

Section 3

Issue Identification and Prioritisation

PREAMBLE

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

- (i) a list of all relevant environmental issues was assembled through consultation with local and State government agencies and the local community, review of previously prepared and Preliminary Environmental Assessments undertaken on the Quarry Site and a review of planning documents and environmental guidelines;*
- (ii) a review of the project design and local environment was undertaken to identify risk sources and potential environmental impacts for each environmental issue; and*
- (iii) an analysis of risk for each potential environmental impact was then completed and the relative priority of each issue was determined based on the level of risk. This priority has been used to provide an order of assessment and breadth of coverage within Section 5.*

This page has intentionally been left blank

3.1 INTRODUCTION

In order for the *Environmental Impact Statement* to provide appropriate coverage of the environmental issues associated with the Proposal, it is important to identify 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, a review of previously prepared environmental assessments over the Quarry Site and a review of environmental planning documents and guidelines was undertaken to identify relevant environmental issues and potential impacts. This was followed by an analysis of the risk posed by each potential impact in order to prioritise the assessment of the identified environmental issues within the *Environmental Impact Statement*.

3.2 ISSUE IDENTIFICATION

3.2.1 Introduction

Identification of environmental issues relevant to the Proposal involved a combination of consultation, background investigations and research. This included:

- consultation with State and local government agencies (Section 3.2.2.1);
- consultation with surrounding landowners and the local community (Section 3.2.2.2);
- a review of previously prepared environmental assessments over the Quarry Site (Section 3.2.3); and
- a review of relevant environmental guidelines and planning documents (Section 3.2.4)

3.2.2 Consultation

3.2.2.1 Government Consultation

The following government agencies were consulted directly during the preparation of this EIS.

- Department of Planning and Environment (DPE).
- Environment Protection Authority (EPA).
- Yass Valley Council.

R.W. Corkery & Co. Pty Limited received the Secretary's Environmental Assessment Requirements (SEARs) from the DPE on 1 October 2015, which included requirements from the EPA and Council, as well as the Roads and Maritime Services (RMS), Department of Primary Industries (Water), and the NSW Department of Industry – Resources and Energy (DRE). It is noted that there was no requirement to consult with any infrastructure or service providers. A tabulated summary of the SEARs and the agencies' requirements is included in **Appendix 2**, together with a reference to where each relevant specific requirement is addressed in this document.

3.2.2.2 Consultation with Surrounding Landowners and the Local Community

The Applicant has held useful discussions about the Proposal with all adjoining neighbours. The neighbours have not raised any concerns about the current activities and are supportive in principle of the Proposal. The Applicant is committed to maintain a clear consultation process with the surrounding neighbours and address any of their concerns, should any arise. Issues raised during discussions with adjoining neighbours included the following.

- Noise generation and noise controls.
- Dust generation and dust controls.
- Adequacy of water supplies to control dust.
- Quality of water run-off.
- Locations of the concrete plant / asphalt plant.
- Management of weeds / fencing.
- Locations of bund walls and screening trees.
- Visibility of quarry operations.

It is noted there are no local community groups within the area around Bogo Quarry.

3.2.2.3 Indigenous Consultation

Two indigenous organisations have been identified as stakeholders interested in the Proposal, namely Buru Ngunawal Aboriginal Corporation (BNAC) and Onerwal Local Aboriginal Land Council (OLALC). Consultation with BNAC and OLALC regarding the Proposal has been ongoing since 2009. Representatives from BNAC and OLALC were first invited to participate in the 2009 Cultural Heritage Assessment field work, with representatives from both organisations attending the archaeological field investigations. Both BNAC and OLALC are supportive of the recommendations made in the 2009 Cultural Heritage Assessment, with letters stating their support provided in late 2015 included in **Appendix 7**. BNAC and OLALC will continue to be consulted during implementation of the Cultural Heritage Assessment recommendations. This includes inviting representatives of BNAC and OLALC to be present at the Quarry during construction of protective fencing around Aboriginal sites of significance. BNAC and OLALC would be consulted should any artefact or relic be uncovered during extraction-related activities.

3.2.3 Review of Previously Prepared Environmental Studies

During the project design phase for the proposed increase in production, an *Environmental Impact Statement* prepared by David Hogg Pty. Ltd in 1995 for the continued operation and rehabilitation of the Bogo Quarry (Hogg, 1995) was reviewed obtain an understanding of environmental issues previously considered to be of relevance to the Quarry operations. Hogg (1995) concluded that there were no constraining factors which would prevent the continued operation of the Quarry, although the following issues were identified as requiring ongoing management.

- Noise and dust emissions from the extraction and processing operations.
- Disturbance of up to 24 native trees.
- Destruction of a single isolated Aboriginal artefact.
- Management of surface runoff from the Quarry Site.

Also during the project design phase, the Applicant commissioned preliminary environmental studies in the fields of Aboriginal heritage, flora and fauna to further consider local environmental constraints, in particular those resultant from changes to the schedules of environmental legislation as it refers to threatened species and heritage management since the assessment of Hogg (1995). The preliminary studies, whilst noting specific controls or management measures could be required, did not identify any constraints that would preclude the proposed production increase, slight modification to the extraction area and operation of mobile asphalt and concrete batching plants on the Quarry Site on a campaign basis..

3.2.4 Review of Relevant Guidelines and Planning Documents

3.2.4.1 State Planning Issues

The following State Environmental Planning Policies (SEPPs) apply to the Proposal.

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 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.”*

Part 3 of this SEPP sets out a number of matters that must be considered when determining a development application for a mining project. Each of the matters identified have been assessed in the relevant section of the *Environmental Impact Statement*. Section 7 (**Table 7.1**) provides a review of each element requiring consideration and a reference to the section in this *Environmental Impact Statement* where each element is addressed.

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

Following the risk assessment process outlined in “*Applying SEPP 33 Consultation Draft July 2008*” (DoP, 2008a), it has been determined that the continued operations and increase in production at the Bogo Quarry does not represent a potentially hazardous or offensive industry as less than 38 000L of diesel would be stored on site and this would be greater than 20m from other infrastructure or activity. SEPP 33 has therefore not been considered further in the EIS.

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

The Yass Valley Local Government Area (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 Quarry 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.

An ecological assessment of the Proposal (Biosis, 2015), determined that the Quarry Site represents neither core nor potential Koala habitat and as such, SEPP 44 is not considered further in the *Environmental Impact Statement*. The full ecological assessment (Biosis 2015) is provided as **Appendix 4**.

3.2.4.2 Regional Planning Issues

There are no regional planning instruments relevant to the Proposal.

3.2.4.3 Local Planning Issues

As noted in Section 1.1, the Quarry Site lies within the Yass Valley Local Government Area and therefore the following local planning instrument is applicable.

Yass Valley Local Environmental Plan 2013

The Quarry Site is located on land zoned RU1 Primary Production under the Yass Valley LEP. Extractive industry is permissible with consent within this zone.

3.2.4.4 Strategic Planning Documents

Draft Sydney-Canberra Corridor Regional Strategy

Yass Valley is included as a local government area within the Sydney-Canberra Corridor and is therefore the draft Sydney-Canberra Corridor Regional Strategy (“the strategy”) (DoP, 2008b) has been considered. The strategy represents an agreed NSW Government position on the future of the Sydney–Canberra Corridor. It is the pre-eminent planning document for the Sydney–Canberra Corridor Region and has been prepared to complement other relevant State and local strategies and planning instruments.

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.

A fact sheet issued by the NSW Department of Planning (DoP 2008c) entitled “*How the Sydney–Canberra Corridor Regional Strategy will Help Yass Valley*” identifies an anticipated population growth within the LGA of approximately 4,000 by 2031, and the resulting demand for 2 000 new dwellings and associated infrastructure. The construction of these additional houses and maintenance of the associated road infrastructure will require additional supply of construction materials. Bogo Quarry is ideally suited to supply this increased demand for construction materials, in particular high quality aggregates over the period considered by the strategy.

The continued operation of the Bogo Quarry (at an increased production rate and including the ancillary activities of concrete batching and asphalt manufacture), in a socially and environmentally responsible fashion, would meet the goals and objectives of the strategy.

Murrumbidgee Catchment Action Plan

Developed by the Murrumbidgee Catchment Management Authority (CMA), the purpose of the Murrumbidgee Catchment Action Plan (“the Plan”) (Murrumbidgee CMA, 2008) is to provide strategic direction for investment in natural resource management for the Murrumbidgee River catchment. The Plan identifies community, biodiversity, water and land assets and has assigned targets, actions and ways to monitor progress toward improvement.

The identified asset targets have been developed from the *Murrumbidgee Catchment Blueprint* (DLWR, 2003) and from other key natural resource management documents. These targets consider management at both a statewide and catchment wide resource level, including both general and specific targets.

3.2.4.5 Environmental Guidelines

The SEARs provided by the Department of Planning and Environment require that in assessing the identified key assessment requirements, reference be made to relevant guideline documents. In addition, a number of the government agencies consulted in relation to the Proposal required reference to other environment guideline documents. Each of these guidelines was obtained, reviewed and where relevant forwarded to the relevant specialist consultant for consideration during the specialist environmental studies.

3.3 ENVIRONMENTAL ISSUE PRIORITISATION

3.3.1 Analysis of (Unmitigated) 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 the increase in production at the Bogo Quarry with minimal effect on the local environment. Risk is measured in terms of consequence (severity) and likelihood (probability) of the event happening. **Table 3.1** provides a summary of the environmental issues, identified following the process outlined in Section 3.2, noting the type of incident that could occur, potential consequence, the receptor(s) affected and the potential impact on the receptor(s).

For each of the potential environmental impacts identified in **Table 3.1**, a risk rating has been assigned based on the potential consequences and likelihood of occurrence and in accordance with Australian Standards HB 203:2006 and AS/NZS 4360:2004. The allocation of a consequence rating was based on the definitions contained in **Table 3.2**. It is noted that the assigned consequence rating represents the highest level applicable, i.e. 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 3.1
Risk Sources and Potential Environmental Impacts

Environmental Issue	Risk Source/potential incident(s)	Potential Consequences	Receptor / Surrounding Environment	Potential Environmental Impacts
Air Pollution – Dust, Odour, other	- Dust generation resulting from vehicle movements on unsealed roads. - Wind action on disturbed areas, overburden emplacements and stockpiles.	- Surrounding residences and buildings. - Surrounding native vegetation. - Local residents.	- Increased deposited and suspended particulates. - Health-related complaints.	- Nuisance/amenity impacts from dust deposited on window sills, cars, surfaces etc. - Adverse health impacts (if PM₁₀ levels are excessive). - Stress of native vegetation, and indirect impacts on fauna habitat.
	Vehicle emissions.	Local and global air-shed	Increased greenhouse and other gas emissions.	Increased contribution to greenhouse effect.
Noise	Increased noise levels resulting from operation of mobile equipment, crushing and screening equipment and product transportation.	- Decreased amenity. - Health related issues.	Surrounding residents and land owners.	Increased noise associated with operational activities causing annoyance, distractions, i.e. amenity impacts.
Biodiversity	Removal of isolated paddock trees as extraction area extends to the north and northeast.	Removal of habitat of threatened fauna species.	Isolated trees of the Quarry Site.	Loss of, or alteration to, habitat with indirect impact on threatened species.
	Impacts on Threatened species, populations or endangered ecological communities	- Reduction in population size or local extinction. - Reduction in local biodiversity.	Local species, population, communities and ecosystems.	- Local extinction of Threatened flora or fauna. - Reduced biodiversity.
	Disturbance to fauna and fauna habitat as a result of project operations, e.g. noise, dust etc.	Reduction in biodiversity of the Quarry Site.	Local communities and ecosystems.	Direct adverse impact(s) on threatened species, populations or communities.
Aboriginal Heritage	Removal or destruction of Aboriginal sites and/or artefacts due to disturbance beyond the currently disturbed areas.	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.
Soil and Land Capability	Reduction in soil quality and availability through poor management practices.	- Structural damage to soils through poor stripping and stockpiling practices. - Reduced biological activity of soils. - Erosion of stripped, stockpiled and replaced soils.	Quarry Site soils.	- Insufficient soil quantities for rehabilitation. - Reduced soil quality. - Elevated erosion or erosion potential.
	Decreased land capability in final landform.	Reduced productivity of Quarry Site agricultural land.	Quarry Site soils.	Decreased land and agricultural capability of the final landform.
Surface Water / Erosion and Sedimentation	Reduction in environmental flows through on-site capture of water.	- Downstream water users. - Downstream flora and fauna.	- Reduced flows to downstream water users. - Reduced flows to downstream flora and fauna	- Reduced natural surface water flows. - Stress and possible reduction in viability of native vegetation. - Degradation of aquatic habitats. - Reduced availability of water to downstream users.
	Erosive actions of water.	Quarry Site soils.	Loss of topsoil.	Soil erosion.
	Sedimentation of water on and discharged from the Quarry Site.	Local creeks and drainage features.	Increased sedimentation within downstream creeks.	- Increased sediment load in drains and/or waterways. - Increased siltation
	Discharge of dirty, saline or contaminated water.	- Local creeks and tributaries. - Quarry Site soils and vegetation.	- Decreased water quality. - Contamination of soil resources.	- Pollution of downstream waters. - Pollution of local waterways resulting in death of flora and fauna. - Contamination of soil resources and indirect impacts on future land use.
	Changes to hydrology of creeks and drainage lines.	Local creeks and drainage lines.	- Reduced flows. - Changed alignment of hydrological flow.	Reduced surface flows within the affected waterway and the Murrumbidgee River catchment.
Rehabilitation & Final Landform	- Modified landform on completion of the Project. - Modified land uses on the Quarry Site.	- Reduced amenity of the Quarry Site. - Altered agricultural capability of Quarry Site lands.	Quarry Site lands.	- Reduced amenity of altered Quarry Site landform. - Changes to land use of the Quarry Site lands.
Traffic and Transport	Construction works associated with Paynes Road – Hume Highway intersection.	Local landforms and road network.	Impacts associated with road construction (noise, dust, ecology, heritage etc.).	- See “air pollution”, “flora and fauna protection” and “noise” and “Aboriginal heritage” above. - Temporary inconvenience to commuters if stopped for road works
	Increased traffic levels due to increased production levels and staff numbers.	- Local road network. - Existing road users.	Increased vehicle movements (especially heavy vehicles) on local roads.	- Increased traffic congestion. - Elevated risk of accident/incident on local roads. - Road pavement deterioration.
Visual Amenity	Changes in visual characteristics of the Quarry Site.	Changed visual outlook during operation	Surrounding residents and local motorists.	Decreased visual amenity.
Waste Management	Production of contaminating or polluting materials, e.g. waste oils, general rubbish.	- Contamination of downstream surface waters. - Contamination of downstream lands.	- Quarry Site land and water resources. - Downstream land and water resources.	- Hydrocarbon contamination of surface water - Reduced amenity of Quarry Site due to poor rubbish, litter management.
Land Contamination	Spillage or leaking of hydrocarbon.	Transfer of contaminated materials to non-contaminated areas.	Areas receiving contaminated material (including surface waters).	- Impacts on native flora and fauna, including aquatic flora and fauna. - Surface water contamination.

Source: Modified after HB203:2006 - Table 3

This page has intentionally been left blank

Table 3.2
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 adverse 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 (Standards Australia, 2006) - Table 4(B)		

The likelihood or probability of each impact occurring was then rated according to the definitions contained in **Table 3.3**.

Table 3.3
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 (Standards Australia, 2006) - Table 4(A)		

The risk associated with each environmental impact was assessed without the inclusion of any operational controls or safeguards in place and is based on the qualitative assessment of consequence and likelihood, a risk ranking of either; low, medium, high or extreme was assigned to each potential impact based on the matrix presented in **Table 3.4**.

Table 3.4
Risk Rating Matrix

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	E	E
D (Unlikely)	L	L	M	H	E
E (Rare)	L	L	M	H	H

Note: Rating modified after HB 203:2006 (Standards Australia, 2006) - Table 4(C)

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, a risk ranking of either; low, medium, high or extreme was assigned to each potential impact based on the matrix of **Table 3.4**. 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 Proposal 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 Proposal.
- 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 Proposal.

Table 3.5 provides an assessment of the **unmitigated** risk for each potential environmental impact based on the provided in **Tables 3.2, 3.3** and **3.4**. 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 3.5
Analysis of Environmental Risk

Page 1 of 3

Potential Environmental Impacts (see Table 3.1)	Type/Level/Scale of Impact (if applicable)	Consequence of Occurrence if not Mitigated	Likelihood of Occurrence if not Mitigated	Unmitigated Risk Rating
Air Pollution – Dust, Odour, Other				
Nuisance – deposited dust	Deposited dust levels attributable to the Proposal occasionally (for one or two months every year) above EPA guideline, affects only adjacent landholders.	2	D	L
	Deposited dust levels attributable to the Proposal regularly (exceedances greater than EPA guideline for >5 months per year) affects landholders some distance from the Quarry Site.	3	-	
Health – PM ₁₀	PM ₁₀ levels attributable to the Proposal occasionally (once every 1 to 2 years) above the Proposal goal, affects only adjacent landholders.	2	C	M
	PM ₁₀ levels attributable to the Proposal occasionally (>5 times per year) above the Proposal goal, affects landholders some distance from Quarry Site.	3	C	H
Greenhouse Gas Emissions	Increase in greenhouse gas emissions (compared to baseline emissions).	1	B	M
Noise				
Increased noise levels associated with Proposal activities.	Occasional minor exceedance of noise criteria (1-2dB(A))	1	C	L
	Regular minor exceedance of noise criteria (1-2dB(A))	2	C	M
	Occasional marginal exceedance of noise criteria (3-5dB(A))	2	D	L
	Regular marginal exceedance of noise criteria (3-5dB(A))	3	D	M
	Occasional major exceedance of noise criteria (>5dB(A))	4	D	H
	Regular major exceedance of noise criteria (>5dB(A))	5	E	H
Increased noise levels associated with increased quarry traffic ¹ .		3	-	
Increased noise levels associated with the Proposal leading to impacts on the native fauna assemblage.		3	E	M
Blasting / Vibration				
Increased levels of vibration from blasting resulting in:	Structural damage to buildings and structures.	3	E	M
	Nuisance/amenity impacts on surrounding landowners / residents.	3	D	M
Biodiversity				
Removal of native vegetation due to clearing activities, or other Proposal-related activity, leading to:	Loss of, or alteration to, existing habitats.	2	C	M
	Direct adverse impact on threatened species, populations or endangered ecological communities.	3	D	M
	Local or regional reduction in distribution of threatened species, populations or endangered ecological communities.	4	E	H
	Possible local extinction of threatened species, populations or endangered ecological communities.	5	-	

¹ Due to the absence of any non-project related residences on Paynes Road, the inclusion of product truck movement noise levels on the Quarry Site as an operational noise level and the significant existing traffic levels of the Hume Highway, the potential for any noticeable effect of the increase in traffic from the Quarry is nil.

Table 3.5 (Cont'd)
Analysis of Environmental Risk

Page 2 of 3

Potential Environmental Impacts (see Table 3.1)	Type/Level/Scale of Impact (if applicable)	Consequence of Occurrence if not Mitigated	Likelihood of Occurrence if not Mitigated	Unmitigated Risk Rating
Aboriginal Heritage				
	Impact on identified Aboriginal sites and/or artefacts.	4	E	H
	Impact on unidentified Aboriginal sites and/or artefacts.	3 – 4	D – E	M – H
	Cumulative reduction of the in-situ archaeological record.	3	E	M
Soil Resources and Land Capability				
Reduction in soil quality and availability.	Insufficient soil quantities for rehabilitation.	2	C	L
	Reduction in the quality of soil resources on the Quarry Site.	3	C	M
	Increased erosion or erosion potential of soils.	3	C	M
Surface Water / Erosion and Sedimentation				
Reduction in environmental flows	Structural change to, or degradation of downstream vegetation (including GDE's).	3	D	M
	Reduced flow to downstream water users.	2	C	M
Soil erosion	Erosion of disturbed areas on the Quarry Site.	2	C	M
	Erosion of rehabilitated areas and/or final landform of the Quarry Site.	3	C	H
Pollution of downstream waters as a result of discharge of dirty, saline or contaminated water	Isolated and minor discharge of dirty, contaminated or saline water resulting in temporary degradation of water quality in local creeks and tributaries, e.g. one-off and discharge of water containing small amount of hydrocarbon contamination.	3	C	H
	Continuing discharge of dirty, contaminated or saline water resulting in ongoing degradation of water quality in local creeks and tributaries, e.g. frequent discharge of dirty water.	4	D	H
	Isolated and major discharge of dirty, contaminated or saline water resulting in temporary but wider spread degradation of water quality, e.g. major fuel spill discharged to local creek.	4	D	H
	Repeated major event resulting in long-term and wide spread degradation of water quality, e.g. repeated or continued discharge of saline water to the downstream catchment.	4	E	H
	Pollution of local waterways resulting in death of flora and fauna	3	E	M
Changes to hydrology of creeks and drainage lines resulting in:	Reduced surface flows within the affected waterway and the Murrumbidgee River catchment more generally.	2	D	L
	Increased erosion potential resultant from changed alignment of flow.	2	C	M
Rehabilitation / Final Landform / Final Land Use				
	Reduced amenity of the final landform resultant from vegetation clearing and altered topography.	2	C	L
	Final landform and land use that is not compatible with activities/lifestyle of local community.	3	C	M

Table 3.5 (Cont'd)
Analysis of Environmental Risk

Page 3 of 3

Potential Environmental Impacts (see Table 3.1)	Type/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	2	D	L
	Road pavement deterioration	2	C	M
Elevated risk of accident/incident on local roads	Traffic accident – no injury	1	C	L
	Traffic accident - minor injury	3	E	M
	Traffic accident - moderate injuries requiring hospitalisation	4	E	H
	Traffic accident - severe injuries or death	5	E	H
Visual Amenity				
Reduced amenity of altered Quarry Site landform	Temporary disturbance to landform.	2	B	H
	Marginally identifiable change to landscape following rehabilitation and final landform creation.	3	C	H
	Highly identifiable change to landscape following rehabilitation and final landform creation.	3	D	M
	Temporary disturbance to landform.	2	B	H
Waste Management / Land Contamination				
Hydrocarbon Contamination of land	Contamination requiring minor recovery works.	2	D	L
	Contamination requiring major recovery works.	3	D	M
Hydrocarbon Contamination of water	Contamination of surface water requiring minor recovery works.	3	D	M
	Contamination of surface water requiring major recovery works.	4	E	H
	Contamination of groundwater requiring recovery works.	3	E	M
	Contamination of local water and/or soil resources by leaking or spilt residue.	4	D	H
	Excavation and transfer of contaminated material	3	E	M
	Reduced amenity of Quarry Site due to poor rubbish, litter management	2	C	M
Socio-Economic Impacts				
	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	2	D	L
	Long term decrease in property values	2	D	L
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				

3.3.2 Environmental Issue Prioritisation

The issues identified in **Table 3.5** as exhibiting the greatest risk of impact on the environment have been identified and are summarised in **Table 3.6**.

The issues and associated impacts identified in **Table 3.6**, along with the key assessment requirements of the SEARs (see **Appendix 2**), are considered to be of highest priority and environmental management has been designed to mitigate impacts associated with these. Section 5 has been structured to focus on these issues of priority with the other issues generally allocated a “moderate” to “low” level of priority, addressed to the level considered appropriate in the relevant sub-section of Section 5.

Table 3.6
Risk Analysis Results

Environmental Issue	Potential Impacts with which the Greatest Risk is Associated	Analysis of Risk
Traffic and Transport	Elevated risk of accident/incident on local roads.	H
Biodiversity	- Removal of native vegetation due to clearing activities, or other Proposal-related activity, leading to: - Loss of, or alteration to, existing habitats.	M
	- Direct adverse impact on threatened species, populations or endangered ecological communities.	M
	- Local or regional reduction in distribution of threatened species, populations or endangered ecological communities.	H
Aboriginal Heritage	Disturbance or damage to items of Aboriginal heritage significance.	H
Air Quality	Dust nuisance resultant from the extraction and processing activities.	L
	Particulate matter generated by the extraction and processing activities affecting health of local land owners.	H
Noise and Blasting	Major exceedance of noise criteria resulting in reduced amenity of surrounding land owners / residents.	H
	Increased levels of vibration from blasting resulting in nuisance/amenity impacts on surrounding landowners / residents.	M
Soils/Surface Water/ Erosion and Sedimentation	Pollution of downstream waters as a result of discharge of dirty, saline or contaminated water.	H
	Erosion of rehabilitated areas and/or final landform of the Quarry Site.	H
	Changes to hydrology of creeks and drainage line.	M
	Reduction in the quality of soil resources on the Quarry Site.	M
Visual Amenity	Highly identifiable change to landscape following rehabilitation and final landform creation.	H
Waste Management/ Land Contamination	Contamination of surface water requiring major recovery works.	H
Rehabilitation and Land Use	Final landform and land use that is not compatible with activities/lifestyle of local community.	M
Notes: L = Low Risk M = Moderate Risk H = High Risk E = Extreme Risk		