Section 4 Issue Identification and Prioritisation

This section describes how the environmental issues assessed in the Environmental Assessment were identified and prioritised. In summary:

- *a comprehensive list of all relevant environmental issues was assembled through consideration of the Land and Environment Court decision for the initial "Ardmore Park" Quarry proposal, consultation with the local community and local and State government agencies, and a review of relevant legislation, planning documents and environmental guidelines;*
- *a review of the project design and local environmental setting was undertaken to identify risk sources and potential environmental impacts for each environmental issue;*
- *an analysis of risk for each potential environmental impact was then completed with a risk rating assigned to each impact based on likelihood and consequence of occurrence; and*
- *through a review of the allocated risk ratings and the frequency with which each issue was identified, the relative priority of each issue was determined, with this priority used to provide an order of assessment and depth of coverage within Sections 5 and 6.*

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4.1 INTRODUCTION

In order to undertake a comprehensive *Environmental Assessment* of the modified "Ardmore Park" Quarry project, appropriate emphasis needs to be placed on those issues likely to be of greatest significance to the local environment, neighbouring landowners and the wider community. To ensure this has occurred, a program of community and government consultation, preliminary environmental studies and literature review was undertaken to identify relevant environmental issues and potential impacts. This was followed by an analysis of the environmental risk posed by each potential impact in order to prioritise the assessment of the identified environmental issues within the *Environmental Assessment*.

4.2 ISSUE IDENTIFICATION

4.2.1 Introduction

Identification of environmental issues relevant to the development and operation of the "Ardmore Park" Project involved a combination of consultation and background investigations and research. This included:

- consideration of the determination of the project by the Minister for Planning and subsequent Land and Environment Court hearing decision (see Section 4.2.2);
- consultation with surrounding landowners and the local community (Section 4.2.3.1);
- consultation with State and local government agencies (Section 4.2.3.2); and
- reference to relevant NSW government policies and guidelines (Section 4.2.4).

4.2.2 2005 Development Application

4.2.2.1 Minister's Determination

On the 2 August 2005, the Minister for Planning refused the development application of Multiquip for the development and operation of the "Ardmore Park" Quarry. The Minister's decision followed the preparation of an assessment report by the Department of Infrastructure, Planning and Natural Resources (DIPNR) on the 2005 proposal. The assessment report concluded that while environmental issues associated with the construction and operation of the quarry on the Project Site could be managed and mitigated through appropriate conditions of consent, the proposal would generate significant and unacceptable environmental impacts on the community along the proposed transport route, namely:

- road safety impact on the Jerrara Road/Oallen Ford Road users and residents;
- noise and amenity impacts on the Bungonia Village residents; and
- inadequate condition of the road for the proposed number of heavy vehicle movements.

The Minister in refusing the development application noted the following reasons.

(i) The predicted heavy vehicle movements associated with the project would result in unacceptable amenity and social impacts for residents along the proposed transport route, including within the village of Bungonia.

(ii) The predicted heavy vehicle movements associated with the project could not be accommodated without unacceptable risk to road users given the current serviceability of the proposed transport route.

(iii) The proposal as submitted was not in the public interest.

4.2.2.2 Court Determination

Following receipt of the Minister's determination, Multiquip lodged an appeal with the land and Environment Court. As previously noted in Section 1.4, the Minister's decision was upheld in the NSW Land and Environment Court on 19 June 2007 by Justice Jagot (Hearing 10245 of 2006). Justice Jagot focussed on two principal issues when forming her opinion to refuse development consent, namely:

(i) the proposed transport route through Bungonia Village would undermine important aspects of the amenity of the village; and

(ii) the environmental impacts of the upgrading of Jerrara Road were not adequately covered.

4.2.3 Consultation

4.2.3.1 Consultation with Surrounding Landowners and the Local Community

Multiquip undertook a comprehensive community consultation program prior to the submission of a development application for the initial "Ardmore Park" Quarry proposal in 2005. The consultation was undertaken in a number of ways and included the following.

- Distribution of a community information newsletter (dated August 2004) to households surrounding the Project Site, within the village of Bungonia and along the proposed transport route. An invitation to respond was included and a total of 22 responses were received by mail, fax and telephone.
- A community meeting was convened by Multiquip in Bungonia on 28 August 2004 (attendance – approximately 50) where an overview of the proposal was provided and members of the community were invited to comment upon the proposal and raise any issues of concern. A feedback sheet was provided to attendees, with 23 completed sheets received.

- Multiquip representatives visited local landholders and residents of Bungonia to invite comment and answer questions about the proposal.
- The operators of the local school bus services through Bungonia and along the proposed transport route were contacted by R W Corkery & Co. Pty. Limited to assess concerns over the increase in heavy vehicle traffic.

The primary issues of concern noted through the consultation of 2004/2005 were summarised at a community meeting held by the Bungonia Action Group in February 2005 (following the submission of the 2005 development application and EIS) and focussed on water, traffic impact, health, amenity and impact on European heritage.

Following refusal of the initial "Ardmore Park" Quarry proposal by the Justice Jagot of the Land and Environment Court, further consultation with the local community has been limited to targeted one-on-one discussions with local land owners. However, to ensure that the issues of concern to the local community have been adequately addressed, Multiquip thoroughly reviewed all issues contained within the submissions to the original EIS for the 2005 development application, along with information provided for the Land and Environment Court hearing. Consideration has subsequently been given to these issues in determining the breadth of coverage provided to each within the *Environmental Assessment* . It is worthy to note that the project, including comment from Multiquip, has been published in the local paper since the completion of the Land and Environment Court hearing.

4.2.3.2 Consultation with Government Agencies

On the 23 March 2004, representatives of Multiquip, R.W. Corkery & Co. Pty. Limited and Christopher Stapleton Consulting Pty Ltd (traffic/transport consultants) met with of the then Mulwaree Shire Council (now incorporated into Goulburn Mulwaree Council) to discuss several aspects of the project. The primary issue of discussion related to the use of Oallen Ford Road and Jerrara Road for the transportation of the sand and hard rock products from the Project Site.

On 20 April 2004, the then DIPNR convened a Planning Focus Meeting (PFM) to discuss the initial "Ardmore Park" Quarry proposal. Information on the proposal and an invitation to attend the PFM were provided to the following government agencies.

- Department of Infrastructure, Planning and Natural Resources (now Department of Water and Energy) (Wollongong)*
- Department of Environment and Conservation – EPA) (now Department of Environment and Climate Change – EPA) (Wollongong)*
- Department of Environment and Conservation – NPWS (now Department of Environment and Climate Change – NPWS) (Hurstville)
- Department of Primary Industries – Mineral Resources (St Leonards)*
- Department of Primary Industries – Agriculture) (Goulburn)*

- Roads and Traffic Authority (Wollongong)*
- Sydney Catchment Authority (Penrith/Goulburn)*
- Goulburn Mulwaree Council (Goulburn)*

Representatives of those agencies marked with an asterisk (*) attended the Planning Focus Meeting. All agencies forwarded their written requirements to the Department of Infrastructure, Planning and Natural Resources following the Planning Focus Meeting with these requirements forwarded to R.W. Corkery & Co. Pty. Limited. The issues raised by the respective agencies during the Planning Focus Meeting were tabulated and considered in the EIS prepared and submitted in 2005.

Following final refusal of the initial "Ardmore Park" Quarry proposal by the Justice Jagot of the Land and Environment Court, Multiquip notified the Department of Planning (DoP) of its intention to review and submit an application for project approval under Part 3A of the EP&A Act. A preliminary *Environmental Assessment* was prepared and submitted to the Director-General of the DoP who confirmed the status of the proposal as a "major project" on 23 October 2007. An application for project approval was lodged by Multiquip along with a request for Director-General's requirements (DGR's). The preliminary *Environmental Assessment* was forwarded to relevant government agencies who were invited to provide information on issues to be considered in the *Environmental Assessment* for the project. DGR's were issued by the DoP on 23 January 2008, along with the requested coverage requirements of the consulted government agencies.

The key issues, as identified by the DGRs, were as follows.

- **Traffic and Transport** – including details of traffic volumes generated by the project and an assessment of the capacity and safety of the proposed transport route, including all intersections between the site and the Hume Highway and the bypass road around Bungonia.
- **Surface and Groundwater** – including a detailed assessment of surface and ground water impacts, a site water balance, a detailed description of the proposed water management system, including any creek diversions/crossings and sediment/water supply dams (both for the quarry site and bypass road); and consideration of the relevant provisions of *Drinking Water Catchments Regional Environmental Plan No 1*. As part of the mitigation measures for the project, a surface and groundwater contingency strategy setting out the measures that would be implemented to minimise impacts on the supply of water (quality and quantity) to the environment, groundwater dependant ecosystems and surrounding land owners.
- **Noise** – including construction and operational noise of the quarry site, and off-site road noise impacts (both for the transport route and bypass road around Bungonia).
- **Blasting and Vibration**.
- **Air Quality** – including an assessment both for the quarry site and bypass road.

- **Flora and Fauna** – including impacts on threatened species, populations or endangered ecological communities or their habitats (for the quarry site, bypass road and road works within the road reserve); and details of vegetation offsets to ensure that there is no net loss to the flora and fauna values of the area in the medium to long term.
- **Visual**.
- **Heritage** – including Aboriginal and non-Aboriginal heritage (both for the quarry site and bypass road).
- **Rehabilitation, Final Landform and Final Void Management** – including a justification for the proposed final land form and use in relation to any strategic land use objectives (including the draft Sydney-Canberra Corridor Regional Strategy); a detailed description of how the site would be progressively rehabilitated and integrated into the surrounding landscape; the measures that would be put in place to ensure sufficient financial resources are available to implement the proposed rehabilitation measures, and the ongoing management of the site following the cessation of extraction activities.

A full copy of the DGRs along with a tabulated summary where each issue is covered in this document is presented as **Appendix 2**.

Multiquip has also conducted direct consultation with a number of government agencies since advising the DoP of its intention to submit an application for project approval. This consultation has included.

- The proposed road construction and road upgrading works have been discussed with representatives of Goulburn Mulwaree Council on several occasions. This consultation culminated in the preparation of a letter with supporting survey plans of the proposed road upgrade and construction works sent to Council on 24 October 2007. Goulburn Mulwaree Council has been supportive of the proposed works although has noted final judgment on the project would be reserved until the *Environmental Assessment* in its entirety could be reviewed. Consultation was also undertaken on 18 April 2008 to discuss Council's request for a consolidated assessment of Project impacts on the local 'amenity' of Bungonia. Section 8.3.5 presents this assessment to level of detail considered consistent with Council's request.
- The Department of Water and Energy (DWE) was consulted regarding requirements for the crossing of Bungonia Creek by the proposed Bungonia Village Bypass. Mr David Zerafa of the DWE attended an on-site meeting with Multiquip and their hydrological consultants in November 2007 with it concluded that, assuming appropriate design considerations, the creek could be crossed without adverse impact on the local environment.

Following initial consideration of the *Environmental Assessment* by representatives of the DWE, additional information was requested in relation to the location of registered bores and groundwater monitoring activities. Mr Larry Cook of Larry Cook & Associates Pty Ltd (hydrogeological consultant to the Proponent) then discussed the DWE's request for further information with Departmental officers and Part 4 of the *Specialist Consultant Studies Compendium* now reflects these discussions.

- Following the receipt of the DECC's assessment of the initial *Environmental Assessment*, the deemed inadequacies of the document were discussed by Mr Kevin Mills (of Kevin Mills & Associates Pty Ltd – ecological consultant to the Proponent), Mr Craig Jones and Ms Alison Trewicke (of the DECC) and Mr Alex Irwin (of R.W. Corkery & Co. Pty Limited). Part 6 f the *Specialist Consultant Studies Compendium* has been revised to reflect the discussions held. The Proponent has also invited the DECC to visit the Project Site and transport route to gain a greater understanding of the local setting. At the time of publication, the DECC had yet to take the Proponent up on this offer, although it is understood there are plans to do so.

- The Proponent has also consulted with the Department of Lands (DoL) in relation to the purchase of a section of Crown land to accommodate the construction of the Bungonia Village Bypass. In a letter prepared by the DoL, no immediate objection was identified, although it was noted that the purchase of the land would be subject to standard legislative processes (such as native title claim(s)) and independent valuation.

  Further consultation with Mr John Flarrety of the DoL between 21 April 2008 and 24 April 2008 has further clarified the negotiations between the Proponent and DoL. At the request of DoL , a survey plan of the proposed area of Crown land that it has been proposed would be acquired was forwarded to the DoL for consideration.

- Consultation with the Goulburn RLPB has also been ongoing. During November and December 2007, the Proponent discussed the proposed construction of the Bungonia by-pass across a Travelling Stock Reserve (TSR) located within Lot 7006, DP 1002591 (Crown land). Details relating to the proposed alignment of the Bungonia by-pass were confirmed with the Goulburn RLPB during discussions conducted on 22 April 2008 and 29 April 2008 and emails sent on 22 April 2008 and 28 April. The Goulburn RLPB has indicated its concurrence with DoL to consent to the lodgement of the *Environmental Assessment* (see **Appendix 6**).

4.2.4 Review of Planning Issues and Environmental Guidelines

4.2.4.1 Introduction

A number of State, regional and local planning instruments apply to the Project. These planning instruments were reviewed to identify any environmental aspects requiring consideration in the *Environmental Assessment*. In addition, the DGRs identified a number of guideline documents to be referenced / reviewed during the preparation of the *Environmental Assessment* (see **Table A2-2**).

A brief summary of each relevant planning instrument is provided in Sections 4.2.4.2 to 4.2.4.4. The application and relevance of planning instruments related to specific environmental issues have been assessed in the relevant specialist consultant assessments. Section 4.2.4.5 briefly outlines the approach taken to referencing and reviewing environmental guideline documents.

4.2.4.2 State Planning Issues

State Environmental Planning Policy (Major Projects) 2005

This SEPP was gazetted on 25 May 2005 and applies to all projects satisfying nominated criteria lodged following this date. As identified in Schedule 1, the Project would be classified as a Group 2 development, ie. mining, petroleum production, extractive industries and related industries given the size of the sand resource is greater than 5 million tonnes and the annual rate of sand removal would exceed 200 000 tonnes per year. The Project is therefore to be assessed under Part 3A of the EP&A Act.

State Environmental Planning Policy No. 33 (SEPP 33) – Hazardous and Offensive Development

Hazardous and offensive industries, and potentially hazardous and offensive industries, relate to industries that without the implementation of appropriate impact minimisation measures would, or potentially would, pose a significant risk in relation to the locality, to human health, life or property, or to the biophysical environment.

The hazardous substances and dangerous goods to be held or used on the Project Site are required to be identified and classified in accordance with the risk screening method contained within the document entitled *Applying SEPP 33 2nd edition,* (DUAP, 1997). As the hazardous substances and dangerous goods to be used / stored on the Project Site would be restricted to well managed diesel fuel, the project is not considered to be a hazardous or offensive industry (see **Appendix 3**).

State Environmental Planning Policy No. 44 (SEPP 44) – Koala Habitat Protection

The Mulwaree Local Government Area (LGA) Area (now incorporated into Goulburn Mulwaree Shire LGA) is identified in Schedule 1 of this policy as an area that could provide habitat for Koalas. The policy requires an investigation be carried out to determine if core or potential Koala habitat is present on the areas of the Project Site likely to be disturbed. Core Koala habitat comprises land with a resident population of Koalas whereas potential Koala habitat comprises land with native vegetation with known Koala feed trees constituting at least 15% of the total number of trees present on a site.

SEPP 44 has been addressed by the ecological consultant to the project (Kevin Mills and Associates, 2008 - see *Specialist Consultant Studies Compendium* - Part 6).

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

This SEPP was gazetted on 17 February 2007, in recognition of the importance to New South Wales of mining, petroleum production and extractive industries. The quoted aims of the SEPP are as follows.

"*a. To provide for the proper management and development of mineral, petroleum and extractive material resources for the purpose of promoting the social and economic welfare of the State.*

b. To facilitate the orderly and economic use and development of land containing mineral, petroleum and extractive material resources.

c. To establish appropriate planning controls to encourage ecologically sustainable development through the environmental assessment, and sustainable management, of development of mineral, petroleum and extractive material resources."

The SEPP specifies matters requiring consideration in the assessment of any mining, petroleum production and extractive industry development, as defined in NSW legislation. A summary of the matters that a consent authority needs to consider when assessing a new or modified proposal (Part 3 - Clauses 12 to 17 of the SEPP) is as follows.

- **Clause 12**: Compatibility of proposed mine, petroleum production or extractive industry with other land uses.

  Consideration must be given to:
  - the existing uses and approved uses of land in the vicinity of the development;
  - the potential impact on the preferred land uses (as considered by the consent authority) in the vicinity of the development; and
  - any ways in which the development may be incompatible with any of those existing, approved or preferred land uses.

  The respective public benefits of the development and the existing, approved or preferred land uses must be evaluated and compared, along with any measures proposed by Multiquip to avoid or minimise the incompatibility.

- **Clause 13**: Compatibility of the project with mining, petroleum production or extractive industry.

  Consideration must be given to whether the development is likely to have a significant impact on current or future mining, petroleum production or extractive industry and ways in which the development may be incompatible. Measures taken by Multiquip to avoid or minimise any incompatibility are to be considered.

The public benefits of the development and any existing or approved mining, petroleum production or extractive industry must be evaluated and compared.

- **Clause 14**: Natural resource management and environmental management.

  Consideration must be given to ensuring that the development is undertaken in an environmentally responsible manner, including conditions to ensure:

  - impacts on significant water resources, including surface and groundwater resources, are avoided or minimised;
  - impacts on threatened species and biodiversity, are avoided or minimised; and
  - greenhouse gas emissions are minimised and an assessment of the greenhouse gas emissions (including downstream emissions) of the development is provided.

- **Clause 15**: Resource recovery.

  This clause requires the efficiency of resource recovery, including the reuse or recycling of material and minimisation of the creation of waste, be considered**.**

- **Clause 16**: Transportation.

  Consideration must be given to alternative means of product transportation other than by road and that a code of conduct for the transport of materials on public roads is prepared.

- **Clause 17**: Rehabilitation.

  The rehabilitation of the land affected by the development must be considered including:

  - the preparation of a plan that identifies the proposed end use and landform of the land once rehabilitated;
  - the appropriate management of waste generated by the development;
  - remediation of any soil contaminated as a result of the development; and
  - the steps to be taken to ensure that the state of the land does not jeopardize public safety, while being rehabilitated or at the completion of rehabilitation.

Section 8 reviews how each of the considerations presented in Clauses 12 to 17 is addressed in this document.

Environmental Planning and Assessment Act 1979

The objects of the EP&A Act (as quoted from Section 5 of the EP&A Act) are as follows.

"The objects of this Act are:

(a) to encourage:

(i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,

(ii) the promotion and co-ordination of the orderly and economic use and development of land,

(iii) the protection, provision and co-ordination of communication and utility services,

(iv) the provision of land for public purposes,

(v) the provision and co-ordination of community services and facilities, and

(vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and

(vii) ecologically sustainable development, and

(viii) the provision and maintenance of affordable housing, and

(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and

(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment."

In accordance with SEPP (Major Projects) 2005, the Project has been assessed under Part 3A of the EP&A Act with due consideration given to the objects of Section 5. In light of the level of community concern over the Project, the judgement of Justice Jagot following Hearing 10245 of the Land and Environment Court, and the modifications made to the "Ardmore Park" Quarry proposal since upholding of the Ministers refusal of the original development application, particular attention is provided to Object 1(a)(ii) (*the promotion and co-ordination of the orderly and economic development of land)*. This is discussed in relation to impacts on local amenity in detail in Section 8.3.5.

4.2.4.3 Regional Planning Issues and Strategies

Drinking Water Catchments Regional Environmental Plan No. 1 (DWC REP No. 1)

On 1 January 2007, the Drinking Water Catchments Regional Environmental Plan (DWC REP) was commenced to ensure the protection and health of the drinking water catchments within the Hawkesbury-Nepean, Shoalhaven and Georges Rivers (a draft DWC REP was released in March 2004). The DWC REP replaces SEPP 58. The Project Site lies within the Shoalhaven River catchment, within the limits of DWC Rep No. 1 and has therefore been considered.

Proponents of development or activities are required under the DWC REP No. 1 to demonstrate a neutral or beneficial effect on water quality as a result of that development or activity in order to obtain approval. While assessment under Part 3A of the EP&A Act does not strictly require assessment to demonstrate a neutral or beneficial effect on water quality, this standard has been adopted in the Environmental Assessment when assessing the proposed impact of the Project on water quality.

A development or activity has a neutral or beneficial effect on water quality when it:

- has **no** identifiable potential water quality impacts; or
- will **transfer** its potential water quality impacts for subsequent treatment and disposal; or
- can **contain** its potential water quality impacts on the site of the development; or
- will lead to an **improvement or it will retain the status quo** in terms of water quality impacts leaving the site; or
- when the above is not possible, a negotiated **offset** achieves an improvement.

This planning instrument requires any development or activity proposed to be carried out within land to which it applies incorporate the SCA's current recommended practices and standards. Concurrence of the Chief Executive of SCA is not required as the development is considered a "major project" under SEPP (Major Projects) 2005, however, the DWC REP No. 1 requires that any new development undertakes an assessment to demonstrate neutral or beneficial effect on water quality.

Draft Sydney-Canberra Corridor Strategy (2007-31)

"Ardmore Park" is located within the central sector of the Sydney-Canberra Corridor and therefore the draft Sydney-Canberra Corridor Strategy (2007-31) has been considered.

The strategy presents agreed principles for planning, development and environmental management and provides a policy framework to guide the decisions of government, business and the community.

The strategy includes goals and objectives grouped to:

(i) develop and support employment and economic activity;

(ii) manage settlement and population growth in line with existing settlement patterns and available infrastructure; and

(iii) maintain and manage the natural and cultural assets of the corridor.

The resources on the "Ardmore Park" property are recognised within the strategy as a potential deposit likely to supply raw materials to projects within the corridor itself and the Sydney construction industry as deposits located within the Greater Metropolitan Region are depleted.

The development and operation of a sand and hard rock quarry, in a socially and environmentally responsible fashion, would meet the goals and objectives of the strategy.

4.2.4.4 Local Planning Issues

Mulwaree Local Environmental Plan (LEP) 1995

The Project Site lies entirely within that part of the Goulburn Mulwaree Local Government Area covered by Mulwaree Local Environmental Plan 1995.

The Project Site is zoned as 1(a) (General Rural) under Mulwaree LEP 1995. The extraction of valuable deposits of minerals, coal, petroleum, and extractive materials is permissible, and consistent with objective 1 (a)(iv) of this zone, with development consent. The landholdings along the proposed transport route are also zoned 1(a) (General Rural), lying outside Zone 2(v) (Village) of Bungonia village. The use of the proposed transport route for quarry product despatch is in line with the objectives of these zones and is permissible with consent.

4.2.4.5 Environmental Guidelines

The DGRs require that in assessing the identified key assessment requirements, reference be made to one or more guideline documents. In addition, a number of the government agencies consulted in relation to the Project required reference to other environment guideline documents. Each of these guidelines was obtained, reviewed and where appropriate forwarded to the relevant specialist consultant for incorporation into the specialist environmental studies.

4.2.5 Summary of Environmental Issues and Impacts

Through the consultation and review process described in Sections 4.2.2 to 4.2.4, the various environmental issues requiring coverage within the *Environmental Assessment* were identified. These are presented in the left hand column (Column 1) of **Table 4.1**.

The project design, local environment and other factors, were then reviewed to identify all the potential risk sources (Column 2 of **Table 4.1**), consequences (Column 3 of **Table 4.1**), environmental receptors (Column 4 of **Table 4.1**) and corresponding potential environmental impacts (Column 5 of **Table 4.1**). **Table 4.1** presents these identified environmental risk sources and potential impacts that may be associated with each environmental issue.

4.3 ANALYSIS OF ENVIRONMENTAL RISK AND ISSUE PRIORITISATION

4.3.1 Analysis of Environmental Risk

Risk is the chance of something happening that will have an impact upon the objectives or the task, which in this case is development and operation of the project with minimal affect on the local environment. Environmental risk is measured in terms of consequence (severity) and likelihood (probability) of the event happening. For each environmental issue identified in **Table 4.1**, the potential environmental impacts have been allocated an environmental risk rating based on the potential consequences and likelihood of occurrence[1].

[1] The risk rating has been determined in accordance with Australian Standards HB 203:2006 and AS/NZS 4360:2004 and through consideration of the potential consequence(s) of the environmental impacts.

Table 4.1
Risk Sources and Potential Environmental Impacts

Environmental Issue	Risk Source/potential incident(s)	Potential Consequences	Receptor/ Surrounding Environment	Potential Environmental Impacts
Traffic and Transport	• Construction of Bungonia Village Bypass. • Construction of intersections between private site access road and Bungonia Village Bypass. • Road upgrading works on Oallen Ford, Mountain Ash and Jerrara Roads.	• Impacts associated with road construction (noise, dust, ecology, heritage etc.).	• See "*air pollution*", "*flora and fauna protection*" and "*noise*" above, and "*Aboriginal heritage*" below.	• See "*air pollution*", "*flora and fauna protection*" and "*noise*" above, and "*Aboriginal heritage*" below.
	• Increased traffic levels due to movement of workforce and contractors. • Increased heavy vehicle movements for product transportation.	• Increase in the frequency of light vehicle – heavy vehicles pass-bys on the public roads of the transport route.	• Local road network. • Existing and future road users.	• Increased traffic congestion. • Elevated risk of accident/incident on local roads. • Road pavement deterioration.
Groundwater	• Pollution of groundwater due to hydrocarbon spills. • Pollution of groundwater due to other contaminants, eg. Explosives residues, overburden etc.	• Decreased groundwater quality.	• Surrounding landholders utilising bores or spear pumps.	• Reduced groundwater quality causing reduced availability for existing uses.
	• Reduction of groundwater levels due to seepage and associated drawdown.	• Reduction in quantity of water stored in local aquifers. • Reduction or cessation of local spring flows. • Decrease in availability of groundwater to adjoining land owners and/or groundwater dependent ecosystems.	• Local groundwater aquifers. • Groundwater bores of adjoining land owners. • Local springs of adjoining land owners.	• Reduction in groundwater levels. • Reduced yields of local groundwater bores. • Reduced yields of local springs. • Degradation of groundwater dependent ecosystems.
Surface Water / Flooding	• Reduction in environmental flows through on-site capture of water.	• Reduced flows to downstream vegetation. • Decreased availability of water to downstream stock watering dams.	• Downstream flora and fauna. • Downstream agricultural lands.	• Reduced natural surface water flows resulting in stress to native vegetation and degradation of fauna habitats and/or reduced viability of grazing lands.
	• Discharge of dirty or contaminated water.	• Decreased water quality.	• Local creeks and tributaries.	• Reduced quality of downstream waters.
	• Altered flood regimes.	• Altered flood regimes.	• Local communities and ecosystems.	• Changes to local flooding patterns and indirect impacts on native vegetation communities and ecosystems.
Erosion and Sedimentation	• Erosive actions of wind and water. • Elevated concentration of suspended sediments within runoff resulting from erosion of disturbed areas	• Loss of topsoil. • Increased sedimentation within downstream creeks and Namoi River.	• Project Site soils. • Local creeks and their tributaries. • Namoi River.	• Soil erosion. • Increased sediment load in drains and/or waterways.
	• Increase in deposited dust and particulate matter concentration.	• See "*air pollution*" below.	• See "*air pollution*" below.	• See "*air pollution*" below.
Noise and Vibration	• Increased noise levels resulting from operation of equipment on the Project Site. • Increased noise levels resulting from product transportation.	• Decreased amenity. • Health related issues. • Impacts on livestock. • Decreased land values.	• Surrounding residents, landowners and livestock.	• Increased noise levels associated with construction and operational activities causing annoyance, distractions, ie. amenity impacts. • Increased noise and/or vibration levels associated with product transportation causing annoyance, distractions, ie. amenity impacts. • Increased noise levels associated with the Project leading to reduced production, ie. impacts on livestock.
	• Vibration caused by increased heavy vehicle traffic levels on public roads.	• Damage to residential buildings or other vibration sensitive structures, e. water pipelines.	• Residences and other vibration sensitive structures located adjacent to the transport route	•
Air Pollution – Dust, Odour, other	• Dust generation resulting from vehicle movements on unsealed roads. • Wind action on disturbed areas, overburden emplacements and stockpiles. • Dust generation resulting from construction activities and road upgrading works on the transport route.	• Increased deposited and suspended particulates.	• Surrounding residences and properties of the Project Site and transport route.	• Nuisance/amenity impacts from dust deposited on window sills, cars, surfaces etc. • Adverse health impacts (if PM_{10} levels are excessive). • Stress of native vegetation, and indirect impacts on fauna habitat.
	• Vehicle emissions.	• Increased greenhouse and other gas emissions.	• Local air-shed	• Increased contribution to green house effect.
Flora and Fauna Protection	• Removal of native vegetation due to land clearing activities.	• Removal of habitat and disturbance to threatened species.	• Vegetation within Project Site. • Vegetation within the public road corridor of the transport route. • Vegetation along the alignment of the proposed Bungonia Village Bypass.	• Loss of, or alteration to, existing habitats. • Direct adverse impact on threatened species.

Source: modified after HB203:2006 - Table 3

Table 4.1 (Cont'd)
Risk Sources and Potential Environmental Impacts

Environmental Issue	Risk Source/potential incident(s)	Potential Consequences	Receptor/ Surrounding Environment	Potential Environmental Impacts
Flora and Fauna Protection (cont'd)	• Obstruction, disturbance or removal of wildlife corridors.	• Restriction in range of local flora and fauna	• Wildlife corridor of Bungonia Creek.	• Indirect adverse impacts on native species through restriction of range.
	• Disturbance to fauna and fauna habitat as a result of project operations, eg. noise, dust etc.	• Reduction in biodiversity of the Project Site.	• Local communities and ecosystems.	• Reduced biodiversity. • Direct adverse impact(s) on threatened species, populations or communities.
Visual Amenity	• Changes in visual characteristics of the Project Site.	• Clearing and surface disturbance. • Dust generation.	• Surrounding residents and local motorists.	• Increased visibility of Project Site activities. • Decreased visual amenity.
	• Poor housekeeping resulting in general untidiness of the Project Site.	• Reduced amenity of Project Site and surrounding residences.	• Surrounding residents and local motorists.	• Decreased visual amenity.
Aboriginal Heritage	• Removal or destruction of Aboriginal sites and/or artefacts due to Project Site construction and mining activities.	• Loss or damage to Aboriginal artefacts.	• Local Aboriginal community	• Impact on identified sites and/or artefacts of Aboriginal cultural heritage as a result of the proposed construction and mining activities. • Impact on unidentified sites and/or artefacts of Aboriginal cultural heritage as a result of subsidence.
European Heritage	• Removal or destruction of sites of heritage significance due to project activities.	• Loss or damage to heritage sites.	• Identified heritage sites.	• Loss or destruction to/of items of heritage significance.
Rehabilitation and Final Landform	• Modified landform on completion of the Project. • Modified land uses on the Project Site.	• Reduced amenity of the Project Site. • Reduced agricultural capability of Project Site lands.	• Project Site and neighbouring properties.	• Reduced amenity of altered Project Site landform. • Reduced access to agricultural lands.
	• Increase in weed and/or pest species.	• Increased pressure on native flora and fauna.	• Local flora and fauna.	• Reduced viability of native flora and fauna populations, species and communities.
Waste Management	• Production of contaminating or polluting materials, eg. overburden, silt, waste oils, general rubbish.	• Contamination of downstream surface waters. • Contamination of groundwater. • Contamination of downstream lands. • Reduced visual amenity.	• Project Site land and water resources. • Downstream land and water resources. • Local and regional groundwater.	• Hydrocarbon or other pollutant contamination of surface water. • Hydrocarbon or other pollutant contamination of groundwater. • Reduced amenity of Project Site due to poor rubbish, litter management.
Soil and Land Capability	• Reduction in soil quality and availability through poor management practices.	• Structural damage to soils through poor soil management practices. • Reduced biological activity of soils.	• Project Site soils.	• Insufficient soil quantities for rehabilitation. • Reduced soil quality.
	• Increased erosion or erosion potential of soils	• See "*erosion and sedimentation*" above.	• See "*erosion and sedimentation*" above.	• See "*erosion and sedimentation*" above.
	• Decreased land capability in final landform.	• Reduced productivity of Project Site agricultural land.	• Project Site soils.	• Decreased land and agricultural capability of the final landform.
Land Contamination	• Extraction exposing previously contaminated materials.	• Transfer of contaminated materials to non-contaminated areas.	• Areas receiving contaminated material (including surface waters).	• Transfer of contaminated material. • Surface water contamination.
Bushfire	• Initiation of fire on the Project Site and spread to adjoining agricultural lands.	• Health and safety impacts to project personnel. • Damage to Project Site equipment. • Damage to adjoining agricultural lands and/or native vegetation.	• Project Site personnel and equipment. • Project Site and adjoining land.	• Injury or health impacts on project personnel. • Operational constraint posed by damaged equipment. • Crop and/or pasture damage. • Destruction / damage of native vegetation and fauna habitat.
Socio-Economic Impacts	• Alteration of social activities or employment due to employment generation and capital expenditure.	• Reduced unemployment and increased local spending.	• Local community and businesses	• Improved economic activity and related social impacts attributable to reduced unemployment
	• Perceived or real impacts on local amenity of neighbouring properties.	• Reduced property values.	• Surrounding property owners.	• Reduced quality of life (actual or perceived). • Reduced property values.
	• Reduction in property values due to presence of mining operation.	• Changed property values	• Surrounding property owners	• Possible short-term reduction in land values versus increases from increased economic growth.

Source: modified after HB203:2006 - Table 3

The likelihood or probability of each impact occurring was then rated according to the definitions contained in **Table 4.2**.

Table 4.2
Qualitative Likelihood Rating

Level	Descriptor	Description
A	Almost Certain	Is expected to occur in most circumstances.
B	Likely	Will probably occur in most circumstances.
C	Possible	Could occur.
D	Unlikely	Could occur but not expected.
E	Rare	Occurs only in exceptional circumstances.
Source: HB 203:2006 - Table 4(A)		

The allocation of a consequence rating was based on the definitions contained in **Table 4.3**. It is noted that the assigned consequence rating represents the highest level applicable, ie. if a potential impact is assigned a level of 4 - Major based on impact to the environment and 2 - Minor based on area of impact, the consequence level assigned would be 4 - Major.

Table 4.3
Qualitative Consequence Rating

Level	Descriptor	Description
5	Catastrophic	• Massive and permanent detrimental impacts on the environment. • Very large area of impact. • Massive remediation costs. • Reportable to government agencies. • Large fines and prosecution resulting in potential closure of operation. • Severe injuries or death.
4	Major	• Extensive and/or permanent detrimental impacts on the environment. • Large area of impact. • Very large remediation costs. • Reportable to government agencies. • Possible prosecution and fine. • Serious injuries requiring medical treatment.
3	Moderate	• Substantial temporary or minor long term impact to the environment. • Moderately large area of impact. • Moderate remediation costs. • Reportable to government agencies. • Further action may be requested by government agency. • Injuries requiring medical treatment.
2	Minor	• Minor detrimental impact on the environment. • Affects a small area. • Minimal remediation costs. • Reportable to internal management only. • No operational constraints posed. • Minor injuries which would require basic first aid treatment.
1	Insignificant	• Negligible and temporary detrimental impact on the environment. • Affects an isolated area. • No remediation costs. • Reportable to internal management only. • No operational constraints posed. • No injuries or health impacts.
Source: Modified after HB 203:2006 - Table 4(B)		

The risk associated with each environmental impact was assessed without the inclusion of any operational controls or safeguards in place and based on the qualitative assessment of consequence and likelihood, an environmental risk ranking of either; low, medium, high or extreme was assigned to each potential impact based on the matrix of **Table 4.4**.

Table 4.4
Environmental Risk Rating

Likelihood	Consequences				
	Insignificant 1	**Minor 2**	**Moderate 3**	**Major 4**	**Catastrophic 5**
A (Almost Certain)	H	H	E	E	E
B (Likely)	M	H	H	E	E
C (Possible)	L	M	H	H	E
D (Unlikely)	L	L	M	H	E
E (Rare)	L	L	M	H	H
Note: Rating modified after HB 203:2006 - Table 4(C)					

The four risk rankings are defined as follows.

Low (L): requiring a basic assessment of proposed controls and residual impacts. Any residual impacts are unlikely to have any major impact on the local environment or stakeholders.

Moderate (M): requiring a medium level assessment of proposed controls and residual impacts. It is unlikely to preclude the development of the Project but may result in impacts deemed unacceptable to some local or government stakeholders.

High (H): requiring in-depth assessment and high level documentation of the proposed controls and mitigation measures. Ultimately, this level of risk may preclude the development of the Project.

Extreme (E): requiring in-depth assessment and high level documentation of the proposed controls and mitigation measures and possible preparation of a specialised management plan. Unless considered to be adequately managed by the controls and/or management plan, this level of risk is likely to preclude the development of the Project.

Table 4.5 provides an analysis of the unmitigated risk for each potential environmental impact based on the classifications and definitions provided on Pages 3-9 and 3-10. Where appropriate, and to provide a more realistic assessment of the risks posed by the various environmental issues, the environmental impacts have been further defined using either a level, range or scale of impact providing for the various circumstances which may apply. **Table 8.1** in Section 8 provides an analysis of the environmental risks following the implementation of operational and safeguards measures, ie. mitigated risks.

Table 4.5
Analysis of Unmitigated Environmental Risk

Potential Environmental Impacts	Level / Scale of Impact (if applicable)	Consequence of Occurrence if not Mitigated	Likelihood of Occurrence if not Mitigated	Unmitigated Risk Rating
Traffic and Transport				
Increased traffic congestion		**3**	**D**	**M**
Increased noise levels at residences along the transport route		**See "noise and vibration"**		
Road pavement deterioration		**3**	**C**	**H**
Elevated risk of accident/incident on local roads	Minor accident – no injury	**2**	**C**	**M**
	Minor accident – minor injury	**3**	**D**	**M**
	Major accident –moderate injuries requiring hospitalisation	**4**	**E**	**H**
	Severe accident – severe injuries or death injury	**5**	**E**	**H**
Groundwater				
Groundwater Pollution by leaking/spilt pollutant	Contamination requiring minor recovery works	**2**	**D**	**M**
	Contamination requiring major recovery works	**4**	**E**	**H**
Drawdown of groundwater levels	Local drawdown of groundwater aquifer resulting in reduced yields of groundwater bores on surrounding properties.	**See below**		
Reduction in groundwater bore yields	Impacts restricted to groundwater bores on the Project Site, or Multiquip-owned land	**1**	**B**	**M**
	Reduction in yield of <15% of non-project related bores	**2**	**C**	**M**
	Reduction in yield of >15% of non-project related bores	**3**	**D**	**M**
	Reduced yield of local springs on neighbouring properties	**3**	**D**	**M**
Impacts on Groundwater Dependent Ecosystems		**3**	**D**	**M**
Surface Water/Flooding and Drainage				
Reduced natural surface water flows	Reduced productivity of downstream grazing lands	**2**	**D**	**L**
	Stressing of downstream native vegetation due to restricted flows	**2**	**D**	**L**
Reduced quality of downstream waters	Isolated and minor event resulting in temporary degradation of water quality in local creeks and tributaries, eg. Minor and one-off discharge of hydrocarbon	**2**	**C**	**M**
	Continuing discharge of contaminated water resulting in ongoing degradation of water quality in local creeks and tributaries, eg. frequent/periodic discharge of dirty water	**4**	**D**	**H**
	Isolated and major event resulting in temporary but wider spread degradation of water quality, eg. large discharge of hydrocarbons	**3**	**D**	**M**
	Repeated major event resulting in long-term and wide spread degradation of water quality, eg. continued discharge of dirty or contaminated water	**4**	**D**	**H**
Changes to local flooding patterns and indirect impacts on native vegetation communities and ecosystems.		**3**	**D**	**M**
Erosion and Sedimentation				
Soil erosion	Minor gully erosion of drainage lines, stockpiles or created slopes	**2**	**B**	**H**
	Minor sheet or gully erosion of rehabilitated landform	**2**	**C**	**M**
	Major gully or sheet erosion formation	**3**	**B**	**H**
Sediment Load and Turbidity	One-off discharge of dirty water from the Project Site	**2**	**A**	**H**
	Regular discharge of dirty water from the Project Site	**3**	**C**	**H**

Consequence of Occurrence: 1 = Insignificant; 2 = Minor; 3 = Moderate; 4 = Major; 5 = Catastrophic
Likelihood of Occurrence: A = Almost Certain; B = Likely; C = Possible; D = Unlikely; E = Rare
Risk Rating: E = Extreme; H = High; M = Moderate; L = Low

Table 4.5 (Cont'd)
Analysis of Unmitigated Environmental Risk

Potential Environmental Impacts	Level / Scale of Impact (if applicable)	Consequence of Occurrence if not Mitigated	Likelihood of Occurrence if not Mitigated	Unmitigated Risk Rating
Noise and Vibration				
Increased noise levels associated with construction activities on the Project Site causing annoyance, distractions, ie. amenity impacts.	Occasional minor exceedance of noise criteria (1-2dB(A))	**2**	**C**	**M**
	Regular minor exceedance of noise criteria (1-2dB(A))	**3**	**D**	**M**
	Occasional marginal exceedance of noise criteria (3-5dB(A))	**2**	**C**	**M**
	Regular marginal exceedance of noise criteria (3-5dB(A))	**3**	**C**	**H**
	Occasional major exceedance of noise criteria (>5dB(A))	**3**	**C**	**H**
	Regular major exceedance of noise criteria (>5dB(A))	**4**	**C**	**H**
Increased noise levels associated with operational activities on the Project Site causing annoyance, distractions, ie. amenity impacts.	Occasional minor exceedance of noise criteria (1-2dB(A))	**2**	**C**	**M**
	Regular minor exceedance of noise criteria (1-2dB(A))	**3**	**D**	**M**
	Occasional marginal exceedance of noise criteria (3-5dB(A))	**2**	**C**	**M**
	Regular marginal exceedance of noise criteria (3-5dB(A))	**3**	**C**	**H**
	Occasional major exceedance of noise criteria (>5dB(A))	**3**	**C**	**H**
	Regular major exceedance of noise criteria (>5dB(A))	**4**	**C**	**H**
Increased noise / vibration levels associated with project traffic activities causing annoyance, distractions, ie. amenity impacts.	Occasional minor exceedance of noise criteria (1-2dB(A))	**2**	**C**	**M**
	Regular minor exceedance of noise criteria (1-2dB(A))	**3**	**D**	**M**
	Occasional marginal exceedance of noise criteria (3-5dB(A))	**2**	**C**	**M**
	Regular marginal exceedance of noise criteria (3-5dB(A))	**3**	**D**	**M**
	Occasional major exceedance of noise criteria (>5dB(A))	**2**	**C**	**M**
	Regular major exceedance of noise criteria (>5dB(A))	**3**	**D**	**M**
Increased noise levels associated with the Project leading to reduced production, ie. impacts on livestock.		**3**	**E**	**M**
Vibration from traffic resulting in damage to buildings and structures		**3**	**E**	**M**
Air Quality				
Nuisance – deposited dust	Deposited dust levels attributable to the Project occasionally (for one or two months every year) above DECC guideline, affects only adjacent landholders.	**2**	**C**	**M**
	Deposited dust levels attributable to the Project regularly (exceedances greater than DECC guideline for >5 months per year) affects landholders some distance from the Project Site.	**3**	**C**	**H**
Health – PM_{10}	PM_{10} levels attributable to the Project occasionally (once every 1 to 2 years) above the Project goal, affects only adjacent landholders.	**2**	**C**	**M**
	PM_{10} levels attributable to the Project occasionally (>5 times per year) above the Project goal, affects landholders some distance from Project Site.	**3**	**C**	**H**
Greenhouse Gas Emissions		**1**	**B**	**M**

Consequence of Occurrence: 1 = Insignificant; 2 = Minor; 3 = Moderate; 4 = Major; 5 = Catastrophic
Likelihood of Occurrence: A = Almost Certain; B = Likely; C = Possible; D = Unlikely; E = Rare
Risk Rating: E = Extreme; H = High; M = Moderate; L = Low

Table 4.5 (Cont'd)
Analysis of Unmitigated Environmental Risk

Potential Environmental Impacts	Level / Scale of Impact (if applicable)	Consequence of Occurrence if not Mitigated	Likelihood of Occurrence if not Mitigated	Unmitigated Risk Rating
Flora and Fauna				
Loss of, or alteration to, existing habitats.	Disturbance to native vegetation / habitat within nominated areas	2	A	H
	Disturbance to native vegetation / habitat outside nominated areas	3	D	M
	Obstruction, disturbance or removal of wildlife corridors	3	B	H
Direct adverse impacts on threatened species.	Disturbance to Threatened flora / fauna and endangered communities	3	C	H
	Disturbance leading to local population reduction	4	D	H
	Disturbance leading to local extinction(s)	5	E	H
Reduced biodiversity	Local biodiversity	3	D	M
	Regional biodiversity	4	D	H
Visual Amenity				
Reduced amenity of altered Project Site landform	Temporary disturbance to landform	1	A	H
	Marginally identifiable change to landscape	2	A	H
	Highly identifiable change to landscape	3	C	H
Aboriginal Heritage				
Impact on identified sites and/or artefacts of Aboriginal cultural heritage as a result of the proposed construction and mining activities and without the permission of LALC or DECC		4	C	E
Impact on unidentified sites and/or artefacts of Aboriginal cultural heritage as a result of subsidence and without the permission of LALC or DECC		3	C	H
European Heritage				
Impact on identified sites of European cultural heritage		2	E	L
Rehabilitation, Final Landform & Biodiversity Offsets				
Reduced access to agricultural lands		2	C	M
Increased spread of weed and/or pest species		2	C	M
Final landform incompatible with final land use objectives		2	C	M
Increase in areas designated for native vegetation conservation		n/a	n/a	n/a
Waste Management				
Contamination by waste oil.	Contamination requiring minor recovery works	2	D	L
	Contamination requiring major recovery works	3	E	M
Sedimentation of downstream land or water as a result of overburden and/or silt management.		3	C	H
Reduced amenity of Project Site due to poor rubbish, litter management		1	C	L
Soil and Land Capability				
Insufficient soil quantities for rehabilitation.		3	C	H
Reduced soil quality	Temporary disturbance to soil	1	B	M
	Degradation of soil quality	2	C	M
Elevated erosion or erosion potential.		2	C	M
Decreased land and agricultural capability of the final landform		3	C	H
Land Contamination				
Transfer of contaminated material	Small area affected (<0.01ha)	2	D	L
	Large area affected (>0.01ha)	3	D	M

Consequence of Occurrence: 1 = Insignificant; 2 = Minor; 3 = Moderate; 4 = Major; 5 = Catastrophic
Likelihood of Occurrence: A = Almost Certain; B = Likely; C = Possible; D = Unlikely; E = Rare
Risk Rating: E = Extreme; H = High; M = Moderate; L = Low

Table 4.5 (Cont'd)
Analysis of Unmitigated Environmental Risk

Potential Environmental Impacts	Level / Scale of Impact (if applicable)	Consequence of Occurrence if not Mitigated	Likelihood of Occurrence if not Mitigated	Unmitigated Risk Rating
Land Contamination (Cont'd)				
Contamination of surface water as a result of exposing contaminated lands	Minor and temporary contamination of water quality in local creeks and tributaries	**2**	**C**	**M**
	Minor and continuing contamination of water quality in local creeks and tributaries	**3**	**D**	**M**
	Major and temporary contamination of water quality in local creeks and tributaries	**3**	**D**	**M**
	Major and continuing contamination of water quality in local creeks and tributaries	**5**	**E**	**H**
Bushfire				
Initiation of fire leading to impacts on the Project Site	Minor disturbance to Project Site lands and equipment resulting in temporary suspension of operations	**2**	**D**	**L**
	Major damage to Project Site lands and equipment resulting in long-term or complete suspension of operations	**4**	**E**	**H**
	Impacts on health and safety of project personnel	**5**	**E**	**H**
Initiation of fire leading to impacts outside the Project Site	Minor disturbance to lands and property external to the Project Site	**2**	**D**	**L**
	Major disturbance to lands and property external to the Project Site, eg. Entry into Vickery State Forest	**4**	**E**	**H**
	Impacts on health and safety of local landowners, residents and the general public	**5**	**E**	**H**
Socio-Economic Impacts and Property Values				
Improved economic activity and related social impacts attributable to reduced unemployment		**n/a**	**n/a**	**n/a**
Reduced quality of life (actual or perceived)		**3**	**D**	**M**
Reduced property values	Temporary decrease in property values	**2**	**C**	**M**
	Moderate term decrease in property values	**3**	**C**	**H**
	Long term decrease in property values	**3**	**D**	**H**

Consequence of Occurrence: 1 = Insignificant; 2 = Minor; 3 = Moderate; 4 = Major; 5 = Catastrophic
Likelihood of Occurrence: A = Almost Certain; B = Likely; C = Possible; D = Unlikely; E = Rare
Risk Rating: E = Extreme; H = High; M = Moderate; L = Low

4.3.2 Issue Prioritisation

On consideration of the relative unmitigated risk rating for each potential environmental impact, the order of priority assigned to the key environmental issues provided by the DGRs was largely retained.

1. Traffic
2. Water Resources (groundwater and surface water)
3. Noise and Vibration
4. Air Quality
5. Flora & Fauna
6. Heritage (Aboriginal and European)

7. Visual Amenity
8. Soil and Land Capability
9. Rehabilitation, Final Landform and Land Use

Modifications to this order of priority, reflected in the order of assessment in Sections 5 and 6 included the following.

(i) The environmental risks associated with impacts on Aboriginal or European heritage were considered greater than those posed to aspects of visual amenity.

(ii) Impacts on soil and land capability were considered an important component in assessing rehabilitation, final landform and land use, and as such the assessment of soil and land capability precedes that of rehabilitation, final landform and land use.

Additional environmental aspects not considered key issues by the DGRs but included in the *Environmental Assessment* are as follows.

10. Bushfire
11. Socio-Economic Climate

It is noted that the inclusion of the "Socio-economic Setting" at N^{o} 11 is not a direct consequence of the environmental risk analysis. Rather, it is included at N^{o} 11 to enable the key issues to be addressed prior to the consideration of the socio-economic setting as this issue invariably is inter-related with many of the preceding issues.

The sources of risk and potential environmental impacts associated with each issue are discussed within relevant subsections within Sections 5 and 6. All other issues generally allocated a "moderate" or "low" level of priority, have been addressed to the level considered appropriate throughout the *Environmental Assessment*.

It is also recognised that the potential impact of the Project on local 'amenity' has been identified as a major issue by the local community, reflected in the judgment of Justice Jagot J following Land and Environment Court Hearing No. 10245 (see **Appendix 3**). However, it is also acknowledged that impact on local amenity is subjective and is therefore difficult to provide a definitive assessment. It is for this reason that the impact of the Project on local amenity has been evaluated in Section 8 of the *Environmental Assessment*, with consideration given to the predicted impacts on the biophysical and social environment presented in Section 5 and 6 as well as the specific concerns raised by the local community.

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