services to mitigate the impact to these agencies and improve attraction and retention of officers to the community.
- QPS recommended data obtained to determine police resourcing requirements for the project.
- QPS recommends the proponent work with them to develop and implement measures aimed at reducing domestic violence.
- QPS will work with the proponent to support the development of a code of conduct regarding good order. This is in relation with costs associated with increase in calls for service associated with good order and alcohol related violence.
- CFMEU commented that a scientifically based Trigger Action Response Plan (TARP) be set up to control the activities occurring on site that could impact on near neighbours to the project and the town of Moranbah.
- CFMEU suggested that BMA is to include free provision of land for housing construction for State Government and Council workers, community and emergency accommodation. If this cannot be done

from the existing land stock BMA holds, then BMA must work with the relevant Local and State Government authorities to make free land available.

- CFMEU suggested that BMA must make a contribution to the relevant Council area for the increased infrastructure required.
- CFMEU raised that BMA must put up the funds necessary to cater for the new housing developments in coastal population centres.
- CFMEU raised that BMA is to commit to housing assistance packages in Moranbah for its employees who wish to reside in Moranbah or Dysart as per existing housing schemes for these towns. As part of this commitment BMA is to ensure there are housing blocks and housing available.
- CFMEU raised that BMA is to make meaningful contributions to the Regional Council to offset the costs associated with its proposed mine. This is to include but not be limited to:
  - Purchase and transfer of additional water allocation to cater for the additional water supply required.
  - Capital allocation to the Regional Council for additional waste water and rubbish disposal.
  - Additional council road maintenance costs.
- CFMEU suggested that BMA make housing and infrastructure donations to upgrade and ensure sufficient accommodation for police, ambulance, hospital and other medical facilities to cater for the increased call on their services. This is to take account of multiplier effects.
- CFMEU suggested that performance indicators and triggered actions for the SIP to be finalised before any granting of approval to mine.
- There was community concern about camp accommodation for Fly-in-Fly-out (FIFO) workforces. The community raised concerns about the location, visual amenity and potential behavioural issues that may be experienced at potentially male-dominated camps.
- The Autism Spectrum Disorder Coalfields Support Group expressed concern about the mine and its effects on the liveability of the township of Moranbah.
- The Autism Spectrum Disorder Coalfields Support Group expressed concern on the community's inadequate facilities and specialist help for children with autism.
- Community members raised concerns about impacts to community identity and lifestyle as a result of the Project and the potential loss of population as a result of negative impacts.
- Community members raised concerns about impacts to town infrastructure.
- Community raised concerns about the introduction of FIFO workforces, the impact on the local economy and the increase in transient workforces.
- A community member raised Lifestyle impacts as a result of an open cut mine as opposed to an underground mine.
- Community members raised concerns about increased rates.
- Community Members raised concerns about health care and specialist medical services.
- DIP requires that the proposed mitigation/management strategies need to be set in the context of these existing state and Australian government policies and programs to maximise their effectiveness and to demonstrate BMA's willingness to collaborate with community and government partners.
- DIP commented that the proposed mitigation/management strategies are very high level and do not have timelines or performance indicators- these need to be recast as actions.

- DIP required a discussion on how the suggested strategies support local and regional cultural values including Indigenous cultural identity and therefore make a contribution to regionally identified tourism strategies/aspirations to develop better tourism opportunities.
- DIP noted that the proposed SIP should include a strategy that demonstrates good practice in relation to managing dust, noise and vibration on communities such as enclosing all operational components that contribute to the dust problem.
- DIP required that Dust mitigation strategies should also include 1) a clear procedure to deal with community complaints on air quality 2) a BMA led study of the cumulative effects of dust, noise and vibration in Moranbah which recommends strategies to reduce cumulative effects and 3) through DERM, the development and implementation of an independent monitoring program lead by BMA and funded on a proportionate basis by all Proponents.
- DIP recommends that BMA build on its current community involvement to develop a workforce code of conduct.
- DIP recommends that BMA take a proactive approach to reduce demand on QPS services or at least prevent increased demand on their services as BMA growth projects become operational
- DIP required a discussion on the consultation that has occurred with local and regional stakeholders about BMA worker accommodation.
- DIP seeks clarification regarding BMA's primary responsibility for addressing worker accommodation issues, adopting a proactive approach to planning and collaboratively working through issues that arise in this context, given the social and economic impacts associated with the influx of large numbers of construction workers.
- DIP requires that SIA section on Workforce Accommodation should be more transparent about this issue and clearly explain the respective roles and responsibilities of BMA and contractors
- DIP strongly recommends that BMA adopt a more consultative/collaborative approach to this issue (workforce accommodation) and describe the outcomes of this approach in the SEIS along with identified actions to address worker accommodation related issues that are more responsive to community and other stakeholders concerns.
- DIP requires clarification on mixing together BMA activity with regard to temporary worker accommodation, the provision of BMA housing in Moranbah, and local housing affordability and availability issues as these are discussed in the SIA.
- DIP requires clarification as to whether construction workers will be living at the temporary workers camp just while on shift or will they be DI/DO FI/FO.
- DIP required clarification on the information in the SIA whether BMA's current housing strategies are making a negative or positive contribution to housing affordability and availability in Moranbah. There is not enough quantitative information provided to assess this matter.

## **5.17.2 Response to Submissions**

### **5.17.2.1 Contributing to Local Water Infrastructure and Accommodations**

BMA is the major water supplier to the Moranbah community and will continue to ensure that appropriate supply is maintained in accordance with current agreements. BMA has made a significant contribution to deliver Burdekin water, via the new Burdekin Pipeline, to allow further flexibility with water delivery



arrangements to the township of Moranbah and surrounding operations. Overall, water usage management is an issue for local authorities with whom BMA actively engages.

BMA has a broader accommodation program for the region and is committed to providing suitable accommodation for the Caval Ridge Project workforce.

The EIS is designed to address economic, environmental and social impacts.

#### **5.17.2.2 Recruitment of BMA Personnel as Auxiliary Fire-fighters**

BMA will investigate opportunities to work with the QFRS where possible.

#### **5.17.2.3 Diversity in Accommodation Availability**

Accommodation issues are discussed in Section 17.4.5 and 17.5.6.

BMA actively works with local service providers and agencies to provide assistance where possible. BMA's Planning and Development Manager attends regular meetings with the Isaac Regional Council to enable effective information sharing around future project activities including housing needs. BMA is the largest provider of developed land and accommodation in Moranbah and will continue to develop accommodation options for our workforce including those who choose to reside in Moranbah. This includes land development at the Isaac Views Estate Subdivision in north-east Moranbah which will provide at least 167 residential lots and 200 unit sites. A key goal of BMA is to increase diversity in accommodation availability. Currently approximately 79% of the BMA workforce housed in Moranbah are housed in low density accommodation, approximately 3% are housed in medium to high density accommodation and approximately 17% live in accommodation villages in Moranbah. This figure includes both BMA employee home owners, purchased with BMA assistance and those in properties owned by BMA. BMA approach accommodation from a business wide as opposed to mine or project perspective, and are moving to increase the proportion of medium density and village facilities available to our employees.

Providing a choice of employment options across the business allows BMA the greatest opportunity to attract an ongoing workforce to meet future operational needs. Feedback from our workforce studies indicate FIFO is an important attract / recruit strategy and employees working under formal FIFO arrangements currently only make up approximately 3% of the permanent BMA workforce. By expanding the FIFO workforce, BMA expects to reduce the current high demand for residential accommodation in Moranbah and the demand on existing services and infrastructure and promoting sustainable growth.

#### **5.17.2.4 Permanent Accommodations in Moranbah and DIDO Arrangements**

BMA is supportive of the family friendly environment that is valued by the Moranbah community and actively encourages families to the region by supporting those workers who choose to reside in the community with appropriate housing options and will continue to support residential workers and the community through its ongoing commitment to community investment.

From studies of existing employees BMA knows that a significant number of BMA employees who own houses in Moranbah live on the coast and are effectively drive-in drive out employees.

BMA will provide structured travel options for employees through planned fly-in fly-out and bus-in bus-out options to address health and safety issues.



It is an employee choice to drive-in drive out and BMA strongly refutes the department's argument that this constitutes a workplace health and safety issue.

#### **5.17.2.5 Workplace Diversity**

BMA is committed to workplace diversity and considers employment opportunities for all groups in the community.

BMA has engaged a dedicated Senior Human Resources Advisor for Diversity who, in consultation with Human Resource teams, has developed a Diversity Strategy. This is a strategic imperative with the intent to support diversity throughout BMA, build a highly skilled workforce and enable diversity to become embedded in the organisation. The BMA Diversity Strategy will apply to employment opportunities for women, Indigenous people, people with disabilities and ethnic groups.

#### **5.17.2.6 Regular Consultation with Local Government, Community, and Service Agencies**

BMA will continue to regularly consult with local government and community service agencies to ensure best outcomes for BMA operations, our employees and our communities in line with organisational policies and standards. BMA currently partners with Governments and the community to support the delivery of community programs that address community needs and concerns. Through BMA's Community Partnerships Program and Local Site Initiatives, it contributed over \$6.5 million in FY09. BMA welcomes the opportunity to continue building on existing partnerships with the Department of Communities and other Government agencies.

#### **5.17.2.7 Employment Opportunities for Indigenous Communities**

BMA is continuing to develop opportunities with Indigenous communities across the Bowen Basin and is in the process of developing an Indigenous Strategy. BMA is consulting with Government (meetings have been held with DEEDI, DEIR, DEWR, DETA and QMEA) and the community to develop this strategy.

The Indigenous Strategy will encourage indigenous employment and business opportunities in the community. This strategy will investigate ways that indigenous employment can be incorporated into the project.

BMA is currently liaising with DEEDI in the development of its Indigenous Strategy and welcomes the opportunity to work with DEEDI where possible.

#### **5.17.2.8 Procedure to Deal with Community Complaints on Air Quality Issues**

Since the submission of the Caval Ridge EIS, there have been changes to the project due to ongoing optimisation of the design as well as in response to submissions received. These include dust mitigation measures which are described in Sections 2 and 5. Mitigations measure and detail of the proposed monitoring program is presented in Section 3 of the revised EMP.

In addition, as part of the construction and site environmental management plans there will be procedures in place to register and where appropriate respond to complaints of potential environmental impacts resulting from the Caval Ridge Project. As part of the sites ISO 14001 EMS mitigation measures to address complaints will be implemented and revised as required.

### **5.17.2.9 Local and Regional Presentation of the Project in the Context of Isaac Regional Council**

The EIS recognises the council amalgamations and the formation of Isaac Regional Council, addressing potential impacts and benefits on both a local and regional level. Moranbah was considered the area most likely to experience potential impacts and benefits due to its proximity to the proposed development.

Community engagement activities conducted during the EIS studies indicated that the Moranbah community was primarily concerned with potential localised impacts and, as such, these were given a primary focus in the social impact assessment. This helps to ensure those issues with the potential to incur the most impact are identified and concerned stakeholders are informed of strategies to reduce likely impacts and increase potential benefits to the community.

BMA regularly liaises with Isaac Regional Council and takes a proactive role in managing growth impacts across all of its projects. BMA has a dedicated Planning and Development Manager who regularly attends Council meetings to enable two-way conversations around current activities and future requirements.

Cumulative impacts are addressed in Section 20 of the EIS.

### **5.17.2.10 Ensuring Sufficient Water Availability for Ordinary Operations**

A water balance has been prepared for the Caval Ridge Coal Mine. The water balance took consideration of rainfall and runoff generation, raw water supply, the various water demands and storage and associated losses. The performance of the water management system, including supply capability, was modelled using long term historical rainfall records, which include drought conditions. This is described in section 6.2.4.8 of the EIS. The water balance indicates that Caval Ridge Coal Mine experiences some risk of supply interruption during extended drought conditions. This is the case for many of the operating mines in the Bowen Basin. The level of risk is acceptable to BMA for the current design phase and further optimisation of water supply reliability will be carried out during the detailed design phase.

### **5.17.2.11 Clarification on the Name of Accommodation Village**

Use of Peak Downs Accommodation Village is a typographical error; the accommodation village is Denham Village.

It is anticipated that the construction workforce will be accommodated in the Denham Village. The operational workforce employed for Caval Ridge will be housed in a custom designed accommodation village that has yet to be named. The accommodation village will be located in an appropriate position within easy travelling distance to site. This site is not expected to be within the Moranbah township itself.

An amendment to the purpose of ML1775 to include the construction and operation of accommodation facilities was granted by the former Department of Mines and Energy on 27 January 2009. Additionally, an amended Plan of Operations for the Peak Downs Mine Plan which specifically included activities associated with the construction and operation of the accommodation village was approved by the former Environmental Protection Agency on 2 October 2008.

As *All Aspects of Development* authorised under the Mineral Resources Act 1989 are exempt development under the Integrated Planning Act 1997 (refer to Schedule 9, table 5 of the *Integrated Planning Act 1997*), no approvals under the *Integrated Planning Act 1997* for development of the village on Mining Lease 1775 are required.



Works required for access off the Moranbah Access Road to the Denham Village have been granted approval by the Isaac Regional Council.

#### **5.17.2.12 Housing of Local Government Employees, State Government and Council Workers- BMA Assistance**

Accommodation issues are discussed in Section 17.4.5 and 17.5.6 of the EIS.

While BMA does not play a direct role in providing affordable housing in the community, its commitment to providing housing and accommodation for its business needs reduces demand drivers on housing, therefore decreasing housing demand and increasing housing affordability.

Acknowledging that the housing of Local Government employees remains the responsibility of the appropriate Government authority, BMA actively works with local service providers and agencies to provide assistance where possible. Through the Sustainable Resource Communities Fund, BMA has recently identified and advocated for upgrades to Government service accommodation and the provision of affordable housing.

BMA's Planning and Development Manager attends the monthly Isaac Regional Council meetings to enable effective information sharing around future project activities including housing needs. BMA engages with Government on a range of housing initiatives to assist in addressing regional concerns.

#### **5.17.2.13 Resourcing Requirements- Coordination with State Government**

BMA is currently working with the Queensland Resources Council to provide the State Government with workforce projections to enable a cumulative assessment of resourcing requirements.

#### **5.17.2.14 Partnership with the Queensland Police Service to Reduce Domestic Violence**

BMA welcomes the opportunity to work in partnership with QPS and the Manager Communities will investigate opportunities for a community safety campaign incorporating the issue of domestic violence.

BMA encourages a standard of behaviour within its workforce and welcomes the opportunity to work in partnership with QPS to further develop BMA's workforce expectations.

#### **5.17.2.15 Environmental Management System: Managing Significant Environmental Impacts within BMA's control**

BMA will develop and implement an ISO 14001 Environmental Management System for the Caval Ridge Mine. This system will include objectives and targets and performance criteria to manage significant environmental impacts within BMA's control. In the event that these criteria are exceeded, responses are initiated and actions/improvements documented as part of the systems continuous improvement.

#### **5.17.2.16 BMA Contributions to Relevant Council Area**

BMA continues to provide regional councils with significant funds for rates and special levies. During the 2008/2009 financial year BMA provided over \$16 million in funds for rates and levies as well as contributing \$1,417 million to the Queensland Government in Coal Royalties.

BMA are the major water supplier to the Moranbah community and will continue to ensure that appropriate supply is maintained in accordance with current agreements. BMA has made a significant contribution to deliver Burdekin water via the new Burdekin Pipeline to allow further flexibility with water delivery arrangements to the township of Moranbah and surrounding operations.



BMA continues to work with council to ensure the community impacts of our operations are managed.

#### **5.17.2.17 Social Impact Plan**

A Social Impact Plan (SIP) is not yet a legislated Government requirement. BMA will continue to engage with Government via the Queensland Resources Council (QRC) on the planned SIP intent and format.

#### **5.17.2.18 Liveability of Moranbah Township**

On an annual basis BMA invests in priority projects across the Bowen Basin to enhance the liveability of its communities. This investment includes Council rates and infrastructure support, BMA's community partnerships program, local site sponsorship and donations and landmark projects. In the 2008/2009 financial year this amounted to \$23 million including regional infrastructure support; support for community programs; investing in significant projects to further improve towns; assisting in community skills growth; and local site initiatives based on each operation's support of local community initiatives and programs.

BMA is developing a workforce and community cohesion program which involves support and education programs for BMA workforces and the community. BMA is also developing a Communities Strategy to further refine and identify areas for priority. BMA is committed to ongoing investment in its communities of interest and Moranbah will continue to be a key area of focus for BMA.

#### **5.17.2.19 Autism Related Services- BMA Assistance**

BMA has identified the issues with Autism related services and intends to raise the issues with other industries and the Sustainable Resource Communities Leadership Group. In addition to Autism related services, there is a clear need in our communities for increased paediatric specialist and allied health services which BMA will discuss further with Queensland Health. BMA financially supports a number of specialist services in Moranbah and has provided support to services that assist families with children who have Autism. BMA also plays a strong advocacy role in helping the community obtain vital Government services.

#### **5.17.2.20 Community Concerns about the Location, Visual Amenity and Potential Behavioural Issues of Potentially Male-Dominated Camp Accommodations**

The design of the accommodation facilities is yet to be finalised, however visual amenity for both its occupants and the wider community will be considered as part of its design. Social support services will be put in place and the village facility will be of high standard and provide appropriate facilities and support services.

BMA is committed to workplace diversity and considers employment opportunities for all groups in the community. A priority for BMA is to continue its work in increasing opportunities for women within our workforce. BMA has engaged a dedicated Senior Advisor for Women's Employment to encourage greater female workforce participation. As such, the accommodation village will cater for both men and women and will be equipped with suitable facilities and management structures to promote acceptable behaviour.

#### **5.17.2.21 Community Concerns about Negative Impact of Community Identity and Lifestyle**

BMA actively supports local service providers and community groups to ensure community cohesion.

BMA has a dedicated Communities Team focussed on whole-of-mine investment strategies in our communities. BMA runs Community Network Groups throughout the region to provide information and



feedback on community needs and requirements. These groups are made up of community members and they are consulted on a range of community issues.

#### **5.17.2.22 Workforce and Community Cohesion Program: Addressing Social and Community Impacts of Non-Residential Workforce**

BMA intends to offer the Caval Ridge Project workforce the opportunity to work under FIFO arrangements. Providing a choice of employment options across the business allows BMA the greatest opportunity to attract an ongoing workforce to meet future operational needs. Feedback from our workforce studies indicate FIFO is an important recruitment strategy and employees working under formal FIFO arrangements currently only make up approximately 3% of the BMA workforce.

This workforce will be in addition to the existing workforces who reside in Moranbah, and those who work under DIDO arrangements.

Despite BMA's ongoing commitment to community investment (over \$23 million in the 2008 / 2009 financial year) infrastructure and services in the region are already stretched. A FIFO workforce at the proposed Caval Ridge Mine is likely to reduce the impact on existing community infrastructure and services.

BMA is committed to proactively monitoring and mitigating potential impacts on the community and local economy. The planned and sustainable growth of the resources industry in Moranbah will assist in strengthening the local economy.

As previously mentioned, to support an extended non-residential workforce, BMA is developing a Workforce and Community Cohesion Program to address social and community impacts. The Program is designed to ensure cohesion between BMA communities of interest and resident and non-resident workers. The Program includes elements such as: non-resident partner support programs; investigation of opportunities to increase the amount of goods and services brought locally on a cost-competitive basis, strategies to ensure accommodation villages are of a high standard and provide appropriate lifestyle attributes; and further investigation into existing support and education programs.

BMA is also in the process of finalising its Communities Strategy which will provide a framework for ongoing community investment and community partnerships.

BMA is committed to providing suitable accommodation for a FIFO workforce including the development of a high standard, purpose built accommodation village. The accommodation village will be located in an appropriate position within easy travelling distance to site. The design of the accommodation facilities is yet to be finalised, however visual amenity for both its occupants and the wider community will be considered as part of its design. Social support services will be implemented and the village accommodation will provide appropriate facilities for the workforce.

The accommodation village is expected to help reduce the currently high demand for local housing and potentially improve affordability in the market, particularly for those not employed in the mining industry.

#### **5.17.2.23 Social Impacts from the Change in Operational Work Method- FIFO, DIDO Arrangements**

BMA intends to offer the Caval Ridge Project workforce the opportunity to work under FIFO arrangements. This workforce will be in addition to the existing workforces who reside in Moranbah, and those who work under DIDO arrangements.



To support an extended non-residential workforce, BMA is developing a Workforce and Community Cohesion Program to address social and community impacts. The Program is designed to ensure cohesion between BMA communities of interest and resident and non-resident workers. The Program includes elements such as: non-resident partner support programs; investigation of opportunities to increase the amount of goods and services brought locally on a cost-competitive basis, strategies to ensure accommodation villages are of a high standard and provide appropriate lifestyle attributes; and further investigation into existing support and education programs.

BMA is also in the process of finalising its Communities Strategy which will provide a framework for ongoing community investment and community partnerships.

By increasing the FIFO workforce, BMA expects to reduce the current high demand for residential accommodation in Moranbah and the demand on existing services and infrastructure.

BMA will continue to support their residential workers and the community through its ongoing commitment to community investment.

BMA will liaise with DIP's Social Impact Assessment unit wherever possible, regarding changes to operational work methods.

#### **5.17.2.24 Community Concern on Lifestyle Impacts Resulting from an Open Cut Mine vs. an Underground Mine**

The relatively shallow surface depth to coal at Caval Ridge and multi seam stratigraphy of the deposit are ideal for open cut mining extraction techniques. Underground mining was considered, however the seam geometry and thickness are not conducive to maximum resource recovery. This aspect is further discussed in Section 2.4.4 of the EIS.

#### **5.17.2.25 Community Concern about Increase in Council Rates**

The setting of rates is at Council discretion, however BMA continues to work with the Government to provide support and meet increased infrastructure requirements across the region.

During the 2008/2009 financial year BMA provided \$16 million in rates and special levies as well as contributing \$1,417 million to the Queensland Government in Coal Royalties.

During 2008/2009 financial year, BMA worked closely with the Bowen Basin regional councils and Queensland Resources Council (QRC) to obtain approximately \$38 million for key social infrastructure projects from the Queensland Government.

#### **5.17.2.26 Community Concern about Health Care and Medical Specialist Services**

BMA currently supports and advocates for increases in services and facilities for the Moranbah Hospital including working to access funds through the Sustainable Resource Communities Fund.

Through the Community Partnerships Program, BMA currently supports some medical staff in the region as well as overall community well-being.

#### **5.17.2.27 Setting mitigation/management Strategies in the Context of Government Policies**

An excerpt from BMA's draft Communities Strategy is included in Appendix M1 (BMA Draft Communities Strategy Summary). For the priority projects identified in this strategy BMA will link in with Regional, State



and Federal Government policies, programs and initiatives as appropriate. Underpinning this approach is the Community Investment Program which addresses community opportunities, challenges and perceptions identified through BMA's ongoing community engagement program.

#### **5.17.2.28 Draft Communities Strategy**

Since the completion of the SIA, BMA has developed a draft Communities Strategy which is expected to be launched in mid FY10. A summary from the draft Communities Strategy is included in Appendix M1 (BMA Draft Communities Strategy Summary) to provide a snapshot of the priority projects and broad timelines which have been identified.

The updated table in Appendix M2 (Caval EIS Issues and Mitigation Table) addresses other questions raised by DIP:

BMA is a strong advocate for helping the community and this is evidenced through BMA's participation on the MWREDC board, attendance at interagency meetings across the Bowen Basin, periodic meetings with Government representatives and participation on the Sustainable Resource Communities Leadership Group. Across some of our communities we have proactively approached and worked with the community and Government to address community health needs. An example of this was the financial contribution BMA made towards recruiting a second doctor for Blackwater in conjunction with other mining companies.

Appendix M3 provides a copy of BMA's Community Donations, Sponsorships and Partnerships Guidelines which highlights the criteria used to evaluate BMA's support for community projects.

#### **5.17.2.29 Tourism Strategies/Opportunities**

Business development, including tourism is a key category of BMA's suite of Community Investment Programs.

See Appendix M1 (BMA Draft Communities Strategy Summary) for BMA's Communities Strategy which highlights business and tourism development projects (particularly linked to the Mining Trails Program) across the Bowen Basin and Mackay.

Opportunities for tourism related businesses are likely to be explored through BMA's Indigenous Strategy.

#### **5.17.2.30 SIP and Good Practices in Relation to Managing Dust, Noise, Vibration on Communities**

BMA will develop and implement an ISO 14001 Environmental Management System for the Caval Ridge Mine. This system will include objectives, targets and performance criteria to manage significant environmental impacts within BMA's control. Reference to this environmental management system and the applicable operational controls will be included in social impact planning documentation.

Since the submission of the Caval Ridge EIS there have been project developments in response to the submissions received as well as further optimisation of many design elements. These include development of more dust mitigation measures which are described in Sections 2 and 5 of the SEIS. Mitigation measures and detail of the proposed monitoring program are presented in the revised EMP.

BMA's goal is to make Bowen Basin communities more liveable with a vision to contribute to safe, healthy, skilled and vibrant BMA communities, providing attractive lifestyle options for BMA's workforce.



BMA proactively engages with and supports their communities. BMA is appreciative of the support shown for the project in many of the community submissions received during the EIS process.

#### **5.17.2.31 Dust Mitigation Strategies- Complaints Register**

As part of the construction and site environmental plans procedures will be implemented to register complaints of potential environmental impacts (such as noise, dust and vibration) resulting from the Caval Ridge Project. As part of the sites ISO 14001 EMS, mitigation measures to address complaints will be implemented and revised as required.

BMA is willing to discuss our participation and contribution to a cumulative impacts monitoring program conducted by a suitable independent body. However, it is considered appropriate for government to take a lead role in such a study.

#### **5.17.2.32 Workforce Code of Conduct**

BMA will build on its own code of conduct policy to ensure leading practice is applied in the development of a Workforce Community Cohesion Program. Suggestions regarding community safety planning will be further explored during the development of the program.

Within the BMA Community Partnership Program the Good Sports Programs has been appointed to work with community groups on education around responsible service of alcohol. Also within the Community Partnerships Program a partnership has been developed with Kids Safety Clubs. These clubs will engage primary school students and educate them on safety in the home and at school.

Appendix M1 (BMA Draft Communities Strategy Summary) also outlines priority projections which BMA has identified and will work towards in the next five years.

#### **5.17.2.33 Proactive Approach to Mitigating Community Impacts**

BMA is committed to proactively monitoring and mitigating potential impacts on the community and local economy.

BMA welcomes the opportunity to work in partnership with QPS and the Manager Communities will investigate these opportunities.

BMA will consider these suggestions in the development of its Workforce and Community Cohesion Program.

#### **5.17.2.34 Consultation with Local and Regional Stakeholders on Worker Accommodation**

As identified, BMA made a significant contribution to the planning work undertaken by the MGMT process with the Belyando Shire Council. BMA has continued to engage with the Isaac Regional Council to discuss its growth projects. Minutes of these meetings are shared between BMA and the Isaac Regional Council. Outcomes from these meetings have been recorded and utilised in formulating and developing the Caval Ridge EIS.

#### **5.17.2.35 Responsibility for Addressing Worker Accommodation Issues**

BMA has identified in the EIS that we expect the construction workforce to be accommodated in Denham Village. While this is BMA's solution to accommodation, it also recognises that some people involved in the construction of the mine might currently reside in Moranbah, and may continue to do so. Additionally, during



the period of construction some people may choose to move to Moranbah and become involved in construction of the mine.

BMA also recognises we are unable to dictate where individuals choose to reside on a permanent basis and that some people who choose to live in Moranbah may be employed in activities associated with the construction of the mine.

In identifying that accommodation will be available for all construction workers at a purpose built construction village, BMA is accepting responsibility for, and being proactive in addressing worker accommodation issues.

#### **5.17.2.36 Transparency in the roles of BMA and Contractors on SIA section on Workforce Accommodation**

Currently this project is scheduled to commence construction in mid 2011, with production commencing in 2014. During this period BMA is anticipating considerable changes to the economic environment and the availability of construction and operational workforces.

BMA has prepared the EIS to reflect the level of uncertainty in the environment and potential variances in contractual arrangements with contractors. Contracts between BMA and contractors will be subject to commercial negotiation at some stage in the future and it is impractical for local, regional and state government to be involved in these negotiations.

#### **5.17.2.37 Consultative Approach to Workforce Accommodation Issues**

BMA has, and will continue to consult within the Moranbah community and with the Isaac Regional Council on workforce accommodation.

Consultation has and will continue to cover a range of issues such as addressing concerns which relate to community safety planning i.e. location, facilities, services and worker behaviour expectations and impacts.

#### **5.17.2.38 Clarification on Temporary Worker Accommodations and BMA housing in Moranbah**

BMA continues to operate existing mines in the Moranbah region. As part of its ongoing operations, BMA addresses accommodation requirements for its workforce on an ongoing basis.

The points referred to in 17.3.3 of the EIS provide solutions to current accommodation requirements via measures which have been undertaken to date. These include:

- The development of 25 transit houses and four additional houses completed in December 2008.
- Up to 100 blocks in Moranbah to be developed, as well as 16 new residences.
- Subdividing the north east of Moranbah, with at least 100 residential lots and 200 unit sites.
- The development of an additional 84 allotments in Dysart.
- The development of the first stage of the Goonyella Riverside Mine accommodation village. This facility provides accommodation for 550 fixed term contractors.

BMA is planning for future accommodation requirements through:

- Concept planning proposed for additional land holdings in Moranbah and Dysart.



In this section of the EIS it also states that “Over 1500 housing units would be gradually developed to cater for the increased workforce and their families.”

These latter measures are related to Caval Ridge. Daunia is not covered within the Caval Ridge EIS document.

#### **5.17.2.39 Clarification on Accommodation for Construction Workforce**

BMA does not intend for temporary workers to reside in accommodation villages while they are on their breaks.

BMA also believes it is a matter of personal choice as to where individual temporary workers choose to reside on a permanent basis.

This project is scheduled to commence construction in mid 2011 with production commencing in 2014. The makeup of the workforce and the primary place of residence of workers will be determined at the time of recruitment. Any attempt to assess the impacts on a specific area away from the Moranbah region at this point in time may lead to inaccurate assumptions.

The construction workforce will be accommodated in a purpose built facility with ensuited rooms and appropriate amenities.

Accommodation provided for the operational workforce will depend on the needs of that workforce.

#### **5.17.2.40 Clarification on Housing Affordability and Availability in Moranbah**

Accommodation issues are discussed in Section 17.4.5 and 17.5.6 of the EIS. BMA is the largest provider of developed land and accommodation in Moranbah. BMA will continue to develop accommodation options for our workforce, including options for those who choose to reside in Moranbah.

BMA also has a broader accommodation program for the region and is committed to providing suitable accommodation for the Caval Ridge Project workforce.

A majority FIFO workforce at the proposed Caval Ridge mine is likely to reduce the impact on existing community infrastructure and services and is not expected to add to the demand for available housing stock.

While BMA does not play a direct role in providing affordable housing for the community, its commitment to providing housing and accommodation for its business needs reduces demand drivers on housing, therefore decreasing housing demand and increasing housing affordability.

BMA’s Planning and Development Manager attends the monthly Isaac Regional Council meetings to enable effective information sharing around future project activities including housing needs. BMA engages with Government on a range of housing initiatives to address regional concerns. BMA has a dedicated Communities Team and regularly run Community Network Groups throughout the region to provide information and feedback on community needs and requirements including issues related to accommodation affordability and demand.

### **5.18 Economy**

#### **5.18.1 Summary of Submissions**

The following comments were received in relation to **Section 18 - Economy** of the Project draft EIS:



- DEEDI noted the significance and catalytic potential of the project and noted their support of the conclusions reached in relation to social and economic benefits.
- CFMEU expressed their view that the percentage of likely employees who would wish to live in Moranbah was low and that around 50% would wish to take up local accommodation if it was available.
- Cherwell Creek Coal Pty Ltd expressed that Section 18 does not discuss the economic cost of sterilisation of the coal resources contained within MLA 70403.
- A community concern was raised about devaluation of homes as a result of the project.
- A community member noted concerns that potential environmental impacts will have a negative impact on economic development, property values and local jobs.
- Community member suggested BMA get more permanent workers into Moranbah to help maintain services as FIFO operations reduced growth and development possibilities.
- Community members suggested a higher demand on Moranbah for supplies.

## **5.18.2 Response to Submissions**

### **5.18.2.1 Option for Workers to Work on FIFO Arrangement**

BMA intends to offer the Caval Ridge Project workforce the opportunity to work under FIFO arrangements.

Providing a choice of employment options across the business allows BMA the greatest opportunity to attract an ongoing workforce to meet future operational needs. Feedback from our workforce studies indicate FIFO is an important attract / recruit strategy and employees working under formal FIFO arrangements currently only make up approximately 3% of the BMA workforce.

Despite BMA's ongoing commitment to community investment (over \$23 million in the 2008 / 2009 financial year) infrastructure and services in the region are already stretched. A FIFO workforce at the proposed Caval Ridge Mine is likely to reduce the impact on existing community infrastructure and services.

### **5.18.2.2 Community Concern on Property Devaluation**

The property market naturally fluctuates, depending on a variety of influences over a period of time. Increased mining activity and resource industry growth in Moranbah helps to strengthen the local economy. Further detail on the fluctuation of housing prices in Moranbah is presented in section 17.4.5.3 of the EIS.

### **5.18.2.3 Impact on Economic Development of Environmental Impacts**

BMA is committed to proactively monitoring and mitigating potential environmental impacts to reduce impacts on the community and the local economy. This includes continuing to be a good neighbour to the township of Moranbah and proactively managing environmental impacts to reduce potential negative outcomes. The planned and sustainable growth of the resources industry in Moranbah will assist in strengthening the local economy.

### **5.18.2.4 Discussion on Economic Cost of Sterilisation**

BMA believes that the EIS sufficiently addresses the geological overview, coal seam geology, resource identification and resource recovery requirements of the Terms of Reference.

This view is supported by the Department of Employment, Economic Development and Innovation (DEEDI), per the 17 August email from Jim Grundy, Executive Director, Statewide Services to the EIS Project Manager.



The Caval Ridge Project will best develop the mineral resource, minimise resource wastage and avoid unnecessary sterilisation. The State, by passing the *Mineral Resources (Peak Downs Mine) Amendment Act 2008*, supports this view. Extracts from the second reading speech of the Minister of Mines and Energy, Geoff Wilson MP is presented in Appendix L.

#### **5.18.2.5 Maintaining Local Infrastructure and Community Services**

Infrastructure and services in the Moranbah community are already stretched. BMA is working with Government agencies to address these issues and continues to advocate for funds for community infrastructure. At the same time BMA is committed to investing in the community. (BMA provided over \$23 million towards council rates and levies, infrastructure support and community investment programs in the 2008/2009 financial year).

BMA has a high percentage of resident workers living in the region. Employees working under formal FIFO arrangements currently only make up approximately 3% of the overall workforce. BMA is committed to monitoring and mitigating impacts associated with an increased FIFO workforce and will continue its support for resident workers.

To support an extended non-residential workforce, BMA is developing a Workforce and Community Cohesion Program to address social and community impacts. The Program is designed to ensure cohesion between BMA communities of interest and resident and non-resident workers. The Program includes elements such as: non-resident partner support programs; investigation of opportunities to increase the amount of goods and services brought locally on a cost-competitive basis, strategies to ensure accommodation villages are of a high standard and provide appropriate lifestyle attributes; and further investigation into existing support and education programs.

BMA is also in the process of finalising its Communities Strategy which will provide a framework for ongoing community investment and community partnerships.

BMA is committed to providing suitable accommodation for a FIFO workforce including the development of a high standard, purpose built accommodation village.

The accommodation village is expected to help reduce the current high demand for local housing and potentially improve affordability in the market, particularly for those not employed in the mining industry.

#### **5.18.2.6 Local Suppliers of Goods and Services**

BMA encourages suppliers wishing to supply business or services to contact BMA's Supply Group which is based in Mackay and which manages the procurement of goods and services for BMA operations.

BMA Mackay Supply holds meetings with business across the Mackay and Bowen Basin regions, to detail BMA compliance requirements for prospective contractors and vendors. Mackay Supply group is well informed of the supply and business services capability within the region.

BMA has commenced auditing its operation sites and the accommodation village that houses BMA contractors and staff, to determine existing practices with regard to buying locally and investing in local business. The audit outcomes may highlight additional local procurement opportunities.

## **5.19 Health, Safety and Risk**

### **5.19.1 Summary of Submissions**

The following comments were received in relation to **Section 19 - Health, Safety and Risk** of the Project draft EIS:

- DCS recommended that the manufacture or storage of bulk hazardous goods takes place above DFE flood levels or within structures designed to prevent the intrusion of floodwaters.
- DCS considered that increase in usage of the road network during construction and number of oversized loads will increase pressure on emergency response capabilities.
- QFRS raised that this mine site would impact on the delivery of ambulance operations from the Moranbah Ambulance Station.  
The increased traffic on the Peak Downs Highway may also impact on Nebo Ambulance Station.
- QFRS requested that dangerous goods information be provided to it as an 'Off Site Plan'.
- QFRS endorses EIS section 19.6.1 Emergency Response.
- QFRS requested the opportunity to liaise with the proponent to develop the project's Emergency Response Plan.
- QFRS requested that emergency and or disaster planning, response (including development of the Emergency and disaster response plans and maps) and orientation be undertaken in consultation as appropriate stakeholders as relevant.
- QPS stated that BMA response does not acknowledge the need to be part of the response for Disaster Management under the Disaster Management Act (Qld). The QPS should be engaged as part of the disaster management and planning process for the localities affected by the project.
- QPS suggested that Incident Management should be considered as part of the Emergency Management section. The EIS should also articulate the response to disasters and incidents separately.
- QPS recommended that the proponent should include the QPS role in response and investigation of incidents relating to death, injury or as a consequence of an unlawful act.
- QPS recommended that the proponent coordinate and develop response and management arrangements for incidents, emergencies and disasters that include QPS, QAS, QFRS and IRC.
- DERM required a detailed assessment of the risks for actual hazard scenarios the mine site. Potential impacts and appropriate mitigation strategies should be included in the Draft EM plan.
- Community members were concerned about generic potential health issues that may be attributable to the project.

### **5.19.2 Response to Submissions**

#### **5.19.2.1 Storage of Hazardous Materials**

The storage of hazardous materials will be within industrial area facilities near the Coal Preparation Plant and will be above the 1:100 AEP flood level or designed to prevent 1:100 AEP flood ingress into the storage areas.



#### **5.19.2.2 Minimising Pressure on Emergency Response Services Brought about by Increase Road Network Usage**

The traffic assessment presented in Section 13 and Appendix N of the EIS assesses the impact of increased traffic generated from the project on the road network. Mitigation measures such as intersection upgrades and development of traffic management plans for movements of oversized vehicles have been included.

BMA will continue to work with DTMR to minimise the potential impact of the Caval Ridge Project on the surrounding road network.

#### **5.19.2.3 Acknowledgment of the Need for Disaster Management Planning**

BMA acknowledges the needs for thorough disaster management planning (Referred to in Section 19.10 – Emergency Planning) in the EIS. BMA is committed to working with QPS during the preparation of the disaster management plan.

#### **5.19.2.4 Consultation with Appropriate Agencies in the Development of Emergency Response Plan**

BMA is committed to developing emergency response plans in consultation with the appropriate agencies and organisations such as QFRS. In addition to this, BMA will provide the Caval Ridge disaster management plan to Emergency Management Queensland (EMQ) Regional Office.

BMA will consult with QFRS (including the ambulance services) prior to and during the development of the Caval Ridge Mine. This will enable the ambulance services to adjust resourcing requirements.

BMA will provide an orientation regarding the Caval Ridge Mine Development to the Area Director Mackay, local controller SES and SES Group leaders of the Isaac Regional Council Area.

BMA will provide evacuation and access maps to EMQ and emergency agencies as part of the Caval Ridge Emergency Management Plan.

Contact numbers of the Duty Safety officers will be made available to EMQ Regional Office, EMQ Area Director Mackay, Isaac Regional Council SES Local Controller and local SES Group Leaders

As part of emergency response and training BMA will undertake risk assessments to ensure the development of response and management arrangements for incidents, emergencies and disasters that include service providers (QPS, QAS, QFRS, IRC).

#### **5.19.2.5 Incident Management**

Section 19 of the EIS covers Health, Safety and Risk. The Project Risk Assessment (19.5) includes the results of the Preliminary Hazard Analysis including potential incident scenarios. This was followed by identifying mitigation requirements based on risk levels (Table 19.8, 19.9 and 19.10). Section 19.10 addresses emergency planning which includes identifying potential events, services required and control action (Table 19.13).

#### **5.19.2.6 Dangerous Goods Information- Off Site Plan**

Manifests and inventories of dangerous goods to be used on site will be prepared as part of the mine operating documentation and BMA will provide this information to QFRS.



#### **5.19.2.7 Inclusion of QPS in Incidents Resulting from Unlawful Acts**

BMA will include the QPS role in response and investigation of incidents relating to death, injury or as a consequence of an unlawful act.

#### **5.19.2.8 Assessment of the Risks for Actual Hazard Scenarios**

The project hazard assessment (PHA) was carried out in accordance with Australian Standard AS 4360: Risk Management and New South Wales Hazardous Industry Planning Advisory Paper 6: Hazard Analysis (Consultation Draft) 2008.

The PHA was carried out based on BMA experience with construction and operational projects for coal mines. Potential incident scenarios during the project were identified

A risk assessment was conducted for the construction, operation and decommissioning phases and the results and controls measure as are presented in Table 19.8, 19.9 and 19.10 of the EIS.

A hazardous dam assessment has been prepared as part the Supplementary EIS and the results are presented in Appendix H1.

As the project progresses toward detailed and final further risk assessment and hazard identification will occur. A HAZOP study will be carried out for the project prior to construction commencing. Operational risk assessments such as Failure Mode Effect Analysis and Job Safety Analysis will be carried out on mechanical and task based exposures. The results of these assessments will be included in the sites health and safety management and environmental management systems.

#### **5.19.2.9 Generic Potential Health Issues Attributable to the Project**

The potential health issues are addressed in the air quality and noise sections above. A comment was received about potential chemical spills being a safety issue. The handling of chemicals on site is addressed in Section 19.5.3 Hazard Identification and Assessment of the EIS.

### **5.20 Cumulative Impacts**

#### **5.20.1 Summary of Submissions**

The following comments were received in relation to **Section 20 - Cumulative Impacts** of the Project draft EIS:

- Isaac Regional Council stated that the EIS needs to reflect the cumulative impacts of the numerous mining operations in the vicinity with a focus on the triple bottom line being economic, environmental and social outcomes.
- Isaac Regional Council requested a clear commitment to a coordinated independent cumulative impact monitoring system for all off-site impacts associated with the project.
- QH recommended that to prevent background creep, the cumulative effects from all industries in the Moranbah region be considered and strategies developed to maintain PM<sub>10</sub> concentration at levels which are as low as reasonably possible and below those recommended by the EPP (Air) 2008. Background creep should be addressed in line with the EPA guidelines.
- QPS expressed that the proponent needs to identify the cumulative impact of other mining, energy and infrastructure projects in the Bowen Basin and not just those associated with the BBCGP.

- CFMEU recommended that the cumulative impact on the township of Moranbah of all mines operating within a 40 km radius to be evaluated. This especially applies to the Isaac Plains mine which also will be operating within 6km of Moranbah. Similar monitoring conditions be placed on Isaac Plains.
- DIP required clarification on the management of the overall impacts of the project and in particular management of the overall impacts of the project in consideration of the cumulative impacts of mining in the study area and region through development of an SIP.
- DIP required clarification on links made between the proposed SIP and the BMA proposal that the government fund a regional economic and social infrastructure master planning exercise encompassing the northern Bowen Basin and Mackay, which takes into account the strong medium and long-term coal industry growth outlook.
- DIP requires that there should be a commitment in the SIP to develop a plan in consultation with the community and local stakeholders that ties road safety issues resulting from increased traffic and the location of the mine to any investments in improving road infrastructure
- DIP required a clarification on BMA's response to cumulative social impacts (increased construction and operational workforce), that is, BMA will continue consultation with a view to developing control strategies to minimise the impacts.
- DIP required that the SIA should meet the requirements of the TOR on cumulative impacts, i.e., the assessment of impacts should describe the likely response of affected communities and identify possible beneficial and adverse impacts (both immediate and cumulative).
- DIP raises concern about whether the construction of 55 dwellings in Moranbah would meet the cumulative demands of the proposed mining projects in the area. In adequately assessing the cumulative impacts, consideration is to be given to new mine, or mine expansion projects, where known for the area.

## **5.20.2 Response to Submissions**

### **5.20.2.1 Cumulative Impacts of the Various Mining Operations (in Bowen Basin); Triple Bottom Line Assessment**

The terms of reference (TOR) requires the assessment of the cumulative impacts associated with the Bowen Basin Coal Growth Project (BBCGP), and the provision of a clear and concise summary of the cumulative impacts associated with the BBCGP. A summary of the cumulative impacts associated with the BBCGP is provided in Section 20 (Table 20.1) of the EIS.

Furthermore, individual environmental elements are assessed on the basis of existing baseline conditions, which takes into account impacts from existing industry, rural and community activities.

The TOR did not require a full and comprehensive Triple Bottom Line assessment of all activities in the Bowen Basin.

BMA's view is that it is the role of the Government to initiate and undertake a broad spectrum cumulative impact study, to which BMA will contribute to as necessary.

### **5.20.2.2 Commitment to a Coordinated Independent Cumulative Impact Monitoring System**

The terms of reference (TOR) requires the assessment of the cumulative impacts associated with the Bowen Basin Coal Growth Project (BBCGP), and the provision of a clear and concise summary of the cumulative



impacts associated with the BBCGP. A summary of the cumulative impacts associated with the BBCGP is provided in Section 20 (Table 20.1) of the EIS.

Furthermore, individual environmental elements are assessed on the basis of existing baseline conditions, which takes into account impacts from existing industry, rural and community activities.

The TOR did not require a full and comprehensive Triple Bottom Line assessment of all activities in the Bowen Basin.

BMA's view is that it is the role of the Government to initiate and undertake a broad spectrum cumulative impact study, to which BMA will contribute to as necessary.

BMA is committed to monitoring the potential impacts of the Caval Ridge project as part of the sites environmental management system. Detail of these monitoring programs is provided in the various submission responses in Section 5 of this supplementary report and the revised EMP.

#### **5.20.2.3 Prevention of Background Creep**

Additional mitigation measures have been incorporated and impacts re-assessed as discussed in Section 1.2 of the Caval Ridge EIS supplementary air quality assessment included as Appendix B.

Cumulative impacts have not been explicitly modelled for the reasons discussed in Section 4.2 of the Caval Ridge EIS supplementary air quality assessment that is included as Appendix B. A revised and expanded ambient air monitoring program has been proposed to monitor air quality within the area surrounding the project. Details are provided in Section 4.1 of the Caval Ridge Supplementary Air Quality Assessment which is located in Appendix B.

#### **5.20.2.4 Cumulative Impacts Evaluation- Monitoring Commitments**

BMA will manage their operations to meet the requirement of approvals and the site environmental management system.

BMA is committed to the continuous monitoring of particulate matter (as  $PM_{10}$  and  $PM_{2.5}$ ) at a minimum of 2 locations (Moranbah Airport and a location yet to be determined between the Caval Ridge mine and the Township of Moranbah).

#### **5.20.2.5 Management of the Overall Impacts of the Project in Consideration of the Cumulative Impacts in the Region**

BMA will proactively monitor and work to mitigate potential impacts on the community and the local economy. At the same time, BMA will work to maximise the benefits of planned and sustainable growth on the resources industry in Moranbah.

BMA is currently working with the Queensland Resources Council to provide the State Government with workforce projects to enable a cumulative assessment of resourcing requirements across agencies. BMA would be willing to discuss participation and contribution to an independent body to effectively assess the cumulative impacts of the resource industry across the various operations in the region.

With multiple operations in the region, it is considered appropriate for BMA to manage and mitigate potential impacts of combined BMA operations.



#### **5.20.2.6 Proposal for a Regional Economic and Social Infrastructure Master Planning Exercise-Northern Bowen Basin and Mackay**

At the time of submitting the EIS, BMA conducted meetings with representatives from the Department of Infrastructure including the Deputy Director General, Gary White (January 2008) regarding this proposal. The Deputy Director General requested that the proposal be further developed in conjunction with DIP's Regional Office. BMA's Vice President of Government Relations also discussed the proposal with the Director General from DIP, and the then DTRDI.

The proposal was developed in conjunction with the Mackay Whitsundays Regional Economic Development Corporation for whom it was identified as a priority project. Feedback to MWREDC from the regional DIP office was that it would not be supported at that time. BMA still believes this is a strategic priority Government project however BMA will not pursue this further, at this time, following Government feedback. A draft proposal is included as Appendix M4.

#### **5.20.2.7 Consultation with the Community and Local Stakeholders on Road Safety Issues**

BMA regularly engages with DTMR who are supportive of the initiatives and mitigations outlined for the Caval Ridge Project. BMA has provided DTMR with the information required by government to enable them to address the cumulative impacts of the project. BMA is supportive of initiatives to improve road safety.

#### **5.20.2.8 Clarification on Response to Cumulative Social Impacts**

BMA is committed to providing suitable accommodation for the Caval Ridge Project and will proactively monitor and mitigate potential impacts on the community and local economy while working to maximise the benefits of planned and sustainable growth of the resources industry in Moranbah.

#### **5.20.2.9 Compliance of the SIA on the Requirements of the SIA with Respect to Cumulative Impacts**

The Caval Ridge EIS recognises potential local and regional impacts as well as the cumulative impacts of operations across the region wherever the information is available.

BMA recognises the contribution that community activities make towards overall business strategy. BMA's commitment to strong communities is embedded in its Five Year Business Plan.

Since the completion of the SIA, BMA has developed a draft Communities Strategy intended for launch in mid FY10. A summary of the strategy is included in Appendix M1 (BMA Draft Communities Strategy Summary). The summary identifies BMA's priority projects and broad timelines. To ensure BMA's community investment is coordinated, strategic and delivers the best outcomes for the community, BMA has developed a Community Planning approach to manage community investment activities over the next five years.

This approach has been devised with reference to Queensland Government population projections, Government policy, proposed mining development in the Bowen Basin and extensive consultation with stakeholders.

BMA's goal is to make the Bowen Basin communities more liveable; contribute to safe, healthy, skilled and vibrant BMA communities; and provide attractive lifestyle options for BMA's workforce.



BMA will continue to regularly consult with local government and community service agencies to ensure best outcomes for BMA operations, our employees and our communities in line with organisation policies and standards.

BMA is currently working with Queensland Resources Council to provide the State Government with workforce projects to enable a cumulative assessment of resourcing requirements across agencies.

#### **5.20.2.10 Construction of New Dwellings in Moranbah and Meeting Cumulative Demands for Housing**

It is acknowledged that BMA is ensuring the construction of 55 dwellings in Moranbah and has already obtained the relevant approvals for the Denham Village which will accommodate the vast majority of the construction workforce.

BMA is committed to providing suitable accommodation for both construction and operation workforces for all BMA growth projects.

BMA continues to operate existing mines in the Moranbah region. As part of its ongoing operations, BMA addresses requirements for accommodation on an ongoing basis. Examples of measures undertaken to date include:

- The development of 25 transit houses and four additional houses completed in December 2008.
- Up to 100 blocks in Moranbah to be developed, as well as 16 new residences.
- Subdividing the north east of Moranbah, with at least 100 residential lots and 200 unit sites.
- The development of an additional 84 allotments in Dysart.
- The development of the first stage of the Goonyella Riverside Mine accommodation village. This facility provides accommodation for 550 fixed term contractors.

Planning for future accommodation requirements includes concept planning proposed for additional land holdings in Moranbah and Dysart.

### **5.21 Draft Environmental Management Plan**

#### **5.21.1 Summary of Submissions**

The following comments were received in relation to **Section 21 - Draft Environmental Management Plan** of the Project draft EIS:

- DERM recommended that the EIS should provide information on the conceptual designs for the mine pits, in pit storage and the initial 'out of pit' waste dump. Further detailed information should be provided of potential environmental impacts associated with the final land form design, mine pits, in pit storage and the initial 'out of pit' waste dump. The Draft EM plan should propose conditions and commitments which demonstrated that identified impacts can be appropriately managed.
- DERM stated that final landform figure in Appendix Q, Draft EM Plan does not adequately address TOR requirements.
- DERM required that the EIS and the Draft EM Plan be amended of the proposed conditions to provide clear information describing the proposed final rehabilitated landform including outer slope designs.

- Isaac Regional Council requested there be a clear commitment to independent environmental monitoring of all off site environmental impacts including dust, noise, vibration and mine water discharges.
- Queensland Health recommends that the proponent develop a "Mosquito Management Plan" for the project.
- DERM requested that the specified section for proposed conditions include tables proposing criteria for final land use and rehabilitation approval schedule, and landform design. These should be included in the Draft EM Plan.
- DERM required nomination of auditable measures for the management of dams that would receive pit water and the necessary controls for releases, and inclusion of such in the Draft EM Plan.
- DERM requested that the EM plan propose flow triggers and flow measurement locations for discharge consistent with a ratio of at least 1:4 for discharge to stream flow.

## **5.21.2 Response to Submissions**

### **5.21.2.1 Mine pits, In pit storage and the initial 'out of pit' waste dump**

The proposed waste placement strategy for Caval Ridge is discussed below:

- Dumping Corridor - Sufficient area has been made available on the western side of the box cut excavation to ensure that all waste material can be placed within this corridor and meet final rehabilitation grade requirements. See (Appendix I – Concept Dump) for further explanation. It should be noted that this comment deals with Horse Pit only, there is space at Heyford Pit and once the box cut has been excavated at Horse there will be space in this pit as well. The landform models have made allowance for the rejects
- Ongoing waste placement – The waste placement strategy will be the same as that adopted by most dragline strip mining operations. That is, excavations will be backfilled with waste as mining operations progress down dip. A key feature of the Caval Ridge waste placement strategy is that Truck / Shovel material will be hauled to the low wall side of the pit and dumped to pre-designed final spoil grade designs to ensure progressive rehabilitation can be carried out.

Appendix I – Concept Dump provides an overview of the dump design strategies that have been incorporated into Caval Ridge planning.

### **5.21.2.2 Description of Final Rehabilitated Landform**

The Caval Ridge Mine Project EIS Supplementary Report - Final Void & Landform Management Plan (Appendix E1), Section 9 discusses rehabilitation outcomes and various performance criteria.

The proposed Rehabilitation Landform Criteria which are to be incorporated into the EM Plan are outlined in Table 9 of that document. This table provides for a range of treatments and outcomes which are based on the BMA Sustainable Landform Guideline.

BMA does not propose to schedule such an extensive table of rehabilitation criteria into the Environmental Authority but rather supports an outcome based rehabilitation requirement for the EA such as:

“All areas significantly disturbed by mining activities must be rehabilitated to a stable landform with a self-sustaining vegetation cover. Implement a rehabilitation monitoring program and rehabilitate significantly disturbed areas in accordance with the final landform concept and BMA sustainable landform guideline.”



BMA preference is to have outcomes for the Caval Ridge Mine Project specified in the EA. This is a more sensible and practical situation. See Caval Ridge Mine Project EIS Supplementary Report, Final Void & Landform Management Plan Section 9.2 Rehabilitation Performance Outcomes which focus on the principal requirements for mine rehabilitation – safety, stability, sustainability and use.

BMA believes that the EM Plan should be the vehicle for detailing rehabilitation methods, treatments and performance indicators; and these criteria should be revised as knowledge expands in this most complex and challenging area.

#### **5.21.2.3 Revision of Statements on Success Criteria and Control Strategies in the Draft EM plan to be Unequivocal**

The Draft EM Plan presented in the EIS has been revised to take into account comments received in submissions. The revised EM Plan is presented in Appendix O.

#### **5.21.2.4 Commitment to Independent Environmental Monitoring of Off Site Environmental Impacts**

BMA is committed to monitoring the potential impacts of the Caval Ridge project as part of the sites environmental management system. Detail of these monitoring programs are provided in the various submission responses in Section 5 of this supplementary report and the revised EMP.

#### **5.21.2.5 Mosquito Management Plan**

BMA will include mosquito management requirements as part of the Caval Ridge Health and Safety management.

#### **5.21.2.6 Auditable Measures for the Management of Dams**

Controlled releases will only occur at 12North dam. Refer issue ID 4.35 for further details of the conditions under which controlled releases will occur.

The EM Plan includes provisions in the EA conditions for auditable measures to for controlled releases, including the quantity and quality of release, upstream flow conditions at the time of the release, downstream receiving environmental monitoring, and reporting in Annual Returns.

#### **5.21.2.7 Flow Triggers and Flow Measurement Locations for Discharge**

Under most dry and average conditions, the mine will operate with a water deficit and controlled releases will not be required.

In above average wet seasons, and exceptionally high wet seasons there will be a surplus of mine water and controlled releases may be required. Typically this will occur with a frequency with 1:10 AEP or less frequent.

Controlled releases will only be made from the 12North dam under the following conditions:

- When flow in upstream Cherwell Creek is above a prescribed threshold defined in the EA;
- The quality of release waters are with prescribed limits defined in the EA;
- The maximum controlled release flow rate will be 20% of the upstream Cherwell Creek flow;

The criteria for the above conditions are outlined in the revised draft EM Plan and EA conditions, and the calculations to derive these criteria are outlined in Appendix H3