

# Assessment Report under the Environmental Protection Act 1994

Grosvenor Project proposed by  
Anglo Coal (Grosvenor) Pty Ltd

September 2011

Prepared by:

Environmental Impact Assessments, Environment and Natural Resource Regulation

Department of Environment and Resource Management

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September 2011

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# 1 Introduction

This report provides an evaluation of the environmental impact statement (EIS) process pursuant to Chapter 3 of the *Environmental Protection Act 1994* (EP Act) for the Grosvenor Project proposed by Anglo Coal (Grosvenor) Proprietary Limited. The Department of Environment and Resource Management (DERM) coordinated the EIS process as the administering authority of the EP Act. This assessment report has been prepared pursuant to sections 58 and 59 of the EP Act.

The objective of this assessment report is to:

- address the adequacy of the environmental impact statement and the environmental management plan;
- summarise key issues associated with the potential adverse and beneficial environmental, economic and social impacts of the Grosvenor Project and the management, monitoring, planning and other measures proposed to minimise any adverse environmental impacts of the project; and
- make recommendations on the suitability of the project to proceed and where so, to make recommendations on necessary conditions for any approval required for the project.

Section 58 of the EP Act lists the criteria that DERM must consider when preparing an EIS assessment report, while section 59 of the Act states what the content must be.

In summary, this assessment report addresses the adequacy of the EIS against the final terms of reference (ToR) and the suitability of the draft environmental management plan (EM plan). It also discusses in some detail those issues of particular concern that are either not fully resolved or that require specific conditions to be included in project approvals.

The giving of this EIS assessment report to the proponent completes the EIS process under Chapter 3 of the EP Act.

## 2 Description of the project

The proposed Grosvenor Project is a greenfield underground coal mine that would produce 7 million tonnes per year of run of mine (RoM) coal and a net 5 million tonnes per year of high quality coking coal for export. The mine would operate for up to 24 years, with the possibility of extension subject to the result of exploration activities. Coal is proposed to be transported by conveyor to Moranbah North Mine which is located adjacent to the Grosvenor mine site, for washing and rail loading to Hay Point Dalrymple Bay.

The proponent for the project is Anglo Coal (Grosvenor) Pty Ltd, a wholly owned subsidiary of Anglo American Metallurgical Coal, which in turn is a wholly owned division of Anglo American. The proponent applied for a mining lease (MLA 70378) on 31 July 2007.

The proposed Grosvenor Project is located in Central Queensland between the township of Moranbah to the south and the Moranbah North Mine to the north. The nearest private residences to the mine site surface infrastructure would be within the Moranbah township approximately 3 km away. The Isaac River passes through the project site which is bounded by grazing land and industrial facilities to the west.

Part of this river bed and surrounding landscape would subside by up to 3m as a result of underground longwall mining. The total area of surface disturbance would be as shown below.

Activity	Area	Major impact
Surface infrastructure	138.1 ha	100% vegetation clearing (year 1)
Underground mining	3,450 ha	Subsidence (over life of mine)
Seismic survey	5,905 ha	Partial vegetation clearing approx 30% (over life of mine)

**Note:** that the underground mining and seismic areas overlap in some instances. The seismic survey area is the total area within which such surveys would be undertaken, not the actual disturbance area which will be only a small proportion of the surveyed area and would be determined by the spacing of seismic lines, with their spacing dependent on the depth of the target coal seam.

Mining would be by underground longwall with panels 300m wide, between 1.3km to 6km long and extraction height averaging 4.2m; the width of coal to be left between longwall panels would be between 60m and 175m. Subsidence up to 3m deep is expected at the surface.

Surface facilities would include access portals, water storages, water treatment facilities, buildings, workshop, and fuel storage located along the western boundary of MLA 70738. Other surface facilities above the longwall panels would include ventilation shafts, bores, gas drainage network and communication cables.

This EIS deals with the mining and related activities on the Grosvenor mine site. Activities associated with processing Grosvenor coal on the Moranbah North Mine Site are subject to separate assessment processes under the EP Act to address amendments that would be needed to the existing environmental authorities for that site.

Co-Development Agreements between the proponent and the holders of petroleum tenements (Arrow Energy) that overly MLA 70738 are in place and would be implemented when the Grosvenor lease ML 70738 is issued.

The project is a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The State's EIS process has been accredited for the assessment under Part 8 of the EPBC Act in accordance with "An Agreement between the Commonwealth of Australia and the State of Queensland under section 45 of the EPBC Act 1999 Relating to Environmental Assessment". The controlling provisions are sections 18 and 18A (Listed threatened species and communities).

## 3 The EIS process

### 3.1 Timeline and EIS process

The EIS for the Grosvenor Project was conducted under Chapter 3 of the EP Act.

The following timeline and activities have been concluded (note that the Environmental Protection Agency became the Department of Environment and Resource Management in 2010):

#### **Original project**

- Grosvenor submitted a draft terms of reference (ToR) and Initial Advice Statement for the Grosvenor Project in late 2007.
- DERM requested amendments to the draft ToR and revised documents were received in December 2007, which initiated the statutory timeframes for the EIS process.
- DERM placed a public notice with the draft ToR on the DERM's website, the Mt Isa North West Star and in the Courier-Mail during the week of 11 January 2008.
- The draft ToR was available for public comment from 14 January 2008 until 25 February 2008. Grosvenor issued copies of the ToR notice to affected and interested persons.
- Stakeholders provided comments to DERM on the draft ToR within the public comment period. The comments, together with those provided by DERM, were forwarded to Grosvenor on 10 March 2008.
- After numerous extensions for Grosvenor to respond to stakeholder comments on the draft ToR Grosvenor formally advised their withdrawal from the EIS process on 3 September 2009.

#### **Revised project**

- A revised Grosvenor project proposal was submitted to DERM on 2 March 2010.
- DERM advised Grosvenor on 17 March 2010 that an EIS process would be required.
- Grosvenor submitted a draft ToR on 18 March 2010 which was revised on the advice of DERM.
- DERM published the revised draft ToR between 16 to 21 April 2010 for comment by 9 June 2010.
- DERM copied the 14 submissions received to Grosvenor on 24 June 2010.
- Grosvenor's response to the submissions was given to DERM on 22 July 2010.
- DERM published the final ToR on 20 August 2010.

#### **Environmental Impact Statement**

- Grosvenor gave the draft EIS to DERM on 23 December 2010 for a decision on adequacy for public release.
- DERM advised Grosvenor that the EIS may proceed on 2 February 2011.
- DERM advertised the EIS on 14 February 2011 for comment by 25 March 2011.
- DERM copied the 18 submissions received to Grosvenor on 8 April 2011.
- Grosvenor responded to all submissions on 30 June 2011 with the submission of a revised EM Plan and EIS Addendum materials to DERM.
- After receiving further advice from submitters on the Addendum materials, DERM decided on 28 July 2011 that the EIS and addendum materials were sufficient to allow the submitted EIS to proceed under Chapter 3, Divisions 5 and 6 of the EP Act. Further advice on the EM Plan was provided with the notice.
- Grosvenor submitted a revised EM Plan and further addendum materials on 8 September 2011.
- This Assessment Report under the EP Act was produced by DERM on 22 September 2011.

- When preparing this EIS assessment report, DERM considered submissions and comments from stakeholders and other interested parties made at all stages of the EIS process (see section 3.3 of this report). This EIS assessment report is available on DERM's website ([www.derm.qld.gov.au](http://www.derm.qld.gov.au)).

### Commonwealth role

- The Grosvenor Project was referred under the EPBC Act to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) in late 2007.
- SEWPaC determined on 14 November 2007 that the project is a controlled action under the Commonwealth's EPBC Act. The controlling provisions are sections 18 and 18A (Listed threatened species and communities).
- The State's EIS process has been accredited for the assessment under Part 8 of the EPBC Act in accordance with the Bilateral Agreement between the Commonwealth of Australia and the State of Queensland (2009).
- SEWPaC provided advice to DERM on the Terms of Reference (10 March 2008, 7 May 2008), EIS (29 March 2011), and EIS addendum (12 September 2011).

## 3.2 Approvals

The following State approvals (Table 1) are required for the Grosvenor Project. Table 1 does not necessarily list all possible legislative approvals that may be required.

Table 1 - Project approvals

Approval	Legislation (Administering Authority)
Environmental authority (mining activities) inclusive of environmentally relevant activities for mining black coal (ERA 5), chemical storage (ERA 8), abrasive blasting (ERA 17), boilermaking/engineering (ERA 18), crushing/milling/grinding/screening (ERA 33), regulated waste storage (ERA 56), and sewage treatment (ERA63).	<i>Environmental Protection Act 1994</i> (Department of Environment and Resource Management)
Mining Leases (MLA 70378 for mining and infrastructure)	<i>Mineral Resources Act 1989</i> (Mines and Energy, Department of Employment, Economic Development and Innovation)
Cultural Heritage Management Agreement for land within the boundaries of MLA 70378. The agreement has been in place since 2003.	<i>Aboriginal Cultural Heritage Act 2003</i> (Department of Environment and Resource Management)
Taking of overland flow – currently permitted for mining tenements. Dewatering of groundwater ingress.	<i>Water Act 2000</i> (Department of Environment and Resource Management) Fitzroy Basin Water Resources Plan (under review by end 2011). Highlands declared sub artesian area.
Approvals for possible rail line relocation in 2034. Approvals for road use management.	<i>Transport Infrastructure Act 1994</i> (Department of Transport and Main Roads) and <i>Sustainable Planning Act 2009</i> as required at that time, and <i>Transport Operation (Road Use Management) Act 1995</i> .

### 3.2.1 Consultation program

#### 3.2.1.1 Public consultation

In addition to the statutory requirements for public notification of the ToR, the EIS and identification of interested and affected parties, the proponent undertook community consultation with the affected landowners and government agencies during and outside the public submission period of the EIS. The proponent also circulated information on the Grosvenor Project to the community.

The proponent has also appointed a Stakeholder Engagement Specialist resident in Moranbah with the primary role of preparing and implementing a stakeholder engagement plan (SEP) for ongoing project

development. The SEP addresses the formation and management of a consultation reference group and communications with the community.

### 3.2.1.2 Advisory body

DERM invited the following organisations to assist in the assessment of the ToR and EIS by participating as the advisory body for the project:

- Isaac Regional Council
- Mackay Regional Council
- Whitsunday Regional Council
- Construction, Forestry, Mining and Energy Union
- Department of Community Safety (from March 2009 incorporating Emergency Services)
- Department of Communities (from March 2009 incorporating Department of Communities, Department of Housing, Disability Services Queensland, Department of Child Safety)
- Department of Education and Training
- Department of Local Government and Planning
- Department of Transport and Main Roads (from March 2009 incorporating Queensland Transport)
- Department of Employment, Economic Development and Innovation (from March 2009 incorporating Department of Primary Industries and Fisheries, Department of Mines and Energy, Department of Tourism, Regional Development and Industry, Department of Employment and Industrial Relations)
- Department of Environmental and Natural Resource Management (from March 2009 incorporating Department of Natural Resources and Water & the Environment Protection Agency)
- Mackay Conservation Group
- Queensland Health
- Queensland Police Service
- Fitzroy Basin Association
- Powerlink Queensland
- Ergon Energy
- Sunwater Ltd.

Note that on 26 March 2009 the names of several of those departments changed (see Public Service Departmental Arrangements Notice (No.2) 2009). For clarity Table 2 summarises the changes that occurred to Queensland Government departments referred to in this report.

Table 2 - Changes to Queensland government departments

Previous department/s	New department (as of 26 March 2009)
Department of Primary Industries and Fisheries Department of Mines and Energy Department of Tourism, Regional Development and Industry Department of Employment and Industrial Relations Department of Infrastructure and Planning	Department of Employment, Economic Development and Innovation (DEEDI)
Environmental Protection Agency Department of Natural Resources and Water	Department of Environment and Resource Management (DERM)
Department of Local Government, Sport and Recreation	Department of Local Government and Planning (DLGP)
Department of Main Roads Queensland Transport	Department of Transport and Main Roads (DTMR)
Department of Communities Department of Housing	Department of Communities (DoC)

Disability Services Queensland, Department of Child Safety	
Department of Emergency Services	Department of Community Safety (DCS)

### 3.2.1.3 Public notification

In accordance with the statutory requirements, advertisements were placed in the Courier-Mail and the Central Queensland News to notify the availability of the draft ToR and EIS for review and public comment as stated in section 3.1. In addition, notices advising the availability of the draft ToR and the EIS for public comment were displayed on the DERM website.

The draft ToR and EIS were placed on public display at the following locations during their respective public notification/submission periods:

- DERM website
- DERM Customer Referral Centre, Level 3, 400 George Street, Brisbane
- DERM Emerald Office, 99 Hospital Road, Emerald
- Moranbah Town Library and
- Anglo American Metallurgical Coal Pty Ltd level 11, 201 Charlotte Street Brisbane

Copies of the EIS were also available from Grosvenor Project consultants Hansen Bailey on phone 07 32260900, [admin@hansenbailey.com.au](mailto:admin@hansenbailey.com.au) or web site [www.hansenbailey.com.au](http://www.hansenbailey.com.au)

### 3.2.1.4 Site visit

A site visit and presentation on the project for the advisory body took place on 10 March 2011. The proponent escorted members of the advisory body around key features of the project site. An advisory body meeting and project presentation was held in Moranbah on 9 March 2011.

## 3.3 Matters considered in the EIS assessment report

Section 58 of the EP Act requires, when preparing this EIS assessment report, the consideration of the following matters:

- a. the final ToR for the EIS
- b. the submitted EIS (including the proponent's responses to submissions, Supplementary EIS, Addendum to the Supplementary EIS and amended EM plan)
- c. all properly made submissions and any other submissions accepted by the chief executive;
- d. the standard criteria; and
- e. another matter prescribed under a regulation.

These matters are addressed in the following subsections.

### 3.3.1 The final ToR

The final ToR was issued on 2 August 2010. The ToR was considered when preparing this EIS assessment report. While the ToR was written to include all the major issues associated with the project that were required to be addressed in the EIS, they were not exhaustive, nor were they to be interpreted as excluding all other matters from consideration. The ToR stated that if significant matters arose during the course of preparation of the EIS that were not incorporated in the ToR (e.g. currently unforeseen issues that emerge as important or significant from environmental studies) then these issues should also be fully addressed in the EIS.

Where matters outside of those listed in the final ToR were addressed in the EIS, those matters have been considered when preparing this EIS assessment report.

### 3.3.2 The submitted EIS

The “submitted EIS” was considered when preparing this EIS assessment report. The “submitted EIS” comprised the following:

- i. The EIS that was publicly released on 14 February 2011
- ii. The proponent’s response to submissions report (Response to Public Submissions, amended EM plan & Addendum EIS) received by DERM on 30 June 2011 that was provided to relevant advisory body members and
- iii. The proponent’s further information to the Addendum EIS and further amended EM Plan received by DERM on 8 September 2011.

### 3.3.3 Properly made submissions

DERM received 18 properly made submissions on the submitted EIS. Those submissions were received from the following stakeholders:

- Department of Community Safety
- Department of Communities (Aboriginal & Torres Strait Islander Services)
- Department of Communities
- Department of Transport and Main Roads
- Department of Employment, Economic Development and Innovation (Social Impact Management Unit)
- Department of Employment, Economic Development and Innovation
- Department of Local Government and Planning
- Central Police Region, Queensland Police Service
- Construction, Forestry, Mining and Energy Union, Mining and Energy Division, Queensland
- Isaac Regional Council
- North Queensland Bulk Ports Corporation
- Moranbah Traders Association
- Fitzroy Basin Association
- Queensland Rail National Network Services
- Treasury
- Commonwealth Department of Sustainability, Environment, Water, Population and Communities.

DERM also provided its own submission on the EIS to the proponent dated 8 April 2011.

In addition, there has been further advice from stakeholders regarding the proponent’s response to submissions on the EIS and information in the addendum to the EIS. In July 2011 submissions were received from:

- Department of Community Safety
- Department of Communities
- Department of Transport and Main Roads
- Department of Employment, Economic Development and Innovation (Social Impact Management Unit)
- Department of Employment, Economic Development and Innovation
- Central Police Region, Queensland Police Service
- North Queensland Bulk Ports Corporation
- Fitzroy Basin Association
- Treasury
- Commonwealth Department of Sustainability, Environment, Water, Population and Communities.

All submissions and other comments made by stakeholders on the EIS documents were considered when preparing this EIS assessment report.

### 3.3.4 The standard criteria

In preparing an EIS assessment report Section 58 of the EP Act requires the DERM Chief Executive to consider the final ToR for the EIS, the EIS, all submissions, the standard criteria listed in Schedule 3 of the EP Act, and matters prescribed under a regulation. The standard criteria are:

- a. the principles of ecologically sustainable development as set out in the National Strategy for Ecologically Sustainable Development
- b. any applicable environmental protection policy
- c. any applicable Commonwealth, State or local government plans, standards, agreements or requirements
- d. any applicable environmental impact study, assessment or report
- e. the character, resilience and values of the receiving environment
- f. all submissions made by the applicant and submitters
- g. the best practice environmental management for activities under any relevant instrument, or proposed instrument, as follows—
  - i. an environmental authority
  - ii. an environmental management program
  - iii. an environmental protection order and
  - iv. a disposal permit
- f. the financial implications of the requirements under an instrument, or proposed instrument, mentioned in paragraph (g) as they would relate to the type of activity or industry carried out, or proposed to be carried out, under the instrument
- g. the public interest
- h. any applicable site management plan
- i. any relevant integrated environmental management system or proposed integrated environmental management system and
- j. any other matter prescribed under a regulation.

## 3.4 Prescribed matters

Section 58 of the EP Act requires that the following prescribed matters, under the Environmental Protection Regulation 2008, are considered when making an environmental management decision for this project:

- Section 51, matters to be considered for environmental management decisions
- Section 52, conditions to be considered for environmental management decisions
- Section 53, matters to be considered for decisions imposing monitoring conditions
- Section 55, release of water or waste to land
- Section 56, release of water, other than stormwater, to surface water
- Section 57, release of stormwater
- Section 60, activity involving storing or moving bulk material
- Section 62, activity involving acid-producing rock and
- Section 64, activity involving indirect release of contaminants to groundwater.

### 3.5 Environment Protection and Biodiversity Conservation Act 1999

Matters of National Environmental Significance under the EPBC Act administered by the SEWPaC were considered in developing this assessment report..

## 4 Adequacy of the EIS in addressing the ToR

The EIS adequately addressed the ToR. This section of the EIS assessment report discusses the main issues, related commitments by the proponent, and recommendations about conditions to be included in relevant approvals required for the project.

### 4.1 Introduction

The introduction outlined the project, its objectives and scope. Sections 3.1 and 3.2 of this report identify the necessary approvals and outline the assessment and approval processes.

### 4.2 Project need and alternatives

The need for the project was comprehensively addressed outlining the social, economic and environmental benefits and costs. High productivity conventional longwall underground mining is the preferred option for development of the resource which would target only the GM seam of the Moranbah Coal Measures found on the MLA. This way of mining the GM seam also does not sterilise the upper seams at Grosvenor.

### 4.3 Description of the project

The EIS described the location, scope and phases of the project and a summary is provided in section 2 of this report.

### 4.4 Climate

The EIS adequately described the local climate and assessed climatic conditions that could affect management of operations at the site.

The climate is sub-tropical with high variability in rainfall, temperature and evaporation. The region can experience droughts, floods, heatwaves and frosts. Rainfall is summer dominant with almost half falling from December to February from thunderstorms and tropical lows associated with cyclones.

Temperature patterns reflect warmer summer months during December, January and February and cooler winter months in June, July and August. The average maximum daily temperature at the Moranbah monitoring station is 33.7°C (summer) and average minimum daily temperature is 10.7°C (winter). The Grosvenor Project is located approximately 150 km inland and the terrain of the region is relatively flat and devoid of significant vegetation. Temperature inversions are common and occur frequently during winter, early spring and late autumn.

Rainfall is usually associated with thunderstorms and tropical lows and is extremely variable with 50% of precipitation falling during the summer months. Average monthly rainfall ranges from 8 mm in September to 102 mm in January with an annual average rainfall of 592 mm. The highest monthly rainfall is 347 mm recorded in February. The lowest monthly rainfall is 0 mm, recorded in the months of April through to November.

Extremes of weather may occur leading to flooding, high winds and bushfires.

### 4.5 Land

The EIS adequately addressed the ToR on land environmental values on the site. The key qualities and characteristics of land and management measures proposed at the project site are discussed in the relevant subsections below.

#### 4.5.1 Environmental values - land

The following sensitive environmental areas have been identified on the Grosvenor MLA:

- Isaac River and tributaries;
- Remnant riparian vegetation associated with the Isaac River and the Teviot Brook
- Endangered Brigalow vegetation; and
- Endangered Natural Grassland (Bluegrass) vegetation.

The Category A and B Environmentally Sensitive Areas under the *Environmental Protection Regulation 2008* in relation to the Grosvenor mining lease application (MLA) are summarised in Table 3. There are no category A areas found within the Grosvenor MLA. There are two category B areas identified within the Grosvenor MLA, namely the endangered Brigalow vegetation community and the endangered Bluegrass vegetation community. There are no proposals for the Grosvenor MLA or rail relocation corridor to become part of any protected area estate.

This assessment report will be used to develop relevant conditions proposed for the management of sensitive areas.

Table 3 – Sensitive areas – Grosvenor MLA - *Environmental Protection Regulation 2008*

Type	Description	Area on MLA	Area to be cleared	Management
Sensitive Area Category A	Nil	-	-	-
Sensitive Area Category B	Endangered Brigalow	Total combined 143.8 ha	0.2ha	Avoid & manage
Sensitive Area Category B	Endangered Natural Grassland		0.0ha	Avoid

## 4.5.2 Land use impacts

Land uses on the Grosvenor MLA including the rail relocation would be compatible with the current surrounding land uses, which include grazing, coal mining, mining related industrial facilities and accommodation villages. The Grosvenor MLA area would continue to be used for grazing during the Grosvenor Mine operations. Existing coal seam gas extraction operations and sand quarrying activities would also coexist with the Grosvenor Mine.

The township of Moranbah adjoins the Grosvenor MLA to the south. The mine surface facilities are located approximately 3 km to the north-west of the nearest Moranbah residence. The Grosvenor Project would not have a significant impact on residential amenity in Moranbah as traffic (see section 4.6), air quality (section 4.9) and noise impacts (section 4.10) are predicted to have a negligible effect on amenity. Table 4 summarises the potential impacts on land use.

Table 4 – Summary of land use

Current land use	Description	Area	Continue during & post mining?	Management
Gas extraction	Arrow Energy	MLA	Yes	Operated in accordance with approvals
Sand extraction	QCE Materials and Handling Pty Ltd	Isaac River within MLA	Yes – post mining (see section 4.5.4 for details)	Operated in accordance with approvals – no extraction would be allowed by DERM in the 6km reach affected by subsidence and parts upstream.
Adjacent and	Moranbah North Mine	Other mining	Yes	Operated in accordance with

nearby mines	Goonyella Mine Isaac Plains Mine Peak Downs Mine	tenements		approvals
Stock route	Isaac Regional Council	MLA	Yes	Access maintained
Recreation reserves	Isaac Regional Council	-	Yes	Access maintained
Explosives storage	Orica	Southern part of the MLA	Yes	Unused
Native title	Baranda Barna	MLA	Yes	Agreement 2008

There are operating and planned mines adjacent and in close proximity to the Grosvenor MLA including:

- Moranbah North Mine (MNM) directly adjacent to the north-western boundary of the Grosvenor MLA (10km);
- Goonyella Mine located to the north of MNM (~15km);
- Isaac Plains Mine located to the south-east of the Grosvenor MLA (~10km);
- Caval Ridge Mine located to the south of the Grosvenor MLA (~15km); and
- Peak Downs Mines to the south of the Grosvenor MLA (~40km).

Grazing is also a dominant land use in the local area, with extensive parcels of grazing land located to the west and north-east of the Grosvenor MLA.

Goonyella Road runs along the western boundary of the Grosvenor MLA. A number of accommodation options are located along Goonyella Road to the west of the Grosvenor MLA including the Picardy, Dyno Nobel and Arrow accommodation villages. The MAC Moranbah accommodation village is located adjacent to the southern boundary of the Grosvenor MLA. Industrial and commercial facilities and vacant industrial land are also located along Goonyella Road to the west of the Grosvenor MLA.

The Dyno Nobel Ammonium Nitrate Plant is located on Goonyella Road to the immediate west of the Grosvenor MLA. Additional industrial and commercial facilities located along Goonyella Road include earthworks and mine equipment hire facilities, engineering services and storage facilities. These facilities comprise industries that support the mining activities of the area such as light engineering and explosives manufacture.

North Goonyella and Blair Athol branch railway lines cross the Grosvenor MLA in the northern and middle sections of the Grosvenor MLA. The North Goonyella Branch would be unaffected by the Grosvenor Project however a portion of the Blair Athol Branch would be relocated if necessary some 20 years after commencement of mining.

The land use description above and information in Table 4 reflects the relatively complex and competing land uses present. There are relatively low impacts on land use predicted for the proposed Grosvenor underground operation as no current land use type would be permanently excluded.

### 4.5.3 Rail relocation

The Grosvenor EIS has assessed the impacts of the rail relocation, in accordance with the EIS ToR, and concluded that there would be no significant environmental impacts from the rail relocation. QR National and Department of Transport and Main Roads (DTMR) currently have no objection to rail relocation, provided the proponent finances the relocation. In the event of the railway line being relocated, a separate approval would be required. That approval would include a development permit under the Sustainable Planning Act with the Isaac Regional Council as assessment manager, QR National as the owner and proponent, and DTMR as concurrence agency.

If required, the rail relocation would involve a small section of the Blair Athol branch in approximately 20 years time (year 2032). The relocation would be to a corridor not subject to subsidence on the Grosvenor MLA with part off the MLA along the eastern MLA boundary. This relocation would be to maintain the rail network and avoid disruption of the rail system due to Grosvenor underground mining activities. The rail relocation would involve constructing a 6.64 km section of railway line to bypass the 5.30 km section that would be impacted by the longwall subsidence. The relocation would add an additional one minute to the rail journey, which is insignificant in the context of the overall rail journey and would not change the overall use of the rail line.

The relocated rail line would be similar to the existing track (i.e. narrow gauge rail capable of handling trains up to 10,000 net tonnes travelling at 80 km/hr) and no additional bridges, river crossings or level crossings would be required. The proponent has consulted with DTMR QR National and Rio Tinto (the downstream owner of the coal operations using the Blair Athol branch) regarding the proposed relocation. These parties have agreed to the conceptual relocation plan. The decision on whether the proposed section of railway line is to be removed would be made by QR National (the owner of the infrastructure) and DTMR (the manager of the rail corridor state land) as part of the detailed planning prior to the rail relocation. The rail relocation corridor is located on cleared grazing land. Land within the rail relocation corridor is zoned 'rural' under the *Planning Scheme for Belyando Shire 2008*. This zoning category is compatible with the potential future use of this area. The rail relocation corridor is located within freehold land owned by two private landowners (both of whom own land within the Grosvenor MLA). The proponent would acquire a corridor of land to facilitate the rail relocation and accommodate utilities in accordance with agreements with DTMR and QR National.

#### 4.5.4 Land subsidence

Grosvenor would employ longwall mining methods that would result in subsidence at the surface.

Subsidence depressions on the surface would develop as the roof strata above the coal seam progressively collapse to fill the void created by the extraction of coal in the area behind the longwall.

Surface subsidence develops progressively and is apparent on the surface in a wave across the active longwall panel that travels at the same rate as the longwall. The majority of subsidence at a point on the surface occurs within three months of undermining. The surface troughs develop gentle grades in the natural surface topography. The extent of the subsidence zone would be 3450 hectares. Subsidence would be less than 3m deep at the surface.

A report comparing predicted and measured subsidence at Moranbah North Mine was submitted as part of the Addendum to the EIS. It found that the predicted and measured subsidence at Moranbah North Mine were in alignment (see summary at section 4.5.4.1 of this assessment report).

Approximately 6km of the bed of the Isaac River would be subsided over the life of the mine. The proponent stated that the economic impacts of sterilising coal beneath the Isaac River would be significant and would necessitate a review of the project's viability. The proponent's conclusions are based on the monitoring results from mining beneath the Isaac River at Moranbah North Mine as well as the report Isaac River Cumulative Impact Assessment of Mine Development 2009.

##### 4.5.4.1 Subsidence management

###### *Surface drainage*

The management of overland flow from subsided areas is detailed in sections 11 and 12 of the EIS including a change in approach in the Addendum to the EIS. The key management measures for these areas include the rehabilitation of surface tension cracks and the installation of measures to control erosion and geomorphologic impacts on subsided waterways.

There are currently areas within the Grosvenor MLA in which water ponds after rainfall events. Changes in topography due to subsidence would give rise to additional ponded areas. The extent of pre-subsidence and post-subsidence ponding has been mapped in the EIS. The majority of additional ponded areas are shallow and would dry out fairly quickly after rainfall events, emulating current seasonal ponding. The areas of shallow ponding are not likely to significantly change vegetation types or remnant status. There are some

areas of deeper ponding particularly to the west of the Isaac River, near the rail embankment, ponded areas deeper than approximately 1.25 m that may remain inundated for up to 12 months and can cause substantial changes to vegetation communities, such as dieback of existing non-wetland vegetation and/or a shift in vegetation community composition to species more suited to the wetter conditions. The deepest parts of these ponding areas where the most significant vegetation changes would occur, are located over a combination of non-remnant vegetation and High Value Regrowth Brigalow.

Rather than leave additional ponded areas in place, the proponent has reconsidered the approach to the management of ponding from subsidence and noted the issues raised by DERM in relation to biodiversity impacts, potential to create vector breeding habitat and the impacts on the post-mining landform. The proponent has committed to install remedial drainage earthworks to re-establish free drainage. Drainage works may include the construction of excavated trapezoidal drainage channels, designed with sufficient capacity to cater for contributing catchments and with stable batter slopes. Such channels would enable drainage of subsidence troughs along pre-existing drainage lines.

The proponent has amended the EM Plan to reflect the above commitments.

### ***Tension crack rehabilitation***

Underground longwall mining would create surface subsidence and associated tension cracks over 3450 hectares and tension cracks are anticipated to be a maximum width of 0.3 m and a depth of up to 3 m, with the cracks in the Isaac River being slightly larger (up to 0.4 m width and a maximum depth of 5 m). Areas disturbed as part of the crack rehabilitation program would generally comprise a narrow strip typically up to 2-3 m wide and for the length of the cracks up to 50 m. Tension cracks would not cover the full extent of the area (3450ha). The majority of the area would be unaffected by cracking. Tension cracking itself would not necessarily impact on vegetation communities. However, based on experience at Moranbah North Mine (MNM), tension cracks would readily erode if not rehabilitated. Rehabilitation of cracks is therefore necessary to

- ensure a productive post-mining land use
- limit the possibility of significant erosion developing along crack lines
- lessen safety risks to persons
- limit risks to fauna and grazing animals associated with open cracks.

The proposed rehabilitation program for tension cracking is described in the EM Plan and detailed in the Rehabilitation Plan to be prepared before construction commences. The tension crack rehabilitation plan developed for the Grosvenor Project involves monitoring areas potentially subject to tension cracking, repairing any individual cracks that develop and minimising disturbance to vegetation and would be applied in conjunction with the management of grazing pressure and weed control. This approach does not involve broad scale clearing of vegetation.

The proposed rehabilitation program would confirm that any areas disturbed as part of the tension crack rehabilitation program would re-establish vegetation communities consistent with the pre-disturbance vegetation communities. The approach involves monitoring areas potentially subject to tension cracking and repairing any individual cracks that develop. The rehabilitation plan is based on the subsidence predictions would be refined once longwall mining commences and monitoring data becomes available.

A survey of potential tension cracking areas would be undertaken within six months of subsidence to locate individual cracks and assess the level of treatment required to rehabilitate each crack. Treatment would involve:

- ripping or ploughing minor cracks using a small dozer, grader or tractor. These areas would be allowed to regenerate naturally through inherent seed resources, vegetation propagation from rootstock and recruitment from adjoining undisturbed edges.
- stripping of large cracks of topsoil, excavating the cracks and sealing the cracks with bentonite where necessary.
- topsoil respread over the area and the site would be allowed to regenerate naturally from the seed bank in the topsoil and from rootstock and recruitment from adjacent vegetation.

- crack rehabilitation work areas clearly delineated in order to limit disturbance to the minimum area necessary and prevent unnecessary encroachment of disturbance.
- disturbance of large trees avoided where possible.
- requirements managed through the proponent’s Permit to Disturb process.
- any necessary erosion and sediment controls would be implemented in areas disturbed as part of the tension crack rehabilitation program.
- grazing controlled in areas that have been disturbed as part of the crack rehabilitation program. This may involve excluding stock through the use of fencing or using strategic grazing pressure, if appropriate.
- a weed and feral animal control program implemented for the project concentrating on areas that have been disturbed as part of the tension crack rehabilitation program.
- a crack rehabilitation monitoring program established to initiate crack rehabilitation maintenance work, where necessary, and ensure that the cracks have been successfully rehabilitated and that disturbed vegetation is regenerating.
- buckling effects rehabilitated as required through ploughing and regrading any areas of buckling. Regeneration of vegetation and monitoring would be as per the tension crack rehabilitation plan described above.

By minimising impacts on vegetation this approach avoids the need for vegetation offsets in the tension cracking zone.

The Grosvenor Project EM Plan commits to development of a Rehabilitation Plan incorporating the above actions. The Rehabilitation Plan would describe the:

- tension crack rehabilitation program
- monitoring of areas that have been subject to the crack rehabilitation
- monitoring frequency, monitoring parameters and methodology (e.g. photo point monitoring).

As only small areas would be disturbed and a weed control program would be implemented it is anticipated that natural regeneration would be successful. In the event of monitoring demonstrating unsuccessful regeneration, further action would be taken including additional weed eradication and/or seeding with native species. This work would be described further in the Rehabilitation Plan.

#### ***Isaac River subsidence management***

A report providing a review of the methods used to mitigate subsidence effects at Moranbah North Mine due to mining beneath the Isaac River was included in the Addendum to the EIS. The report concludes that the management measures were effectively designed and installed in accordance with a Development Permit and Water Licence issued by the DERM. Annual monitoring has been conducted and reported in accordance with the water licence and development permit. Monitoring results indicate that the following mitigation measures have generally performed well, in accordance with their design intent:

- upstream bed gradient control measures (pile fields, pinned and buried wooden debris and armouring cobbles)
- bank protection pile fields
- improved riparian vegetation coverage through stock management, supplementary planting, and irrigation where identified during the monitoring program.

The above subsidence management requirements will be reflected in the proposed conditions for the Grosvenor project. A subsidence management plan would need to be developed that should reflect the above requirements. An expert panel review of the outcomes of the progressive subsidence management program is a management requirement. The updated and all subsequent versions of the EM Plan must include a figure showing conceptual remedial drains.

DERM would also need to restrict the current sand quarrying activities during the life of the Grosvenor Mine. Subsidence would give rise to depressions in the bed of the Isaac River which would eventually fill with sediment due to the high sediment load in the Isaac River. In order to facilitate this process, DERM

would restrict the extraction of riverine quarry material in the reaches of the river that would be subject to subsidence to ensure that available sediment is retained to allow the river beds and bars to re-establish post-subsidence. No sand quarry allocation would be available in the 1-2 years prior to subsidence in any reach of the river that would be subject to subsidence (managed through the riverine quarry material allocation under legislation managed by DERM).

#### 4.5.5 Rehabilitation – post mining land use

The proponent proposes to use a stakeholder panel comprising landholders and interested stakeholders to visually assess rehabilitation outcomes. Success criteria would also be determined with the assistance of recommendations from the stakeholder panel. The post mining land use is proposed in Table 4 and consists of a continuance of the current land uses including grazing and sand extraction.

The rehabilitation commitments will be addressed as requirements in the proposed conditions for the Grosvenor project.

### 4.6 Transport

The EIS states that the Grosvenor project would likely have the following transport impacts during construction (2012 to 2014) and operation (2015 to 2039):

- **Rail** – Grosvenor is negotiating with Queensland Rail National for increases of 5 million tonnes per year coal hauled to Hay Point Dalrymple Bay from the existing infrastructure at Moranbah North Mine during the operational phase. The Grosvenor project would result in approximately an extra 510 trains per year on the Goonyella System. QR National has stated that rail expansion plans are being implemented to ensure rail line infrastructure is in place.
- **Roads** – During construction, the Grosvenor Project would generate traffic increases of up to 2.6% on Goonyella Road, 0.8% on the Moranbah Access Road and 1.5% on the Peak Downs Highway. These increases are less than 5% and not significant on their own in accordance with DTMR's *Guidelines for Assessment of Road Impacts of Development*. Operational traffic increases are less. Any changes to the location of the work force village would require a reassessment of traffic impacts.
- **Port** – The Dalrymple Bay Coal terminal at Hay Point already has the rail, terminal and shipping capacity to handle the Grosvenor coal product volume. Existing environmental management and regulatory conditions at the port would continue to apply. Dalrymple Bay Coal Terminal Pty Ltd operates the port and an operational agreement with Grosvenor Project would be required.
- **Air travel** – Daily charter flights and some commercial air travel would be used by personnel associated with the Grosvenor project. Workers living outside the region will travel by air for each shift change. During the operations phase an increase in flights of five per week is expected. The Moranbah airport is well equipped to handle this increase in flights.

#### 4.6.1 Road

The proponent proposes an operations phase with an average workforce of 484 personnel with approximately 80% of personnel working 10 hour to 12-hour shifts on a one week on/one week off roster, on either a permanent day shift roster or alternating between day and night shifts each roster. The remaining 20% of personnel would work Monday to Friday day shifts with a two-day weekend. The workforce would be split across the Grosvenor Mine and the Grosvenor infrastructure on the MNM mine lease.

It is anticipated that 75 % (i.e. 363 personnel) of the operations workforce would be accommodated in a village located in the Moranbah urban area. This proportion of workers are estimated to comprise the fly in out, bus in out, drive in out workers. The traffic assessment would be reviewed in the event the operations workforce accommodation village is located elsewhere. The remaining 25% (i.e. 121 personnel) of the operations workforce would be accommodated in Moranbah as permanent local residents.

DTMR has requested that the proponent continue to liaise with DTMR's Assets & Operations Division to progress the road related issues associated with the project once details are finalised prior to the construction

phase. Approvals and EIS assessment report conditions identified in Section 6.2.3 and the following general issues would need to be addressed by the proponent prior to construction:

- An alternate accommodation centre is proposed outside Moranbah, the potential impact on the state controlled road network would change. DTMR accepts the proponent's commitment to review the traffic impact assessment if the village is sited outside the Moranbah urban area.
- The analysis of the increase of traffic using the Peak Downs Highway and Moranbah Access Road intersection is based on 30% of operational personnel accessing accommodation villages would travel to and from Mackay. Any increased percentage would result in additional vehicle movements that may impact on the performance of this intersection. A sensitivity analysis would be required to assess any increase in workforce based in Mackay and other regional centres. This is related to the assumptions made for FIFO/DIDO/BIBO (fly, drive, bus in out), which could be as high as 75% of the operational workforce.
- An increase in vehicular transport, particularly to and from major regional centres, also may impact on road safety in relation to the management of driver fatigue. The Grosvenor project would need to develop a 'statement of commitments' regarding the management of workforce movements to and from the site to minimise private vehicle use accessing the mine site and its facilities. This would ensure the ongoing safety and efficiency of the state-controlled road corridor.
- DTMR recommend that the proponents and the consultants continue to liaise with DTMR officers to discuss and resolve the outstanding issues associated with the project in a timely manner.

#### 4.6.2 Rail to port

The EIS specifies that coal from the Grosvenor Project is to be transported by rail to the Dalrymple Bay Coal Terminal (DBCT) at Hay Point located south of Mackay. North Queensland Bulk Ports Corporation Limited (NQBP) is the port authority responsible for the Port of Hay Point where both DBCT and Hay Point Services Coal Terminal are located. DBCT is owned by the Queensland Government and is leased to DBCT Management. Dalrymple Bay Coal Terminal Propriety Limited operates the DBCT. This terminal currently has adequate rail, storage and shipping capacity to handle the additional 5 Mtpa of product coal from the Grosvenor Project. Environmental management at DBCT is the responsibility of the owners and operators of DBCT.

The proponent should continue to liaise with the Coal and Minerals Transport Unit within the Rail, Ports & Freight Division of DTMR and with the Network Projects Unit within the Assets & Operations Division of Queensland Rail to progress implementation of rail operations.

### 4.7 Waste

The proponent has committed (and would need to be licensed) to develop and implement a waste management system for the Grosvenor Project. The identified wastes for the project are:

- green waste
- scrap metal
- waste oils, other hydrocarbons and miscellaneous chemicals
- batteries and tyres
- sewage
- general waste.

The EIS adequately addressed the management of such wastes. The EIS estimates the source, projected annual quantity and proposes management strategies for each waste. The proponent has committed to ensuring that there would be no contamination legacy for any subsequent landholder.

Waste management would be the subject of a waste management plan as will be required by an environmental authority for the site. The proponent has also committed to submitting annual National Pollution Inventory reports in accordance with the National Pollutant Inventory Guide (DEWHA 2010) and

associated manuals (e.g. Commonwealth of Australia [2001] Emission Estimation Technique Manual for Mining) as required.

#### 4.7.1 Mine wastes

No mine wastes would be stored at the Grosvenor mine site. Mine wastes would be transported (trucked and conveyor) to the Moranbah North Mine (MNM) site including drift spoil and ROM coal. At the MNM mine, wastes (coarse and fine reject material) would be stored as follows:

- Reject material would be stored in an expanded version of the MNM co-disposal area (CDA) which has operated since 1998. MNM has an existing rejects co-disposal system which would receive Grosvenor mine wastes (the coarse and fine rejects would be combined in a single waste stream and pumped to the MNM CDA).
- Mixing the coarse and fine rejects in this way would eliminate the need for a tailings dam, create a consolidated combined reject material and enable a stable landform on decommissioning and progressive rehabilitation.
- The CDA is operated in accordance with the requirements of the MNM Environmental Authority (EA). It would be necessary to expand the MNM CDA to enable it to store the additional rejects and tailings from the Grosvenor Project, as well as the rejects and tailings from MNM.
- The combined co-disposal storage requirement for the remaining MNM and new Grosvenor Mine would be 54.61 Mm<sup>3</sup>. The expanded CDA has a design cap of 60 Mm<sup>3</sup>.
- The drift spoil from Grosvenor (total volume of 0.08 Mm<sup>3</sup>) would also be stored at the MNM CDA.

#### 4.7.2 Regulated waste

The proponent is committed to maintain an inventory of all waste types and quantities produced on site and their applicable disposal method in accordance with Environmental Protection (Waste Management) Policy 2000 (EPP Waste) and Environmental Protection (Waste Management) Regulation 2000 (EPR Waste). The EIS commits the Grosvenor Project waste management system to meeting the requirements of the EPP Waste, EPR Waste, EP Act and EP Regulation, providing for the identification of waste types, using licensed waste transport contractors, and tracking regulated wastes.

Some activities to be undertaken on the Grosvenor MLA might impact on the environment and cause land contamination. The Notifiable Activities (NAs under the EP Act) likely to be carried out on the Grosvenor MLA include:

- NA 1 – Abrasive Blasting
- NA 29 – Petroleum Product or Oil Storage
- NA 37 – Waste Storage, Treatment or Disposal.

The following ERAs under Schedule 2 of the EP Regulation are proposed to be undertaken as part of the Grosvenor Project:

- ERA 8 – Chemical Storage
- ERA 17 – Abrasive Blasting
- ERA 18 – Boiler making or Engineering
- ERA 33 – Crushing, Milling, Grinding or Screening
- ERA 56 – Regulated Waste Storage
- ERA 63 – Sewage Treatment.

ERA 5 under Schedule 6 of the EP Regulation is proposed to be undertaken as part of the Grosvenor Project (ERA 5 – Mining Black Coal). The EIS outlines the way in which the waste management hierarchy has been considered for each waste type.

## 4.8 Water resources

The Grosvenor MLA and MNM site are located within the upper Isaac River catchment with the Isaac River crossing both areas. The Isaac River is an ephemeral, but significant regional waterway discharging to the Mackenzie River, a major tributary of the Fitzroy River, 150 km downstream of the Grosvenor MLA. The Grosvenor MLA drains to the Isaac River and a number of ephemeral tributaries including Teviot Brook, and Smokey Creek. Numerous coal mining operations are located in the Isaac River catchment both up and down-stream of the Grosvenor MLA. The dominant land uses in the Isaac River catchment downstream of the Grosvenor MLA are cattle grazing, irrigated and dry land cropping, and production forestry.

Downstream of the Grosvenor MLA, water use includes domestic (farming properties), industrial, minor recreational uses, livestock watering and irrigation water supply. The environmental values of the Isaac River downstream of the Grosvenor MLA, scheduled under the *Environmental Protection (Water) Policy 2009*, include suitability for human consumption with minimal treatment, suitability for agricultural use stock watering, irrigation and farm use, suitability for industrial uses, and suitability for recreation.

The EIS has addressed the ToR adequately in relation to the surface water and groundwater resources of the site. The proposed management and mitigation measures to minimise the impacts on water resources are adequate. The issues dealing with the management of surface and groundwater resources are discussed below.

### 4.8.1 Groundwater

The EIS identifies the location of proposed groundwater monitoring bores, parameters that are proposed to be monitored for all of such bores and their location. There are no private groundwater bores extracting water from the coal measures, basalt or basal sands, or alluvium within 5 km of the limit of mining. The EIS predicts that the Grosvenor Project would not impact on groundwater users, as the groundwater regime is significantly dewatered already by existing operations and there are no operational bores within 5 km of the Grosvenor Project limit of mining. The ground and surface water system is also thought to be separate in this area.

Worked water from the underground mine is made up of groundwater inflow to the underground workings and excess raw water piped into the underground workings for the operation of equipment. The groundwater inflow rate would be approximately 190 MLpa. The Eungella Pipeline would supply 625 MLpa of raw water to underground mine operations. Overall, the Grosvenor Project would be expected to generate approximately 430 MLpa of worked water from the underground operations.

Groundwater quality in coal seams, represented as electrical conductivity (EC), ranges from brackish to saline. Typical concentrations of ions and total dissolved solids are above stock watering guideline levels. Worked water pumped from the Grosvenor mine would be expected to contain similar properties. The management of worked water would involve collection and storage in the Worked Water Dam for use as dust suppression water. Such a use would be subject to EA conditions specifying monitoring, and use requirements to ensure any contaminants remain on site and areas affected can be rehabilitated. Worked water also would be transferred to and from MNM worked water dams, as necessary, to contain and manage worked water supply for each site.

The proponent is committed to an annual report on mining impacts on groundwater. DERM is regulating multiple projects with cumulative impacts and Grosvenor would be required to provide water level data within 30 business days of collection. EA conditions will address such matters.

Subsided landscapes as a result of long wall mining cause cracking in the surface zone. At the Grosvenor site cracking is unlikely to extend to great depth and the potential for downward drainage is limited by the underlying constrained zone.

The above measures would be adequate to prevent contamination of the groundwater aquifers. The proposed groundwater monitoring program also would be considered adequate for detecting any unforeseen impact due to mining on the groundwater aquifers associated with local groundwater use. The proposed EP Act groundwater conditions for the draft environmental authority will address these matters.

## 4.8.2 Surface water

The EIS identified potential impacts on surface water resources including run off from contaminated areas such as process water and stormwater dams, workshops, hydrocarbon and chemical storage areas and sewage treatment plants. Such potential impacts necessitate compliance with the EM plan commitments for managing surface water contamination.

As the proposed Grosvenor Project water management system would be designed to operate as a ‘nil discharge’ system, discharges would not contribute to any cumulative downstream water quality impacts in the Isaac River. Modelling of the integrated Grosvenor and expanded MNM water management systems demonstrates that a nil discharge system would be maintained. Nevertheless, EA conditions would be developed specifying discharge conditions for the Grosvenor MLA. This would be a contingency for the purpose of flood or over design rainfall as required by DERM. These conditions would be designed to prevent any adverse cumulative downstream water quality impacts. The proposed EP Act surface water conditions for the draft environmental authority will address these matters.

## 4.8.3 Process water

The MNM mine site water management system would require changes in configuration and operation to accommodate the requirements of the Grosvenor Project and the expansion of the MNM Coal Handling and Preparation Plant (CHPP) facilities.

Proposed infrastructure changes include modifications to dams, construction of dams to collect runoff (eg from the expanded co-disposal area (CDA) area and run off mine (ROM) stockpiles, increased capacity of the CHPP and expansion of the existing CDA. MNM currently operates an established mine site water management system with Transitional Environmental Programs (TEPs) in place designed to ensure the management of worked water and DSA for worked water storages comply with the current MNM environmental authority (EA). Changes to the MNM water management system due to the implementation of the TEPs would be completed prior to the commencement of the Grosvenor Project and expansion of the MNM CHPP facilities.

The MNM EA authorises the discharge of excess mine site water to the Isaac River in accordance with the EA discharge conditions designed to protect the downstream water quality values and water users. Similarly, a number of other existing coal mines in the Isaac River catchment have EA conditions that allow the controlled discharge excess mine site water into the Isaac River system.

As external water for MNM is used to supply the CHPP, underground mine and water treatment plant, few instances would arise for discharge of water off lease. External raw water supply to the MNM site is from the Eungella Pipeline with a total current allocation of 1,350 MLpa. The integrated Grosvenor and MNM mine site water management system is predicted to have a water deficit throughout the proposed operations. The maximum annual external water requirement is approximately 3,550 ML, representing a significant increase in external water requirement as a result of the Grosvenor Project and MNM expansion.

As identified in Section 3.2 of this assessment report, Grosvenor would be required to obtain water licences under the *Water Act 2000* and associated development approvals under the *Sustainable Planning Act 2009* prior to constructing water extraction infrastructure. However no extraction of surface water is planned. Section 6.2 of this report provides further information about the conditioning requirements for the relevant approvals.

## 4.9 Air

The EIS adequately addressed the ToR with respect to air quality, including dust emissions, odour and greenhouse gas emissions. Specific dust sources and impacts include

For the Grosvenor Project –

- wind erosion of stockpiles
- stacking and reclaiming of stockpiles
- transfer of material between conveyors

- haulage of development coal by road during conveyor construction.

For the expansion of MNM CHPP Facilities –

- wind erosion of stockpiles
- stacking and reclaiming of stockpiles
- transfer of material between conveyors
- wind erosion of exposed surfaces in the CDA
- haulage of development coal by road during conveyor construction.

For the rail relocation –

- dust emissions from coal trains using the rail relocation.

The project site is a flat plain approximately 230 metres above sea level with a gentle rise to the northwest. The immediate vicinity is bordered by hills to the north-east and south-west. The Grosvenor MLA is directly north of the township of Moranbah and the Grosvenor Mine surface facilities would be located approximately 3 km from the nearest residence in Moranbah. There are 15 sensitive receptors identified in proximity to the project site.

#### 4.9.1 Dust

Wind flows mostly from an easterly direction with flows between the east/north-east and east/south-east direction for 56% of the year. The Grosvenor Project emission sources are located to the north west of receptors in Moranbah. The EIS shows that northerly wind conditions have the worst case effect on Moranbah receptors (from Grosvenor). At the same time the dust emissions from other nearby projects travel southward under such a wind direction (projects include Caval Ridge and Integrated Isaac Plains Projects which are located to the south and south east of Moranbah). The converse is true during southerly prevailing winds, where Grosvenor Project emissions will predominantly travel away from Moranbah and nearby sensitive receptors. In summary the EIS findings include:

- the EIS shows the location of dust monitoring sites and commits to a publicly available annual dust monitoring report to the Isaac Regional Council and DERM.
- predicted 24 hour PM<sub>10</sub> dust levels are low and well within the relevant air quality objective at all sensitive receptors - predicted PM<sub>10</sub> level is below the Environmental Protection (Air) Policy 2008 (EPP(Air)) air quality objective of 50µg/m<sup>3</sup>.
- average total suspended particulates <sup>1</sup> are predicted to be <33 µg/m<sup>3</sup>, which is below the EPP(Air) air quality objective of 90µg/m<sup>3</sup>.
- EIS studies account for natural dust sources, any dust emissions from the existing MNM, Isaac Plains, Goonyella and Peak Downs mines. The proposed Caval Ridge Project and the Integrated Isaac Plains Project could potentially contribute to dust levels within the region in the future.
- modelling of the cumulative emissions from these projects demonstrates that significant adverse cumulative impacts on the township of Moranbah are not expected.

Management measures outlined in the EIS include:

##### Construction Activities

- Limiting the amount of cleared area, particularly during construction.
- Dust suppression on unsealed roads.
- Strict definition of unsealed roads.
- Re-vegetation of cleared areas, where feasible.

##### Operations - Grosvenor Project

- Watering of the ROM stockpile.

<sup>1</sup> Total suspended particulates means particles in the air environment with an equivalent aerodynamic diameter of not more than 50 microns.

- Sealing of car parking area.
- Dust suppression on unsealed roads.
- Coal handling transfer points to include wind skirts at entry and exit and minimal dust chutes.
- Use of conveyors with wind shielding for transporting ROM coal.

#### Operations – Expansion of MNM CHPP Facilities

- Watering of the Grosvenor ROM coal stockpile.
- Coal handling transfer points to include wind skirts at entry and exit and minimal dust chutes.
- Use of conveyors with wind shielding for transporting coal.
- Progressive rehabilitation of the CDA.
- Design and operation of the train loading facilities in accordance with the requirements of QR National to ensure that best practice train dust control measures are adopted.

#### Rail Relocation

- QR National would operate the rail relocation as part of the broader Goonyella Coal Rail System. This rail system is operated under an existing Coal Dust Management Plan, developed by QR National in accordance with the DERM's requirements.

### 4.9.2 Odour

The EIS modelling predicts that odour emissions from ventilation shafts would not result in the ground-level odour concentrations exceeding the DERM odour guideline of 2.5 odour units at sensitive receptor locations.

Although modelling has demonstrated that exceedance of the DERM odour guideline is unlikely, the proponent has committed to investigating any future complaints of odour nuisance on a case-by-case basis.

### 4.9.3 Greenhouse gas

The EIS described the direct and indirect greenhouse gas emissions produced by the Grosvenor Project and expansion of MNM CHPP facilities as a result of electricity and fuel consumption and, potentially, the emission of coal seam gas. The majority of coal seam gas would be extracted by Arrow Energy as part of its commercial coal seam gas operation prior to coal mining operations. An assessment of greenhouse gas emissions has been undertaken in accordance with the *National Greenhouse and Energy Reporting Act 2007* (NGER Act). Greenhouse gas emission rates have been estimated using the National Greenhouse Accounts Factors.

MNM currently reports under the NGER Act and would continue to do so during the expansion of the project. Grosvenor must also report its greenhouse gas emissions, energy production and energy consumption annually to the Commonwealth Government. Grosvenor would develop a strategy to control greenhouse gas emissions prior to the commencement of mining operations to ensure compliance with the Commonwealth Government's *Carbon Pollution Reduction Scheme (CPRS)*.

The Grosvenor Project is to address all mandatory energy efficiency performance standards. The Grosvenor Project has identified the following measures for evaluation as applicable greenhouse gas abatement and energy efficiency strategies:

- Selection of high fuel efficiency motors
- Extracting and transporting coal efficiently, minimising double handling and energy consumption
- Segregation of general waste into recycling materials and general waste
- Greenhouse awareness included in induction
- Development and maintenance of an inventory of emissions and sinks including ongoing sampling and analysis of ventilation air flow rates and the concentration of methane in ventilation air
- Periodic sampling and analysis of coal seam gas for composition
- Periodic energy conservation audits

- Use of variable speed motors on ventilation fans and conveyors
- Use of solar hot water systems, where practical and possible
- Conveyor design and functionality to minimise power consumption
- The proponent has acknowledged the importance of minimising the double handling of coal, for the purpose of operational efficiency and to limit dust and greenhouse gas emissions. The coal handling system described in the EIS has been designed with this intent (eg small surface ROM stockpile (60,000 tonne) adjacent to the drift; coal is transferred to a sizing station where it is crushed and sized to enable further processing in the washplant at Moranbah North Mine (MNM)).

The above mitigation measures are considered adequate to manage the air impacts of the project in accordance with the EPP Air objectives. The recommended air quality conditions for the draft environmental authority will address these matters.

## 4.10 Noise and vibration

The EIS adequately addressed the ToR with respect to noise matters. To mitigate the potential noise impacts, the proponent has committed to maintaining:

- all plant and equipment in good working order to ensure compliance with the noise criteria
- a liaison program with the residences and landholders
- an active complaints register that involves responding to complaints and finding solutions as necessary.

These measures are considered adequate to manage noise emissions from the project.

There are 15 sensitive receptors identified in proximity to the project site. These receptors represent the nearest residences, commercial facilities, and accommodation villages used to house mine and industrial workers in the region. The existing acoustic environment is affected by:

- road traffic
- mining and industrial developments
- fauna such as birds and insects.

The EIS presents background noise levels (monitored in May 2008 at three representative receiver locations) from long and short-term monitors for both the Grosvenor Project and the expansion of the MNM CHPP facilities.

### 4.10.1 Summary of predicted noise impacts

Modelling demonstrates likely noise levels from the project are as follows:

- below the adopted intrusive criteria and planning levels at all residences within Moranbah township
- below the adopted intrusive criteria and planning levels at the Grosvenor Village and the MAC Village
- Predicted noise levels for the other accommodation villages are likely to incur a minor exceedance of 1 dBA over the intrusive criterion during worst case noise enhancing weather conditions during the night (Picardy Accommodation Village)
- The Dyno Nobel Accommodation Village is likely to receive 2 dBA over the intrusive criterion during worst case weather conditions during the day and up to 4 dBA over the intrusive criterion during worst case weather conditions during the evening and night
- In both cases noise levels for much of the time, during more common weather conditions, are predicted to meet the criteria at the receptor. Noise levels for much of the time, during more common weather conditions, would be lower and typically would meet the criteria at this receptor.
- The Dyno Nobel Village is occupied by Dyno Nobel staff and contractors during construction, commissioning and maintenance work on the adjacent Dyno Nobel Ammonium Nitrate Plant. The plant is expected to be completed in the first quarter of 2011. The Dyno Nobel Village also is proposed to be used to accommodate the Grosvenor Project workforce during the 2012 to 2014 construction phase.

Beyond these uses, the Dyno Nobel Village would most likely be unoccupied for much of the Grosvenor Project's operational life.

- In considering the potential noise impact on accommodation villages, the noise criteria used in the assessment are the more stringent criteria designed for residential amenity. Potential noise amenity impacts on accommodation villages differ from normal residential properties as such villages are used differently to residential properties e.g. resident workers in accommodation villages primarily use the villages to sleep between shifts. Although there are some predicted exceedances of the intrusive criteria at accommodation villages, no sleep disturbance impacts are predicted because the villages have been designed for residents to sleep with air conditioners on and windows closed.

Rural residences are likely to receive noise levels below the intrusive criteria and planning levels during all time periods except on residences located 2 km north of MNM and 1.5 km west of Goonyella Riverside Mine. Noise modelling predicts that this rural residence would receive a minor exceedance of 1 dBA over the intrusive criterion during worst case noise enhancing weather conditions during the night only. Noise levels for much of the time, during more typical weather conditions, are predicted to meet the criterion at this receptor.

In accordance with the proponent's policy and the requirements of the MNM Environmental Authority (EA), MNM has a complaints handling procedure in place which ensures noise related complaints are investigated and noise control measures identified as necessary. The proponent is currently discussing the Grosvenor and related projects with the owners of accommodation villages to resolve any issues arising from predicted noise levels.

Noise levels for the industrial areas in the vicinity of the Grosvenor MLA are likely to be well below the adopted planning levels for the active recreation area and residences.

Traffic noise levels from project related traffic are likely to be more than 10 dBA below relevant traffic noise criteria at a nominal distance of 20 m from Goonyella Road and are therefore predicted to be below the criteria at all residential receptors.

Train noise levels are likely to be below the criteria at all residential receptors and the accommodation villages. The rail relocation would not significantly alter the noise impacts at any sensitive receptor.

MNM predicted low frequency noise levels would remain below the adopted 60 dB external noise criterion at all sensitive receptors during worst-case weather conditions. Low frequency noise levels would be significantly lower during the day and evening and during many nights in the absence of a temperature inversion or other noise enhancing weather conditions.

#### 4.10.2 Cumulative noise

There are a number of other sources of noise in the vicinity of the project site, including:

- The existing operations at MNM, an underground mine.
- Goonyella Riverside Mine, an existing open cut mine located to the north of MNM. Broadmeadow Mine is an underground mine located within the Goonyella Riverside mining lease.
- Isaac Plains Mine, an existing open cut mine located to the south-eastern of the Grosvenor MLA and the Integrated Isaac Plains Project, which would be located to the south-east of Moranbah Township.
- Caval Ridge Project is a proposed large-scale open cut mine to be located to the south of Moranbah township.
- Dyno Nobel Ammonium Nitrate Plant is being commissioned and is located to the west of the Grosvenor MLA.
- The Arrow Energy Gas Compressor located to the west of the Grosvenor MLA.

No cumulative noise impacts are predicted at any assessed sensitive receptor in relation to the Grosvenor Project.

### 4.10.3 Recommended EP Act noise conditions

Mining, transport and vibration impact levels at sensitive places are required to comply with the relevant criteria in the EPP (Noise) – Schedule 2 – Reasonable Noise Levels. These criteria will be applied to the draft environmental authority conditions for noise management. The objectives of the EPP (Noise) are to ensure that the local ambient noise level is maintained and that noise emissions do not impact on sensitive places.

## 4.11 Ecology - nature conservation

The EIS adequately addressed the ToR with respect to nature conservation matters

### 4.11.1 Impacts on vegetation communities

Activities on the Grosvenor MLA that have the potential to cause impacts on flora and fauna include:

- clearing of vegetation for the construction of surface facilities;
- disturbing vegetation as part of the subsidence tension crack rehabilitation program;
- disturbing vegetation as part of the seismic exploration program; and
- secondary impacts due to the effects of noise, vibration and lighting from operating equipment and infrastructure.

The extent of clearing for surface infrastructure is limited by a proposed layout of surface facilities designed to avoid endangered vegetation. Impacts on nature conservation values are described below.

#### *Threatened Communities*

A total 0.2 ha of Endangered Brigalow would be directly impacted by clearing undertaken as part of the construction of the surface facilities on the Grosvenor MLA. Further detail on the impact on Brigalow is provided in Section 4.17 – Matters of National Environmental Significance.

#### *Tension cracking*

The majority of the area potentially affected by tension cracking is located within non-remnant vegetation. The remnant vegetation in the areas of potential tension cracking belongs predominantly to “Of Concern” and “Least Concern” REs with small areas of Endangered REs also present. A 6 km reach of the Isaac River supporting mature riparian forest belonging to the Least Concern RE 11.3.25 is within an area that may be affected by tension cracking. The EIS proposes remediation for individual longwall panels shortly after mining (over a 30 year period). The disturbance to vegetation and tension crack rehabilitation will occur progressively over the life of the mine with the area of vegetation recently disturbed being relatively small at any one time.

The tension crack rehabilitation program would involve monitoring areas potentially subject to tension cracking and repairing any cracks that develop. This targeted method of surface subsidence crack rehabilitation would minimise disturbance of vegetation.

#### *Seismic surveys*

Seismic surveys are required as part of the ongoing exploration program on the Grosvenor MLA. The area in which such surveys would take place is 5905ha. The disturbance area of vegetation communities from seismic survey activities is dependent on the depth of the coal resource. The Grosvenor Project coal resource drops toward the east of the MLA. Seismic lines in the east of the MLA would be widely spaced leading to disturbance of between 8% and 10% of vegetation in these communities. It is not anticipated that the proposed clearing of shot and receiver lines in the eastern vegetation communities would result in significant impacts due to the naturally open structured predominant eucalypt woodlands. The western area of the MLA (including the Isaac River) would have the closest spacing of shot lines (45 m) and disturbance of up to 14% of the remnant vegetation would likely occur. As Brigalow communities in the western area have a slightly separated or closed canopy so some disturbance to this community would occur. Brigalow areas would be avoided, where possible, and hand clearing would be used, where feasible, in these areas.

The EIS outlines how seismic surveys would minimise disturbance by:

- establishing 4 m wide seismic (shot) lines on a parallel grid between 45 m and 165 m apart depending on the depth to coal. Establishing 3 m wide receiver lines, 45 m apart at 30° to the survey grid
- slashing grassy areas along both lines and clearing woodland areas
- mulching shrubs and small trees up to 6 - 8 m high (slashers and mulchers can help retention of rootstock)
- spreading mulch on cleared areas
- avoiding large trees (above 6 - 8 m high)
- implementing erosion and sediment controls in disturbed areas
- regenerating cleared areas
- avoiding brigalow areas when laying out shot lines and receiver lines during the seismic survey
- hand clearing or other low impact techniques during the deployment of equipment especially within the Isaac River riparian corridor.

#### 4.11.2 Impacts on significant individual species of flora and fauna

Of the 19 potentially present listed species (under the *Nature Conservation Act 1992*) six are unlikely to occur in the Grosvenor MLA due to a lack of suitable habitat. Of the 13 species likely to occur, the field surveys recorded the following status on the Grosvenor MLA:

- Squatter Pigeon (*Geophaps scripta scripta*) (Vulnerable) and Grey Goshawk (*Accipiter novaehollandiae*) (Near Threatened) were confirmed to be present in the Grosvenor MLA;
- 11 species possibly occur in the Grosvenor MLA but were not encountered during field surveys:
  1. Black-necked Stork (*Ephippiorhynchus asiaticus*) (Near Threatened)
  2. Australian Cotton Pygmy-goose (*Nettapus coromandelianus albipennis*) (Near Threatened)
  3. Red Goshawk (*Erythrotriorchis radiatus*) (Endangered)
  4. Grey Falcon (*Falco hypoleucos*) (Near Threatened)
  5. Square-tailed Kite (*Lophoictinia isura*) (Near Threatened)
  6. Greater Long-eared Bat (*Nyctophilus timoriensis*) (Vulnerable)
  7. Little Pied Bat (*Chalinolobus picatus*) (Near Threatened)
  8. Yakka Skink (*Egernia rugosa*) (Vulnerable)
  9. Brigalow Scaly-foot (*Paradelma orientalis*) (Vulnerable)
  10. Ornamental Snake (*Denisonia maculate*) (Vulnerable) and
  11. Common Death Adder (*Acanthophis antarcticus*) (Near Threatened).

Three threatened flora species listed under the NC Act potentially occur (though were not detected) on the Grosvenor MLA:

- grass species *Dichanthium setosum* listed as Near Threatened
- herb species *Desmodium macrocarpum* listed as Near Threatened
- herb species *Zornia pallida* also listed as Near Threatened.

Clearing activities on the Grosvenor MLA would include portions of the following vegetation communities:

- 0.1 ha Endangered RE 11.4.8 (Brigalow Woodland)
- 0.1 ha Endangered RE 11.4.8/11.5.3 (Brigalow / Eucalypt Woodland)
- 1.4 ha Least Concern RE 11.5.3b (Eucalypt Woodland)
- 51.6 ha Least Concern RE 11.5.9c/11.5.3 (Eucalypt Woodland)
- 0.3 ha Least Concern RE 11.7.2 (Acacia Woodland).

Further species oriented information and strategies are summarised in section 4.17 of this assessment report.

### 4.11.3 Aquatic ecology

The Grosvenor MLA contains no fish habitat areas, aquatic reserves or habitat areas declared under state provisions. The Grosvenor MLA includes the stream channels of the Isaac River and Teviot Brook, and three small areas of alluvial wetland (RE 11.3.27f). No groundwater-dependent ecosystems are present in the Grosvenor MLA. The Grosvenor Project would not give rise to impacts on groundwater-dependent ecosystems. A summary of aquatic ecology issues follows.

- Disturbance would occur as a result of the tension crack rehabilitation program and the seismic survey especially intermittent disturbance of riparian vegetation within a 6 km reach of the Isaac River, Teviot Brook and the Eastern Tributary.
- Minor sediment inputs to in-stream aquatic habitats (sediment input to the system would occur against an existing regime of high sediment loads in the Isaac River and associated tributaries. Such sediment is not anticipated given the implementation of appropriate erosion control measures.
- Three areas of alluvial wetland may be disturbed by the tension crack rehabilitation program, although these wetlands would be expected to recover over time with the regeneration of fringing vegetation.
- Subsidence of about 6km of the Isaac River due to underground mining would result in the formation of waterholes in the bed of the Isaac River and Teviot Brook and the deepening of some existing waterholes as additional habitats for fish and other aquatic biota.
- The high bed load within the Isaac River during flood flows would result in in-filling of new waterholes and no long term change in geomorphology would be expected.
- The Grosvenor Project is not predicted to significantly impact the alluvial aquifer and consequently no adverse impacts on fauna (surface water fauna or stygofauna) in the alluvial aquifer are predicted.
- EIS studies found no true stygofauna in the basalt/basal sands aquifer.
- Oligochaetes (including surface water fauna and stygofauna) were found from a bore located on MNM. This bore is in close proximity to areas that have been subject to underground mining. The only bore containing organisms is located over 2 km from the zone of fracture contact and it is unlikely that mining at Grosvenor would lead to dewatering in this location.
- Mining at Grosvenor is likely to lead to fracturing above areas where coal is extracted. Very limited impacts on the basalt/basal sands are predicted and the majority of the basalt/basal sands aquifer within the Grosvenor MLA would not be impacted by mining operations.
- The EIS indicated that the Grosvenor Project would lead to a continuation in the dewatering of the aquifer currently being caused by Arrow Energy's activities.

### 4.11.4 Mitigation measures

Grosvenor has provided adequate commitments in the EM plan to avoid and mitigate potential impacts of the mining project on flora and fauna, including:

- areas to be cleared would be conspicuously delineated prior to clearing
- prior to fencing off operational areas such as the surface infrastructure, a fauna spotter would be used to ensure that native species are not within the fenced areas
- staff induction program would include awareness sessions about species of conservation significance on the project site
- native flora species endemic to the area would be used in rehabilitation works. In particular, species would be used that would encourage the return of native fauna species
- any infrastructure where water quality does not meet acceptable standards would be fenced off to prevent access by terrestrial native fauna.

Grosvenor's Species Management Program (SMP) which addresses tampering with animal breeding places, as outlined under section 332 (4)(a) of the *Nature Conservation (Wildlife Management) Regulation 2006* is expected to cover all protected species on the MLA including Endangered, Vulnerable and Near Threatened (EVNT) species. The SMP would need to cover the management measures for tampering with animal

breeding places for least concern and EVNT species. The permit that is required for EVNTs is an SMP that refers to all species in one document.

An animal breeding place can be a number of things including nests, burrows, hollow logs, hollow-bearing trees, tree buttresses or dirt mounds (depending on which species is potentially found in the area). It is very important that such species are identified and a management program is developed to cover the management techniques and methods for mitigating the loss of breeding places.

The removal of vegetation must take into account mitigation measures under the Queensland Government Environmental Offsets Policy 2008 and the forthcoming Biodiversity Policy for Offsets 2011.

The EIS provided sufficient detail on ecological impacts and adequately dealt with avoidance mitigation measures.

#### 4.11.5 Recommended nature conservation conditions

The conditions relating to nature conservation that will form the draft environmental authority will address the matters outlined above.

##### *Other permits*

Actions impacting on protected native flora and fauna are regulated under the NC Act and subordinate legislation. Accordingly, some or all of the following permits may be required for the Grosvenor Project:

- a Species Management Plan must be submitted to DERM for approval for tampering with some animal breeding places (section 332 Nature Conservation (Wildlife Management) Regulation 2006)
- a Rehabilitation Permit (spotter catcher endorsement) for managing fauna during clearing activities (section 207 Nature Conservation (Wildlife Management) Regulation 2006)
- a Damage Mitigation Permit (removal and relocation) for removal and relocation of fauna during construction and operational phases (section 181 Nature Conservation (Wildlife Management) Regulation 2006).

It would be necessary for the Grosvenor Project to have an exemption under the NC Act for the removal of Least Concern species plants. Removal of EVNT plants would also require permits under the NC Act.

The proponent must comply with the provisions of the *Nature Conservation Act 1992* particularly in regard to the following:

1. Where there is a requirement for clearing of plants protected under the *Nature Conservation Act 1992*:
  - clearing of protected plants must only occur in accordance with a clearing permit or an exemption under the NC Act.
  - offsets must be provided for the permanent loss (take) of near threatened, rare, vulnerable and endangered plants to achieve an equivalent or better overall outcome at a regional scale in accordance with the Queensland Government Environmental Offsets Policy 2008 and in accordance with legislation on dealing with offsets in development assessment and conditions (see *Environmental Protection and Other Legislation Amendment Act 2009* and forthcoming Queensland Biodiversity Offsets Policy 2011).
2. Where the activities of the proponent may cause disturbance to animal breeding places the prior approval of DERM must be obtained.
3. Where there is a need to take fauna, the prior approval of DERM must be obtained.

Any requirements on offsets would be determined on application under the NC Act. As stated previously offsets are likely to be minimal as strategies have been outlined that avoid and minimise habitat destruction.

## 4.12 Cultural heritage

The EIS has adequately addressed the ToR with respect to both Indigenous and non-indigenous cultural heritage issues. A summary of the assessment of indigenous and non-indigenous cultural heritage follows.

### 4.12.1 Indigenous cultural heritage

The *Aboriginal Cultural Heritage Act 2003* requires a Cultural Heritage Management Plan (CHMP) to be developed for proposals with an EIS requirement. A CHMP is not required for projects with existing agreements with the Aboriginal parties, prior to the commencement of the Act. An existing agreement, is designed to provide mechanisms to protect Aboriginal heritage, in accordance with the requirements of the Aboriginal parties.

The proponent signed a Cultural Heritage Management Agreement with Barada Barna's predecessor, the Barada Barna Kabalbara and Yetimarla People (BBKY) in December 2003 for all tenements controlled by the proponent within their claim area. The Grosvenor Project is managed in accordance with this agreement. The agreement covers the area of MLA 70378 and is considered to be current and approved under the *Aboriginal Cultural Heritage Act 2003*.

The requirement for an agreement is also a pre-requisite for any grant of the tenure by the Queensland Department of Employment, Economic Development and Innovation (DEEDI) under the *Mineral Resources Act 1989*. No declarations in relation to Aboriginal heritage have been made under Commonwealth legislation for the Grosvenor MLA or the rail relocation area and there are no sites listed on Commonwealth heritage lists. Separate approvals would be required under the *Sustainable Planning Act 2009* (SP Act) for the rail relocation by 2032.

As an affected person under Section 38 of the EP Act, the Barada Barna have been notified about the availability of the draft TOR and the EIS. The proponent maintains an ongoing consultation process with the Barada Barna due to their involvement with the other mines and exploration tenements in the Moranbah region held by the proponent. During the EIS public exhibition stage, the proponent contacted the Barada Barna people to discuss the project and the EIS.

### 4.12.2 Non-indigenous cultural heritage

A non-indigenous historical cultural heritage assessment was undertaken for the Grosvenor Project.

No sites are recorded on the Register of the National Estate, Commonwealth Heritage List, National Heritage List, Queensland Heritage Register and National Trust of Queensland for the study area. The Grosvenor MLA is located in the Isaac Regional Council LGA, in an area previously in the Belyando Shire. Cultural heritage is discussed briefly in the Belyando Planning Scheme. A review of the scheme and consultation with council staff, revealed no specific information in relation to the study area.

Two sites of low non-indigenous historical cultural heritage significance were located within the MLA area. The Moranbah Homestead is beyond the disturbance footprint for the Grosvenor Project with no impacts likely. The Wotonga Homestead is assessed as low heritage significance and is located above the underground mining area subject to subsidence due to underground longwall mining. The Wotonga Homestead would be managed to avoid damage and make safe by:

- inspection before planned subsidence and after subsidence;
- photographic records maintained for each stage;
- workforce training and induction on heritage matters; and
- (if necessary) removing buildings and structures that may be structurally unsound following subsidence.

### 4.12.3 Recommendations on cultural heritage

The proponent should continue to consult with key cultural heritage stakeholders including the Barada Barna and land owners prior to the revision of the social impact management plan (SIMP) and submission to DEEDI. There are no cultural heritage conditions recommended for inclusion in the draft environmental authority.

## 4.13 Social

The social issues for the Grosvenor project have been adequately addressed in the EIS. There are a number of social aspects requiring ongoing consideration and development. DEEDI is the lead agency for social

impact assessment and management of social issues associated with large scale resource projects in Queensland. The Department of Local Government and Planning (DLGP) also provides assistance with the assessment and management of social issues. The Isaac Regional Council (IRC) is also a key stakeholder on social impact matters.

#### 4.13.1 Issues and mitigation

The Isaac Regional Council (IRC) area is bounded by the regional council areas of Mackay, Whitsunday, Charters Towers, Barcaldine, Central Highlands Region and Rockhampton. The Grosvenor MLA adjoins the northern boundary of Moranbah which is the administrative centre for the IRC.

There are five currently operating mines and another five mines undergoing assessment within a 20 km radius of Moranbah. There are significant socioeconomic implications for Moranbah and nearby communities.

The EIS contains a social impact assessment and a social impact management plan (SIMP). These documents satisfy the requirements of the Terms of Reference (ToR) for the Grosvenor EIS. The SIMP documents the proponent's commitments to the:

- management of social impacts arising from the project
- development of strategies to manage social impacts.

The SIMP process has adequately assessed social impacts, potential identified impacts and proposed mitigation actions both direct and indirect namely:

- positive impacts - increased employment, induced economic growth and increased resident population;
- negative impacts - further increase in non-resident workforce, increased demand for social services and loss of community identity with fly in and fly out workforce arrangements;
- proposed strategies – includes implementation of five company policies namely the Workforce Diversity Policy, Workforce Accommodation Policy, Education and Training Policy, Local Procurement Policy, and Community Development Contributions Policy.

The proponent has committed to the following mitigation actions including:

- participation in cross-agency steering group meetings such as the Bowen Basin Local Leadership Group
- provision of FIFO/BIBO opportunities that provides benefits and spreads positive economic opportunities across the region and state
- establishing a Moranbah 2020 Fund including consultation with IRC and the community regarding development priorities for Moranbah
- programs to reduce impact of work and accommodation arrangements on families
- provision of potential workforce characteristics to service providers
- participation in the review of the Sustainable Resource Communities Policy and Partnership Agreement with the DEEDI
- collaboration with stakeholders in exploring opportunities for management of cumulative impacts in Moranbah and the region.

#### 4.13.2 Recommendations

Both the IRC and DEEDI requested further information which the EIS Addendum satisfactorily addressed. The SIMP would need to be updated before the construction phase and the proponent has advised that some elements have already commenced. Further consultation with the IRC and DEEDI would also be required. The proponent has committed to consulting with IRC and DEEDI in the development of the major SIMP review prior to the operational phase, and in following iterations throughout the life of mine

## 4.14 Health and safety

Health and safety was adequately addressed in the EIS in line with the ToR. No health and safety matters are dealt with in the EP Act and relevant approvals under legislation would be required in the construction and operational phases of the project.

The proponent has committed to occupational health and safety planning and development of a safety and health management system (SHMS) outlining relevant policies, approvals, Australian Standards, implementation actions and monitoring. The proponent has successfully implemented such a system at the MNM site. The SHMS includes training and education programs.

The proponent has committed to reduce the health, safety and environmental risks associated with the storage, use, processing and storage of hazardous materials, including hazardous substances and dangerous goods by:

- undertaking the transport, storage and use of all dangerous goods in accordance with the relevant legislation (Dangerous Goods legislation and relevant codes)
- maintaining a register of hazardous materials stored on site at specified locations and updated at predetermined intervals. This register would be available to the Department of Community Safety – Queensland Ambulance Service.

The EIS also demonstrated that air quality objectives of the EPP (Air) for the protection of health and wellbeing would be met at all sensitive receptor locations (see Section 4.9 of this assessment report).

## 4.15 Economy

The proponent completed an economic impact assessment of the Grosvenor Project, adequately addressed the ToR. Findings of the economic impact assessment are summarised below:

- Capital expenditure costs for the construction of the Grosvenor Project would be approximately \$1.115 billion of which, approximately 21.7% would transfer to the regional area (Mackay statistical division SD), 31.9% into the remainder of Queensland, 27.8% interstate and 18.6% overseas.
- The construction workforce would peak in the year 2014 at approximately 500 persons. Most of the construction workforce would be sourced through contractors, with the majority of the workforce drawn in Queensland.
- The Grosvenor Project operations workforce would be 484 employees and contractors from 2015 onwards. A number of different shift patterns would be used during the operations phase of the project. The project's accommodation strategy is discussed in detail in the EIS and SIMP. A variety of accommodation types would be used to house the operations workforce, including single persons accommodation in an accommodation village, couples accommodation and family accommodation. Approximately 75% of the workforce would be accommodated in villages.
- The proponent has developed a Local Procurement Policy in accordance with the Queensland Government local industry policy "*A Fair Go for Local Industry*", incorporating a local procurement strategy for the Grosvenor Project to support purchasing and business development strategies which further enhance the economic stimulus to the local and regional area. The proponent has also developed a Community Development Contributions Policy (CDCP) for the Grosvenor Project through which the proponent is committed to the implementing the Anglo American Moranbah 2020 Fund. This fund provides seeding and partnerships funding for landmark infrastructure projects and community initiatives intended to improve the liveability of Moranbah and its attractiveness as a population base.
- These initiatives are described further in the SIMP which is to be updated before construction commences in 2013.
- The proponent has developed a Workforce Accommodation Policy for the Grosvenor Project. It focuses on fly in/out, bus in/out, drive in/out (FIFO/BIBO/DIDO) employment conditions to reduce demand on housing and affordability in Moranbah. The proponent is committed to providing for the accommodation demands of the workforce with limited impact on the existing level of housing availability in Moranbah.

- The proponent has also developed an Education and Training Policy for the Grosvenor Project that is designed to support up-skilling in the labour force as a response to the shortage of experienced underground mine personnel predicted over the next five years. An education and training strategy would be prepared as part of policy implementation and is identified as a management action in the SIMP. The strategy would also address specific requirements in relation to indigenous and vulnerable groups.
- Implementation of the Anglo American Moranbah 2020 Fund through the CDCP would be expected to improve the liveability of Moranbah. As advised by the Department of Communities the Moranbah 2020 Fund would be used to deliver measurable improvements in both community services and community development such as:
  - Economic development, diversification, innovation and enterprise
  - Health services
  - Education and training services and/or facilities
  - Cultural and recreational activities and infrastructure.

#### 4.15.1 Recommendations

Further consultation with State agencies and local government in refining the SIMP is recommended. The proponent would need to continue to work with the Isaac Regional Council and the Moranbah community to establish the Fund, identify key projects and determine how projects can best be delivered. There are no economic conditions recommended for the draft environmental authority.

### 4.16 Hazard and risk

The EIS fully addressed the ToR on hazard and risk matters and provides information on the storage and handling of hazardous and dangerous materials. Such issues are addressed operationally by:

- reducing the risk of land contamination from project activities through design and construction of the facilities and post-mining rehabilitation
- storing of waste hydrocarbons and miscellaneous chemicals in separate sealed and banded areas to prevent soil contamination
- handling of waste hydrocarbons and miscellaneous chemicals in accordance with standard operating procedures to minimise potential for spillage and leakage
- training of key staff in spills prevention and clean up
- provision of oil spill cleanup kits at strategic locations as part of site emergency planning
- directing workshop and truck wash-down area contaminants to an oil separator and sump for containment and subsequent treatment or appropriate disposal
- undertaking abrasive blasting work in ways that prevents overspray from escaping the area
- using screens, enclosures and/or an exclusion zone around the work area
- controlling fine coal material using engineering controls such as the use of water sprays and the enclosing of the crushing area used to prevent coal dust dispersal and contamination of the surrounding area
- developing a detailed standard for emergency preparedness and response
- developing an Emergency Response Management Incident Plan (ERMP MEIP) addressing major emergencies and incidents that could impact upon surrounding land uses. This would include reference to disaster management techniques and the following preparedness measures:
  - Emergency response plans
  - First response and mine rescue plan
  - First aid, including provision of first aid facilities

- Risk assessments
- Detailed evacuation and site access plans
- Emergency drills and responses
- Fire management.

### ***Natural Events***

Natural events such as floods, bushfires and landslides were adequately considered in the EIS. Consideration of these natural hazards and their management is based upon State Planning Policy 1/03 (SPP 1/03) which requires that the proponent identify whether the ‘development area’ within the Grosvenor MLA (i.e. the coal handling facilities such as the ROM coal stockpile area) lie within a Natural Hazard Management Area (NHMA) for each of the three natural hazard types.

The development area is covered by the Queensland Fire and Rescue Service Isaac Regional Council Bushfire Risk Analysis (2008) mapping. This mapping shows that approximately 60% of the Grosvenor MLA is classed as ‘low’ risk. The development area lies within a similarly mixed ‘low’ and ‘medium’ risk area. The proponent has committed to a precautionary approach to managing these risks by assuming the development area falls within a medium risk NHMA area for bushfires. The proponent would mitigate these risks by:

The EIS outlines a Bushfire Management Plan that would be developed prior to the commencement of construction activities. The plan would be included as part of the project’s Safety and Health Management System (SHMS) and would be developed in consultation with relevant emergency services agencies. The plan would address:

- Review of bushfire hazards and risks;
- Bushfire hazard and risk management including:
- Use of firebreaks that provide adequate setbacks between buildings and hazardous vegetation, allowing access for fire fighting and other emergency vehicles and permitting safe evacuation.
- Fuel reduction (e.g. slashing and woody vegetation control) within fire breaks.

The SMHS would include Emergency Preparedness and Response (EPR) planning. Timely consultation with key stakeholders would be undertaken as part of the EPR with timely consultation with key stakeholders including:

- Emergency Management Queensland
- Department of Emergency Services
- Queensland Fire and Rescue Service
- Queensland Police Service
- Queensland Ambulance Service.

The EIS outlines control strategies for all identified hazards and risks.

## **4.17 Matters of national environmental significance**

A summary of the Matters of National Significance (MNES) identified under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for the Grosvenor Project follows:

- The proponent referred the Grosvenor Project to the SEWPaC under the EPBC Act on 14 November 2007. The Grosvenor Project was referred on the basis of potential impacts on listed threatened species and ecological communities.
- The SEWPaC determined the Grosvenor Project to be a Controlled Action. In accordance with the bilateral agreement, the EIS was prepared under the Queensland *Environmental Protection Act 1994* with the SEWPaC using this EIS assessment for a decision as to whether the project can proceed and under what conditions under the EPBC Act.

- EPBC approval for activities on the Moranbah North Mine (MNM) mining lease is not sought through the Grosvenor EIS and EPBC requirements would be managed by MNM. The expansion of the MNM coal washing and processing facilities and rail facilities are assessment matters to be dealt with separate to the Grosvenor EIS process.
- The potential relocation of a small section of the Blair Athol rail line directly to the east of the Grosvenor MLA is not proposed to take place until 2032 with necessary approvals for the rail relocation obtained at that time. It is unlikely that the rail relocation would be a Controlled Action as the area contains no remnant vegetation.

SEWPaC comments on the EIS raised the following issues and requested further information on each. Grosvenor provided further advice and information on 30 June 2011 as summarised below:

- Groundwater influence on the Isaac River baseflow
  - there is no permanent aquifer associated with the Isaac River on the MLA
  - the Isaac River alluvium contains no groundwater all year round and does not represent a laterally continuous aquifer. The Isaac River bed sands are recharged via direct rainfall/flood events.
- Impacts on groundwater-dependent ecosystems
  - the zone of sub-surface fracturing would not extend to the base of the Isaac River alluvium
  - potential surface tension cracking in the river channel would also be limited in depth due to a constrained drainage zone
  - the Isaac River monitoring results at MNM show no loss of water in the river due to subsidence.
- Listing of Bluegrass Ecological Community
  - The bluegrass on the MLA is recognised as “Natural Grasslands” (the endangered ecological community (EEC) “Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin) including the following regional ecosystems 11.3.21, 11.4.4, 11.4.11, 11.8.11, 11.9.3, 11.9.12, and 11.11.17.
- Squatter pigeon habitat
  - A total of 54ha of remnant vegetation and 85ha of non-remnant vegetation would be cleared (for surface infrastructure) and this vegetation is only 1% of the total squatter pigeon habitat available on the MLA
  - None of the vegetation to be cleared is in the vicinity of waterbodies (as preferred by the squatter pigeon)
  - Disturbance due to seismic surveys and tension crack rehabilitation would not be significant.
- Offsets
  - modified tension crack management avoids significant disturbance to vegetation
  - the seismic survey program would not significantly disturb vegetation
  - surface infrastructure construction would only clear 0.2ha of Brigalow and a total of 139ha of non remnant and Least Concern regional ecosystem (1% of the total MLA area) which does not contain listed vegetation communities under the EPBC Act
  - the proponent stated that no offsets would be necessary for the Grosvenor Project.

On 18 July 2011, SEWPaC requested further advice and information which the proponent provided on 25 July 2011 as follows:

- a map showing the EPBC listed ecological communities within the project area has been provided
- Squatter Pigeon habitat likely loss is 139ha
- the revised tension crack rehabilitation program affect on the area would be up to 3m wide and up to 50m long – i.e. 150m<sup>2</sup>

- a Rehabilitation Plan and Species Management Plan would be developed and finalised during construction phase as per the environmental authority applicable
- proposed seismic surveys are part of the Referred action. An estimated 5905ha of the MLA would be impacted by the seismic survey
- for each vulnerable species, Grosvenor provided justification (in accordance with EPBC Significant Impact Guidelines) as to why the species is not considered to be an ‘important population’

The following summaries address the proponent’s response to the above issues.

### **Surveys**

In accordance with the EIS ToR and DERM’s flora and fauna survey advice for terrestrial surveys, the field surveys were conducted in the warm season following rainfall in order to maximise the chance of encountering as many flora and fauna species as possible in the Grosvenor MLA study area. Studies were conducted in April 2008 and 2009.

The field surveys confirmed the presence of two EECs identified during the desktop search namely Natural Grasslands and Brigalow. The regional ecosystems (REs) that constitute the two EECs and the ground-truthed EECs are:

- **Natural Grasslands EEC**

The total area of the Natural Grasslands EEC within the Grosvenor MLA is 11.2 ha. The Natural Grasslands EEC in the Grosvenor MLA comprises RE 11.3.21 (*Dichanthium sericeum* and/or *Astreblla* spp. grassland on alluvial plains with cracking clay soil) and 11.9.3 (*Dichanthium* spp. and *Astreblla* spp grassland on fine-grained sedimentary rocks). RE 11.3.21 occurs as two small areas interspersed with RE 11.4.8 (*Eucalyptus cambageana* woodland to open forest with *Acacia harpophylla* or *A. argyrodendroni* on Canozoic clay plains) in the north-east of the Grosvenor MLA, encompassing a total of 2.7 ha. The relative proportion of RE 11.3.21 in the mixed community 11.3.21/11.4.8 is 1.6 ha. RE 11.9.3 occurs as a small area on the eastern boundary of the Grosvenor MLA totalling 9.6 ha.

- **Brigalow EEC**

The Brigalow EEC in the Grosvenor MLA comprises RE 11.3.1 (*Acacia harpophylla* and/or *Casuarina cristata* open forest on alluvial plains), RE 11.4.8 and RE 11.4.9 (*Acacia harpophylla* shrubby open forest to woodland with *Terminalia oblongata* on Canozoic clay plains).

- **Flora Species**

Desktop searches indicated that four flora species listed under the EPBC Act are either “Likely” or “May Occur” within the Grosvenor MLA. Based on the known habitat preferences of these species, the availability and condition of habitats within the MLA, and results of the field survey, the likelihood of each fauna species to be present in the MLA was assessed. Four categories were used to classify the likelihood a species being present: Present; Possible; Unlikely or Not Present. The findings were that threatened flora species listed under the EPBC Act were not found, specifically that

- *Dichanthium setosum* (Vulnerable) was not recorded within the Grosvenor MLA, however it was assessed as Possible to occur within the Grosvenor MLA; and
- *Cycas ophiolitica* (Endangered), King Bluegrass (Vulnerable) and Finger Panic Grass (Endangered) were not recorded within the Grosvenor MLA, and were assessed as Unlikely to occur within the Grosvenor MLA due to a lack of suitable habitat.

### **Fauna Species**

The Squatter Pigeon was the only threatened species recorded within the Grosvenor MLA. A total of 54 ha of remnant vegetation and 85 ha of non-remnant vegetation would be cleared for the construction of surface facilities. This vegetation represents a small area of the total habitat available for the Squatter Pigeon within the Grosvenor MLA (approximately 1%). The remainder of the vegetation would continue to be available as habitat for the Squatter Pigeon. The EIS found that the Squatter Pigeon can make use of non-remnant grassland and this level of disturbance of woodland vegetation is unlikely to have a significant impact on this species. Seasonal ponding post-mining may create additional ground cover diversity and feeding resources.

The five other species that were assessed as “Possible to occur” in the study area at least intermittently, include Red Goshawk (Vulnerable), Greater Long-eared Bat (Vulnerable), Yakka Skink (Vulnerable), Brigalow Scaly-foot (Vulnerable) and Ornamental Snake (Vulnerable). Habitat for these species may be impacted due to clearing associated with the construction of surface facilities and disturbance due to rehabilitation of surface subsidence cracking and seismic survey work. The EIS concluded that there would be no significant impact on any of the threatened fauna species as a result of the Grosvenor Project due primarily to:

- MLA does not represent significant or critical habitat for any of the species
- small area of habitat would be affected by the Grosvenor Project
- Disturbance of habitat is unlikely to disrupt, fragment or reduce populations that may be present
- Occurrence of the species (temporary or otherwise) within the MLA is not likely an important population of the species.

### *Offsets*

In considering the magnitude of the impacts to determine if offsets are necessary (in line with the SEWPac’s (August 2007) discussion paper entitled “Use of Environmental Offsets Under the Environment Protection and Biodiversity Conservation Act 1999”) the only project activity that would result in the loss of vegetation is clearing of 139ha of vegetation for surface facilities. All other impact types, e.g. the tension crack rehabilitation program and seismic survey work, are designed to incorporate mitigation measures to minimise impacts on flora and fauna. The proponent proposes no offsets for these disturbance types.

A total of 0.2 ha of Brigalow would be impacted by the clearing of vegetation for surface facilities. No other EPBC listed vegetation communities would be impacted by clearing for surface infrastructure. The proponent has stated that as offsets are only required in instances where there is a significant impact an offset for the 0.2 ha of Brigalow cleared for the construction of surface infrastructure is not considered necessary.

The remainder of the vegetation in the disturbance footprint for the surface infrastructure is non-remnant (85 ha) or Least Concern (54 ha) remnant vegetation. This vegetation is widespread across Queensland and the loss of this vegetation is considered unlikely to result in significant impact on EPBC listed fauna species that may potentially occur within the MLA. The proponent has stated that the low risk and low potential impact to EPBC Act listed fauna species does not warrant the provision of offsets for fauna habitat under the EPBC Act.

## 4.17.1 Recommendations

The information in the EIS and Addenda address the ToR satisfactorily on MNES matters. Proposed EA conditions on nature conservation will address these issues for the operation of the proposed Grosvenor Project.

Additionally the following is required to be addressed prior to any recommendation of EPBC Act approval:

1. Protection of the Brigalow ecological community and listed threatened flora and fauna with habitat on the project area through comprehensive management plans. The plans must include:
  - management actions to protect and enhance the extent and condition of the endangered ecological communities and threatened species habitat values. This should include, for example, specific and quantifiable best practice rehabilitation measures, weed and feral animal control, fire management, erosion and sediment control (including relating to subsidence management), management of livestock and restrictions on access;
  - mitigation actions relating to EPBC listed species and ecological communities.
  - the desired outcomes/objectives of implementing the plan;
  - the timing, responsibilities and performance criteria for such actions;
  - a description of the potential risks to successful management actions and a description of the contingency measures that would be implemented to mitigate these risks; and,
  - details of parties responsible for monitoring, reviewing and implementing the plan.

2. In order to minimise the impacts of the project on listed threatened species and ecological community, all mitigation measures outlined in the Grosvenor Environmental Impacts Statement dated February 2011 should be implemented.

SEWPaC's approval decision timeframe commences on receipt of this Assessment Report. Any requirements for offsets would be determined at that stage.

## 5 Adequacy of the EM plan for the project

An EM plan was included with the version of the EIS that was available for public submissions. A number of submissions on the EIS raised issues that required amendments many of which were addressed by Grosvenor in an amended EM plan received on 30 June 2011. DERM reviewed that amended EM plan and found that it did not adequately address all of the content requirements of section 203 of the EP Act. On and before 11 August 2011 Grosvenor was provided with a list of deficiencies which would need to be addressed before the document would be acceptable. The recommendations provided to Grosvenor are outlined below:

- restrictions on sand quarrying activities in the Isaac River;
- species management plan requirements;
- permits required under the NC Act;
- regulated dam design information;
- subsidence ponding drainage planning; and
- groundwater monitoring reports and data provision.

Grosvenor amended the EM plan and resubmitted it on 8 September 2011. The amended EM plan will be assessed by DERM after the EIS process is completed and would need to be determined to adequately address the content requirements of section 203 of the EP Act, prior to DERM finalising the conditions of the draft environmental authority. The conditioning requirements for the draft environmental authority are discussed in further detail in section 6.1 of this report.

## 6 Recommendations for conditions for any approval

### 6.1 Environmental Protection Act 1994

This assessment report will be reflected in a draft environmental authority for the Grosvenor Project.

Section 59 of the EP Act states that an EIS assessment report must recommend any conditions on which any approval required for the project may be given. Section 202 of the EP Act states it is the purpose of the submitted EM plan to propose environmental protection commitments to help the administering authority prepare the draft environmental authority for the application. As outlined in section 5 of this report, the EM plan of 8 September 2011 is to be assessed. Additional amendments may be needed to complete an assessment against section 203 of the EP Act. This EIS assessment report makes recommendations for specific conditions for the draft environmental authority and the amended EM Plan. Variants of the conditions to those outlined in this assessment report may be included in the draft environmental authority.

The following steps are required post the EIS process:

- Grosvenor must submit to DERM an amended EM plan reflecting this assessment report and any additional issues from DERM;
- DERM would assess the amended EM plan (content requirements of s203 of the EP Act); and
- If the EM plan is acceptable DERM would prepare a full suite of conditions for the draft environmental authority.

## 6.2 Approvals under other legislation

### 6.2.1 *Water Act 2000*

As outlined in section 3.2 and 4.8 of this report no water licences or associated development approvals under the *Water Act 2000* and *Sustainable Planning Act 2009* respectively would be required for taking groundwater under the Grosvenor Project. This is because the Grosvenor Project does not require active dewatering, does not predict impacts on existing water users, has no take of aquifer water resources, and any dewatering activities would only be by pumps in the mine workings for use on site.

The current Water Resource (Fitzroy Basin) Plan 1999 (WRP) provides for taking mine affected overland flow for the purposes of an environmental authority for the mine. A revised WRP due late 2011 may require that any other new overland flow take for mining activities would require the acquisition of a water entitlement.

The EIS has provided sufficient detail about the impacts on surface and groundwater for this EIS assessment report. Conditions for mining activities would be decided subsequent to completion of the EIS process.

### 6.2.2 *Cultural Heritage Act 2003*

As outlined in sections 3.2 and 4.1.10.1 of this assessment report the *Aboriginal Cultural Heritage Act 2003* requires the proponent to develop a Cultural Heritage Management Plan (CHMP) and have it approved by the relevant Aboriginal parties. The Barada Barna People have been identified as the Aboriginal party for the Grosvenor Project in accordance with the *Aboriginal Cultural Heritage Act 2003*.

The proponent signed a Cultural Heritage Management Agreement with Barada Barna's predecessor, the Barada Barna Kabalbara and Yetimarla People (BBKY) in December 2003 for all tenements controlled by the proponent within their claim area. The Grosvenor Project would be managed in accordance with this agreement. Grosvenor would need to ensure that a CHMP covering the area of ML 70378 is current and approved under the *Aboriginal Cultural Heritage Act 2003*.

The proponent has also carried out negotiations with the BBKY People, as the (then) registered native title claimants, for the Grosvenor mining lease application area. A Right to Negotiate agreement was reached with the BBKY People under section 31(1)(b) of the *Native Title Act 1993*, which provides the traditional owners' consent to the grant of the mining lease.

### 6.2.3 *Transport Infrastructure Act 1994* and other transport related legislation

As outlined in sections 3.2 and 4.6 of this report the Department of Transport and Main Roads (DTMR) has advised that it is satisfied with the EIS material and a number of approvals would be required to address transport issues on the road route and the relocation of the rail line (should this be necessary). Approvals would be required under the *Transport Infrastructure Act 1994* and the *Sustainable Planning Act 2009* for the Grosvenor Project. Excess mass loads or non-standard vehicle movements on state-controlled roads would also require a permit under the *Transport Operations (Road Use Management) Act 1995*.

Vehicle movements may vary during the construction and operational phases of the project. Conditions for transport related activities would be decided by DTMR when the proponent has lodged applications for the relevant transport approvals. For this EIS assessment report, recommended conditions for any transport related approvals are as follows:

#### ***Proposed Road Impact Assessment and Road-Use Management Plan Requirements***

- In the event that an alternate accommodation centre located beyond the immediate Moranbah urban area is adopted to house construction and operational staff the proponent would:
  - Update and finalise the Road Impact Assessment (RIA) which would include an assessment of all the project's transport impacts on the safety and efficiency of state-controlled roads in accordance with *Guidelines for Assessment of Road Impacts of Development (2006)* and in consultation with the Regional Director of DTMR Mackay/Whitsunday Regional Office. The final RIA must be approved by the Regional Director.

- Included in the above review shall be a re-assessment of traffic impacts of any change in the percentage of employees utilising fly in/fly out, bus in/bus out transportation
- Prior to the commencement of construction the proponent:
  - Prepare a Road-use Management Plan (RMP) for all users of state-controlled for each phase of the project. The RMP would detail final traffic volumes, proposed transport routes, summarise impacts assessment, and detail any contributions and/or upgrades to mitigate road impacts. The RMP should also include any necessary conditions about access/connection to public roads, transport scheduling, dust control and road safety. The RMP is to include arrangements to ensure compliance with the management of workforce movements associated with the project. DTMR must approve the plan prior to implementation. The issue of fatigue management must be addressed in the plan, with reference to the re-assessment of the bus in/bus out percentage of users. Fatigue management of trips to and from major regional centres shall also be addressed in the RMP.
  - Provide any necessary upgrade / improvement works and road maintenance identified in the finalised RIA to ameliorate any adverse impacts of road use by the project on the Peak Downs Highway/Moranbah Access Road intersection.
  - Provide all necessary access to the state-controlled road, to a standard agreed upon by DTMR.

#### ***Proposed Traffic Management Plan Requirement***

- Prior to commencement of any construction works on site, the proponent would prepare detailed drawings and traffic management plans (TMP) for any construction and other activities in the state-controlled road corridor.
  - The TMP shall present detailed drawings and traffic management plans for review by DTMR, the Queensland Police Service, Isaac Regional Council, and take account of the reviews.
  - The proposed plan shall incorporate a provision that, prior to commencing any program of oversize transport movements that may be required for the construction of the project, the proponent would consult with DTMR, the Queensland Police Service, and Isaac Regional Council.
- The proponent would obtain the necessary permits for any excess mass or over-dimensional loads associated with the project as required under *the Transport Operations (Road Use Management) Act (Qld) 1995*.
- The proponent would implement the traffic management plan during construction and commissioning of the project and upgrading or construction of any access road intersection/s.

The DTMR is the responsible authority for these recommendations and approvals. The DTMR recommends continued liaison between its Network Planning and Performance unit and the proponent on these issues.

## **7 Suitability of the project**

The department has considered the final ToR (section 3.3.1 of this report), the submitted EIS (section 3.3.2 of this report), all submissions on the submitted EIS (section 3.3.3 of this report), and the standard criteria (section 3.3.4 of this report). Despite some areas where the ToR were not fully addressed, the submitted EIS and supplementary information have identified no impacts of sufficient magnitude to prevent the project from proceeding if the recommendations for amendments to the EM plan and other recommendations outlined in this EIS assessment report are fully implemented.

# Approved By

## Disclaimer

While this document has been prepared with care, it contains general information and does not profess to offer legal, professional or commercial advice. The Queensland Government accepts no liability for any external decisions or actions taken on the basis of this document. Persons external to DERM should satisfy themselves independently and by consulting their own professional advisors before embarking on any proposed course of action.

Stuart Cameron

Signature

22 September 2011

Date

Stuart Cameron

**Director, Environmental Impact Assessments**

**Delegate of the chief executive**

***Environmental Protection Act 1994***

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