

Section 6

Evaluation and Justification of the Proposal

PREAMBLE

This section concludes the assessment of the proposed Stage 2 Extension and the ongoing operations of the Austen Quarry. The risk associated with the potential impacts of the Proposal (see Section 3.3) are re-assessed based on the implementation of the proposed safeguards, controls and mitigation measures and a residual risk level determined. The Proposal is then evaluated based on the residual risk posed and in consideration of ecologically sustainable development (ESD) principles.

A justification for the Proposal is then provided based on the residual impacts to the biophysical environment, the likely economic and social benefits that would be generated, the consequences of the Proposal not proceeding, and assessment against the objects of the EP&A Act.

This page has intentionally been left blank



6.1 INTRODUCTION

As a conclusion to the *Environmental Impact Statement*, the Proposal is evaluated and justified through consideration of its potential impacts on the environment and potential benefits to the local and wider community.

The evaluation of the Proposal is undertaken by firstly assessing the identified environmental risks posed to the local environment by the proposed activities and then considering the implementation of the commitments for controls, safeguards or mitigation measures outlined in Section 4 and summarised in Section 5. The Proposal has also been evaluated against the principles of Ecologically Sustainable Development (ESD) in order to provide further guidance as to the acceptability of the Proposal, as presented in the *Environmental Impact Statement*.

Section 6.3, which presents the justification of the Proposal, revisits the predicted residual impacts on the biophysical environment, considers the socio-economic benefits which would be provided, assesses the consequences of not proceeding with the Proposal and reviews the Proposal against the objects of the EP&A Act.

6.2 EVALUATION OF THE PROPOSAL

6.2.1 Residual Environmental Risk and Impacts

Environmental risks and impacts of the proposed activities have been reconsidered after incorporating the controls and management measures included in the Draft Statement of Commitments (Section 5). Residual environmental risk levels are displayed in **Table 6.1**.

Through the implementation of the proposed management and mitigation measures identified in Section 4 and summarized in the Statement of Commitments in Section 5, the residual (mitigated) risk rating for the majority of potential environmental impacts has been reduced.

In some cases, identified with a *, the residual risk has been reduced as low as possible given the probability of the nominated impact remains certain (A) or almost certain (B) or the consequence cannot be reduced to less than major (4). In other cases, identified with a #, while the residual risk level may not be reduced to low, the proposed mitigation measures proposed by the Applicant has resulted in either the probability, consequence or both being reduced.

Table 6.1
Analysis of Mitigated Risk

Environmental Parameter	Risk Source(s)	Receptor / Surrounding Environment	Potential Consequence	Potential Impact	Consequence	Likelihood	Risk
Air Quality	Dust from extraction and processing operations, stockpiles and exposed quarry surfaces. Dust from vehicle movements on site and off Stage 2 Site.	Residences and other local buildings.	Increased deposited dust and associated nuisance for local residents and business.	Nuisance/amenity impacts from dust deposited on window sills, cars, etc.	Minor (2)	Unlikely (E)	L
		Local residents, business and land owners.	Increased particulate matter (in particular PM ₁₀) in the atmosphere.	Adverse health impacts (if PM ₁₀ levels are excessive).	Minor (2)	Unlikely (E)	L
			Increased complaints to Hy-Tec by community.	Increased community and regulatory scrutiny.	Minor (2)	Unlikely (E)	L
		Surface water bodies.	Reduction in local water quality.	Exceedance of nominated water quality criteria.	Moderate (3)	Rare (F)	L
		Surrounding native vegetation.	Reduction in vegetation or mortality.	Reduced condition of local vegetation or value as fauna habitat.	Moderate (3)	Very Rare (G)	L
	Particulate and greenhouse emissions from vehicles, fixed plant and blasting.	Local and regional air shed.	Increased in greenhouse gas emissions to atmosphere.	Contribution to greenhouse effect.	Negligible (1)	Certain (A)	M*
Noise and Vibration	Noise from fixed and mobile plant.	Local residents, business and land owners.	Increased noise levels.	Noise levels cause annoyance and/or distractions	Negligible (1)	Possible (D)	L
			Impacts on the health and well-being of local residents.	Noise levels cause adverse effects on physical or mental health.	Major (4)	Very Rare (G)	L
			Increased complaints to Hy-Tec by community.	Increased community and regulatory scrutiny.	Minor (2)	Rare (F)	L
		Native fauna.	Detrimental effects on local fauna.	Relocation of and/or reduction of local native fauna species due to noise disturbance.	Moderate (3)	Rare (F)	L
	Possible loss of species in the local area.			Moderate (3)	Rare (F)	L	

Table 6.1 (Cont'd)
Analysis of Mitigated Risk

Environmental Parameter	Risk Source(s)	Receptor / Surrounding Environment	Potential Consequence	Potential Impact	Consequence	Likelihood	Risk
Noise and Vibration (Cont'd)	Noise from trucks transporting quarry products off-site.	Local residents, business and land owners.	Increased noise levels.	Noise levels cause annoyance and/or distractions	Negligible (1)	Possible (D)	L
			Impacts on the health and well-being of local residents.	Noise levels cause adverse effects on physical or mental health.	Major (4)	Very Rare (G)	L
			Increased complaints to Hy-Tec by community.	Increased community and regulatory scrutiny.	Moderate (3)	Rare (F)	L
	Noise from blasting.	Local residents, business and land owners.	Impacts on the health and well-being of local residents.	Noise levels cause adverse effects on physical or mental health.	Moderate (3)	Very Rare (G)	L
		Local livestock	Impact on livestock health and/or productivity.	Reduced agricultural productivity.	Minor (2)	Very Rare (G)	L
	Vibration from blasting and other extraction operations on site.	Local residents, business and land owners.	Nuisance/amenity impacts on surrounding landowners / residents.	Reduced local amenity	Moderate (3)	Rare (F)	L
			Structural damage to buildings and structures.	Structural damage to buildings and structures	Moderate (3)	Very Rare (G)	L
			Increased complaints to Hy-Tec by community.	Increased community and regulatory scrutiny.	Moderate (3)	Very Rare (G)	L
	Traffic	Ongoing traffic levels on public road network. (increasing to current approved levels).	Road users of Jenolan Caves Road and the Great Western Highway.	Ongoing truck traffic and possible congestion.	Inconvenience to commuters.	Minor (2)	Unlikely (E)
				Increased risk of accidents occurring.	Major (4)	Rare (F)	M [#]
Deterioration of road surface.				Accelerated road pavement deterioration.	Minor (2)	Rare (F)	L
Business owners and tourist facility operators of the Blue Mountains.		Ongoing truck traffic.	Decreased patronage of businesses and tourist facilities.	Moderate (3)	Very Rare (G)	L	

Table 6.1 (Cont'd)
Analysis of Mitigated Risk

Environmental Parameter	Risk Source(s)	Receptor / Surrounding Environment	Potential Consequence	Potential Impact	Consequence	Likelihood	Risk
Traffic (Cont'd)	Ongoing traffic levels on public road network. (increasing to current approved levels). (Cont'd)	Residences adjoining the Great Western Highway.	Ongoing truck traffic and vehicle noise/emissions.	Reduced amenity of local area.	Minor (2)	Rare (F)	L
		Native fauna.	Death or injury to Native animals on the road network.	Loss of species in local area.	Negligible (1)	Likely (C)	M*
Soil Resources and Erosion	Loss of soil resources as a result of land preparation activities.	Stage 2 Site soil resources.	Reduced soil resource to undertake appropriate rehabilitation program.	Rehabilitation outcomes not meeting objectives.	Minor (2)	Unlikely (E)	L
		Stage 2 Site soil resources.	Compromised soil quality leads to poor vegetation regrowth on site.	Reduced productivity on final landform.	Minor (2)	Unlikely (E)	L
	Erosion as a result of vegetation clearing, from stockpiles or following soil replacement during rehabilitation.	Stage 2 Site soil resources	Loss of soil resources.	Rehabilitation outcomes not meeting objectives.	Moderate (3)	Rare (F)	L
		On and off site surface water bodies.	Sedimentation of on-site and local surface water bodies resulting in poor water quality.	Increased erosion on the final landform.	Minor (2)	Unlikely (E)	L
Surface water resources and quality	Reduction in environmental flows through on-site capture of water.	Yorkeys Creek and Coxs River	Reduced natural surface water flows.	Reduced flows to Yorkeys Creek and Coxs River.	Negligible (1)	Likely (C)	M**
		Downstream water users	Reduced natural surface water flows.	Reduced availability of water to downstream users.	Minor (2)	Very Rare (G)	L
		Local flora, terrestrial and aquatic fauna	Reduced volume of water available to local flora and fauna.	Stress and possible reduction in viability of native vegetation.	Minor (2)	Very Rare (G)	L
				Degradation of riparian or aquatic vegetation / ecosystems	Minor (2)	Rare (F)	L
	Discharge of dirty or contaminated water.	Local creeks and tributaries	Decreased water quality.	Temporary sedimentation or hydrocarbon pollution of downstream waters.	Minor (2)	Possible (D)	M#
				Ongoing sedimentation or major hydrocarbon pollution event impacting on aquatic ecosystem for medium to long term.	Moderate (3)	Very Rare (G)	L

Table 6.1 (Cont'd)
Analysis of Mitigated Risk

Environmental Parameter	Risk Source(s)	Receptor / Surrounding Environment	Potential Consequence	Potential Impact	Consequence	Likelihood	Risk
Surface water resources and quality (Cont'd)	Discharge of dirty or contaminated water. (Cont'd)	Stage 2 Site soils and vegetation.	Contamination of soil resources.	Reduced potential for future land uses.	Minor (2)	Unlikely (E)	L
		Local and regional catchment ecosystem	Introduction of a toxic compound to the environment.	Health related impacts (people) due to consumption of contaminated water.	Moderate (3)	Very Rare (G)	L
				Pollution of local waterways resulting in detrimental effects to flora and fauna.	Moderate (3)	Very Rare (G)	L
		Livestock	Contamination of soil and water resources.	Health related impacts (stock) due to consumption of contaminated water.	Moderate (3)	Rare (F)	L
	Erosive actions of water	Stage 2 Site soils	Loss of topsoil.	Soil erosion and loss of agriculturally productive capacity.	Minor (2)	Rare (F)	L
				Decreased availability of soil for rehabilitation.	Moderate (3)	Rare (F)	L
	Groundwater resources and quality	Dewatering of aquifer.	Local groundwater users.	Reduction in the volume of water contained within the local aquifer / availability.	Reduced yields of groundwater bores.	Negligible (1)	Very Rare (G)
Local streams, creeks and rivers.			Material reduction in base flows.	Reduced discharge to gully colluvium.	Negligible (1)	Unlikely (E)	L
				Degradation of riparian or aquatic vegetation / ecosystems	Negligible (1)	Very Rare (G)	L
				Reduced availability of water to downstream users.	Negligible (1)	Very Rare (G)	L
Groundwater dependent ecosystems.			Reduced availability of groundwater.	Degradation of groundwater dependent ecosystems.	Negligible (1)	Very Rare (G)	L

Table 6.1 (Cont'd)
Analysis of Mitigated Risk

Environmental Parameter	Risk Source(s)	Receptor / Surrounding Environment	Potential Consequence	Potential Impact	Consequence	Likelihood	Risk
Groundwater resources and quality (Cont'd)	Groundwater contaminated with fuel, oil or nitrates (from blasting).	Local users of groundwater for resident/business purposes.	Reduced groundwater quality.	Reduced availability to local users.	Negligible (1)	Very Rare (G)	L
		Groundwater dependent ecosystems.	Reduced groundwater quality.	Degradation of groundwater dependent ecosystems	Negligible (1)	Very Rare (G)	L
		Local streams, creeks, rivers and aquatic habitat.	Local surface water bodies become contaminated.	Reduced availability of water to downstream users.	Minor (2)	Very Rare (G)	L
			Degradation of habitat quality.	Degradation of riparian or aquatic vegetation / ecosystems.	Moderate (3)	Very Rare (G)	L
Flora and Fauna	Clearing of vegetation.	Stage 2 Site biota.	Reduction in remnant native vegetation.	Reduction in local biodiversity.	Minor (2)	Certain (A)	H* [#]
			Loss of local and regionally important threatened species (flora and fauna).	Local or regional reduction in distribution of threatened species, populations and EEC's.	Minor (2)	Likely (C)	M*
			Reduced local and regional biodiversity.	Loss of biodiversity and alteration to existing habitat.	Minor (2)	Possible (D)	M*
	Detrimental effects of indirect Proposal impacts, e.g. noise, dust, lighting	Locally occurring species, populations and communities.	Dispersal of locally occurring species and populations away from the Stage 2 Site.	Reduced biodiversity value of the Stage 2 Site and local setting.	Minor (2)	Unlikely (E)	L
			Reduced potential for use of the Stage 2 Site by threatened species, populations and EECs.	Reduced local distribution of threatened species, populations and EECs.	Minor (2)	Unlikely (E)	L
Aboriginal Heritage	Removal or destruction of known Aboriginal sites and/or artefacts	Local archaeological setting	Damage or destruction of Aboriginal artefacts or site.	Destruction of identified site	-	-	-
				Cumulative reduction of the in-situ archaeological record	-	-	-

Table 6.1 (Cont'd)
Analysis of Mitigated Risk

Environmental Parameter	Risk Source(s)	Receptor / Surrounding Environment	Potential Consequence	Potential Impact	Consequence	Likelihood	Risk
Aboriginal Heritage (Cont'd)	Removal or destruction of currently unidentified Aboriginal sites and/or artefacts	Local archaeological setting	Damage or destruction of Aboriginal artefacts or site.	Destruction of site not yet identified on archaeological record.	Moderate (3)	Very Rare (G)	L
				Cumulative reduction of the in-situ archaeological record	Moderate (3)	Very Rare (G)	L
European Heritage	Removal or destruction of sites of heritage significance due to proposed activities	Local archaeological setting	Loss or damage to heritage sites.	Loss or destruction of items of heritage significance	-	-	-
Visual Amenity	Changes in the visual character of the locality	Surrounding residents.	Increased visibility of the quarry from local residents.	Decreased visual amenity of local setting.	Minor (2)	Almost Certain (B)	M [#]
		Road users (Great Western Highway and Hassans Walls Road).	Increased visibility of the quarry from local roads.	Decreased visual amenity of the LGA as a whole.	Minor (2)	Almost Certain (B)	M [#]
		Lookouts within Lithgow City LGA (Hassans Walls, Second Lookout and others off Hassans Walls Road).	Increased visibility of the quarry from local lookouts.	Reduced aesthetic value of lookouts.	Minor (2)	Almost Certain (B)	M [#]
			Reduced patronage of local lookouts	Reduction in local tourism.	Minor (2)	Unlikely (E)	L
		Lookouts within Blue Mountains City LGA (Mt York, Bardens and others).	Increased visibility of the quarry from local lookouts.	Reduced aesthetic value of lookouts.	Minor (2)	Almost Certain (B)	M*
			Reduced patronage of local lookouts	Reduction in local tourism.	Minor (2)	Unlikely (E)	L
Rehabilitation and final landform	Rehabilitated soils and vegetation of the Stage 2 Site.	Future land use.	Soils and vegetation quality and suitability for future use is compromised or restricted.	Rehabilitation outcomes do not meet objectives.	Moderate (3)	Rare (F)	L
		Surrounding residences.	Poor rehabilitation.	Reduced amenity of the final landform.	Moderate (3)	Rare (F)	L

Table 6.1 (Cont'd)
Analysis of Mitigated Risk

Environmental Parameter	Risk Source(s)	Receptor / Surrounding Environment	Potential Consequence	Potential Impact	Consequence	Likelihood	Risk
Rehabilitation and final landform (Cont'd)	Final landform and topography of the Stage 2 Site.	Surrounding residences.	Altered landforms.	Reduced amenity of the final landform resultant from altered topography.	Minor (2)	Rare (F)	L
		Future land use.	Landform unsuitable for proposed final land use.	Final landform and land use incompatible with surrounding landscape.	Moderate (3)	Rare (F)	L
Bushfire	Initiation of bushfire due to on Stage 2 Site activities.	Local residents, business and land owners.	Health and safety impacts to Proposal personnel	Loss of life, assets and property on Stage 2 Site and in surrounding area.	Major (4)	Very Rare (G)	L
			Reduction of operating performance for Stage 2 Site and surrounding businesses.	Property damage and impacts on production.	Major (4)	Very Rare (G)	L
		Native flora and fauna.	Destruction and damage of native flora and fauna.	Reduced biodiversity value of the Stage 2 Site.	Moderate (3)	Very Rare (G)	L
Socio-economic	Increase in local employment.	Local community and residents	Increased employment levels.	Increase in economic well being within the LGA.	Positive Impact		
				Change in local community structure as a result of income disparity.	Minor (2)	Rare (F)	L
	Proximity of quarry to local and neighbouring properties	Local community and residents	Perceived / loss of amenity at local and neighbouring properties.	Change of social activities in local communities and impact on feelings of well being derived from associated location.	Moderate (3)	Rare (F)	L
			Local tourist related business	Perceived loss of amenity at local accommodation locations.	Impacts to business viability.	Moderate (3)	Rare (F)

Note *: Risk Level reduced as low as possible based on probability of certain or almost certain, or consequence of Major.

Note #: Risk level equivalent to that presented in Table 3.9 but either the probability, consequence or both has been reduced.

The following provides further consideration of the potential impacts associated with those outcomes attributed a “high” risk or noted with a * or #.

- Reduction in remnant native vegetation leading to a reduction in local biodiversity and alteration to existing habitat (High*#).

Direct disturbance to 26.5ha of remnant native vegetation would be unavoidable, i.e. are certain to occur. An additional 2.5ha of native vegetation occurs within a 10m buffer zone surrounding the direct impact footprint. This impact has been attributed only minor consequence on the basis that:

- The area of impact has been minimised to the greatest extent possible (see Section 2.15.3.*
- None of the communities to be cleared are considered EEC’s; and*
- The Applicant’s proposed biodiversity offset strategy achieves a Tier 1 or Tier 3 outcome for each of the communities and species considered (refer to Section 4.7.5.2.*

Therefore, while biodiversity values would be lost, this loss would be minimised and appropriately offset.

- Loss of local and regionally important threatened species (Silver-leaved mountain gum) resulting in local or regional reduction in distribution (Medium*).

The likelihood of this impact has been reduced from almost certain to unlikely, resulting in a reduction from high to medium risk, given the conservation of a significant habitat for this species and noted success in establishing this species on the rehabilitated landform. Therefore, while a reduction in the number of this species on the Stage 2 Site would occur, it is likely that the population as a whole would likely increase in number and be afforded greater security as a result of the proposed rehabilitation and biodiversity offset strategy establishment.

- Loss of biodiversity and alteration to existing habitat (Medium#).

On the basis that the proposed biodiversity offset and rehabilitation strategy would compensate for any temporary loss in biodiversity values, the likelihood of this impact has been reduced from almost certain to possible and the consequence from moderate to minor. The overall risk has been reduced from high to medium.

- Loss of life/property damage through accident/incident on local roads (Medium*).

The Proposal would not result in traffic levels on roads surrounding the Stage 2 Site that would be in excess of the capacity of those roads. Furthermore, the Applicant has committed to implementing a number of measures that would promote the safe use of surrounding roads. However, as the Applicant cannot control the behaviour or performance of motorists who use those roads trafficked by vehicles transporting products from the quarry, the potential for accidents cannot be eliminated. As a result, the risk rating associated with accident or incident on the roads surrounding the Stage 2 Site remains elevated (due to the potential consequence).

- Death or injury to native animals on the road network, i.e. road kill (Medium^{*}).

The potential for interaction between trucks and native fauna cannot be avoided and hence the potential for this occurrence is likely (C). While the consequence is considered to be negligible (1), the residual risk cannot be reduced below medium.

- Increased in greenhouse gas emissions to atmosphere (Medium^{#*}).

As a consumer of fossil fuels to power mobile equipment, plant and other vehicles, the emission of greenhouse gases is unavoidable. Notably, the volume of greenhouse gas emissions is very small when considered against total NSW, Australian and global emissions. Furthermore, as discussed in Section 2.15.7, alternative sources of electricity are currently unviable for the Proposal.

- Reduced flows to Yorkeys Creek and Coxs River (Medium^{#*}).

The Proposal would result in a small decrease in the catchments delivering runoff to the Coxs River. While the impact of this small reduction in runoff (7MLpa) would be negligible, the risk cannot be reduced below medium as it is likely to occur.

- Discharge of water resulting in temporary sedimentation of receiving waters (Medium[#]).

The Proposal would require discharge of water from the various sediment basins and storage dams (predominantly controlled but on occasion uncontrolled). Importantly, controlled discharges would be undertaken in order to retain the water settlement and sediment storage capacity defined for 5-day 95th percentile rainfall conditions in accordance with the Blue Book. With the exception of Sediment Basin SB1, uncontrolled discharges from all sediment control structures would only occur as a result of runoff generated by rainfall exceeding 5-day 95th percentile conditions. This is as noted in, and compliant with, Volume 2E of the Blue Book (acknowledging the higher sediment loads likely to be carried by receiving waters under high rainfall conditions). An alternative water management strategy for SB1 has been proposed which would ensure the frequency and volume of uncontrolled discharges is less than would be expected if constructed to provide the water settlement and sediment storage capacity defined for a rainfall event equivalent to 5-day 95th percentile conditions.

The potential for elevated sediment levels being discharged to receiving waters cannot be completely ruled out. However, acknowledging the likely elevated sediment loads of receiving waters during periods of uncontrolled discharge, the impact would be minor (2), the residual risk rating would be medium on the basis of this occurrence being possible (D).

- Decreased visual amenity of the local setting and reduced aesthetic value of lookouts (Medium[#]).

The visibility of the Stage 2 Site from various vantage points in the Lithgow City and Blue Mountains City LGAs cannot be avoided. However, the consequence of this would be reduced through:

- *extraction sequence and rehabilitation planning to minimise the area exposed at any one time; and*
- *implementation of measures to reduce the impact of the exposed areas of the Stage 2 Site such as progressive rehabilitation and application of a bituminous film to the extraction area faces.*

The consequence of the ongoing visibility of the Stage 2 Site would therefore be reduced to minor (2) and probability (of impact on local amenity) reduced to Possible (D).

- Decreased visual amenity of the local setting as a result of increased visibility from residential vantage points (Medium^{*}).

*An initial assessment of risk considering standard control measures, and either current or likely views of the Stage 2 Site, indicated a Likely (C) Moderate (3) consequence (see **Table 3.9**). Following the considerable effort to identify the various zones of visual impact surrounding the Stage 2 Site (refer to Section 4.4.2) and likely changes to views of the Stage 2 Site resultant from the Proposal (refer to Section 4.4.3), the Applicant has been able to design various controls and management measures to firstly restrict the area of the Stage 2 Site visible from vantage points surrounding the Stage 2 Site and secondly mitigate the impact of residual views (refer to Section 4.4.4).*

On review, the potential for the Proposal to impact on the visual outlook of some residential vantage points has been upgraded to Almost Certain (B), however, the consequence downgraded to Minor (2). As a result the overall risk associated with impacts on local visual amenity, at the most affected vantage points, has been reduced to Medium.

As a result of the proposed impact minimisation and mitigation measures of the Applicant, the risks associated with the majority of potential environmental impacts are considered medium or less. While these may result in impacts deemed unacceptable to some stakeholders, the development and operation of the Proposal, with the implementation of appropriate management and mitigation measures, are generally considered acceptable.

6.2.2 Ecologically Sustainable Development

6.2.2.1 Introduction

Sustainable practices by industry, all levels of government and the community are recognised to be important for the future prosperity and well-being of the world. The principles of Ecologically Sustainable Development (ESD), recognised for over two decades, are based upon

meeting the needs of the current generation while conserving our ecosystems for the benefit of future generations. In order to achieve sustainable development, recognition needs to be placed upon the integration of both short-term and long-term environmental, economic, social and equitable objectives.

Throughout the design of the proposed extensions, the Applicant has endeavoured to address each of the sustainable development principles. The following sub-sections draw together the features of the Proposal that reflect the four principles of sustainable development, namely:

- the precautionary principle;
- the principle of intergenerational equity;
- the principle of the conservation of biodiversity and ecological integrity; and
- the principle for the improved valuation, pricing and incentive mechanisms.

6.2.2.2 The Precautionary Principle

During the planning phase for the Proposal and throughout the preparation of the EIS, the Applicant engaged specialist consultants to examine the existing environment, predict possible impacts and recommend controls, safeguards and/or mitigation measures in order to ensure that the level of impact satisfies statutory requirements or reasonable community expectations. Throughout the development of the Proposal, the Applicant and its consultants have adopted an anticipatory approach to impacts, in particular that of irreversible ecological damage, by undertaking an analysis of the risks posed by Proposal related activities, an appropriate level of research and baseline investigations and environmental evaluation. The controls, safeguards and/or mitigation measures have therefore been planned with a comprehensive knowledge of the existing environment and the potential risk of environmental degradation posed by Proposal activities.

The implementation of the environmental safeguards, controls and mitigation measures has been formalised by the Applicant as the Draft Statement of Commitments presented as Section 5.

Examples of matters relating to the precautionary principle that were considered during the various stages of the Proposal are listed below.

Objectives of the Proposal

The Proposal has been designed with the principal objective being to continue to operate the Austen Quarry in a safe and environmentally responsible manner which meets the requirements of local and State government agencies, accepted industry standards and wherever possible, reasonable community expectations. The Applicant recognises that only through comprehensive environmental assessment, consideration of feasible mitigation measures and offset strategies and an environmentally responsible approach to the design and operation of the proposed extensions, can the risk of harm to the environment be minimised.

Design of Proposal Components

Several design aspects of the Proposal required consideration of the precautionary principle and associated potential impacts on the local environment to ensure the requirements of local and State government agencies, accepted industry standards and wherever possible, reasonable community expectations were met. These include the following.

- Upon identification and recognition of potential visual impacts from the development of the extraction area, the Applicant completed a comprehensive review of the quarry design and development sequence to minimise visual impact to the greatest extent practicable.
- The Applicant has agreed to adopt an ‘adaptive management’ approach to managing visual impacts that has commenced already with the placement of a bituminous film on final faces in the Stage 1 extraction area to better blend this with surrounding vegetation. The management approach would also include annual monitoring of the progress of visual amenity impacts using extensive study of sequential photographs from key vantage points.
- Design of extraction areas to assist with visual screening including the retention of the northern ridge of the Stage 1 extraction area to act as a screen to views from Hassans Walls.
- Active rehabilitation of existing cleared land and establishment of a nursery to encourage native regrowth vegetation and re-establishment of *Eucalyptus pulverulenta* (Silver-leafed Mountain Gum) where possible.
- The biodiversity offset would provide for the conservation and management of 94.3ha of remnant native vegetation.
- Analytical assessment of likely groundwater drawdown was completed to confirm the minor and isolated impacts expected on the local hydrogeological setting and surrounding groundwater users (including groundwater dependent ecosystems). An appropriate WAL is to be obtained to account for the groundwater to be taken from the rhyolite hosted aquifer.
- Continued monitoring of water quality in water storage dams and the Coxs River to ensure water quality remains within acceptable water quality criteria.
- Installation of piezometers and monitoring of groundwater to ensure drawdown does not exceed predictions and groundwater contamination does not occur.
- Completion of a Noise Compliance Assessment at Receiver R31 to ensure noise levels do not exceed those predicted by noise modelling. In the event of exceedance, implementation of contingency management measures to reduce the noise received to compliant levels.
- Continued monitoring of deposited dust at three locations adjacent to the Stage 2 Site.
- Design of the final landform to provide for areas of nature conservation and a return to agriculture in some areas. The final landform also provides for the protection and extension of remnant areas of native vegetation (including EECs).

Integration of Safeguards and Procedures

The framework for ongoing environmental management, operational performance and rehabilitation of the Stage 2 Site would be provided through the development consent and preparation of an Environmental Management Strategy. The following management plans would also be updated to incorporate the commitments made in Section 5.

- Rehabilitation Management Plan.
- Biodiversity Management Plan.
- Air Quality Management Plan.
- Blast Management Plan.
- Noise Management Plan.
- Water Management Plan.
- Traffic Management Plan.

These plans would contain a range of Stage 2 Site specific environmental procedures to achieve consistency with specified outcomes and to control identified risks, and would be updated periodically. Annual Reviews would report on the progress of the operation and provide an opportunity to review the effectiveness of the environmental management strategies adopted.

Rehabilitation and Subsequent Land Use

Long term adverse impacts on the environment would be avoided through:

- creation of a safe, stable, vegetated final landform;
- progressive rehabilitation, including shaping of the final landform, spreading of soil and reseeded or replanting with endemic, locally sourced species as described in Section 2.13.5;
- integration of the final landform with the biodiversity offset area; and
- a final land use of predominantly nature conservation with some low intensity agriculture in selected locations.

Conclusion

The precautionary principle has been considered during all stages of the design and assessment of the Proposal. The approach adopted, i.e. risk analysis, initial assessment, consultation, specialist investigations and development of safeguards, controls and mitigation measures, provides a high degree of certainty that the Proposal would not result in any major unforeseen impacts.

6.2.2.3 Intergenerational Equity

Intergenerational equity embraces value concepts of justice and fairness so that the basic needs of all sectors of society are met and there is a fair distribution of costs and benefits to the community. This provides for both inter-generational (between generations) and intra-generational (within generations) equity considerations.

Equity within generations requires that the economic and social benefits of the development be distributed appropriately among all members of the community. Equity between generations requires that the non-material well-being or “quality of life” of existing and future residents of the local community would be maintained throughout and beyond the life of the Proposal.

Both elements of social equity are addressed through the design of the Proposal itself, the implementation of operational safeguards to mitigate any short-term or long-term environmental impacts, and the proposed rehabilitation of the areas directly disturbed. Examples of matters relating to social equity that are relevant to the various stages of the proposed development are listed below.

Identification of Proposal Objectives

The Proposal has been designed with an objective to continue to operate the Austen Quarry in a safe and environmentally responsible manner. This includes establishment of the extraction area and overburden emplacement in a manner that maximises social and economic benefits to the local and regional community whilst minimising both short term and long term environmental impacts, including social impacts to surrounding residents.

The Proposal also aims to provide the continued viability of surrounding land uses, including nature conservation, through progressive rehabilitation and establishment of a biodiversity offset area that would ensure no net loss of biodiversity values as a consequence of the Proposal.

Design of Proposal Components

The Proposal has been designed to maintain inter-generational equity, i.e. in recognition that quarry operations are a comparatively short-term land use, and to ensure components of the existing biological, social and economic environment that are available to existing generations would also be available to future generations.

The establishment of a biodiversity offset area and integration with a rehabilitation strategy which has passive nature conservation as a preferred final land use would ensure that the biodiversity and amenity value of the Stage 2 Site is maintained both in the short and long-term. At the same time, the continued operation of the Austen Quarry would provide raw materials for the ongoing development of infrastructure and buildings that would not only benefit today’s generation but many generations to come.

Integration of Safeguards and Procedures

The Applicant recognises that all members of the local and regional community should benefit appropriately from the Proposal either directly or indirectly. In order to ensure a realistic distribution of benefits, the Applicant would continue to consult with the local community and maintain a pro-active approach to issues of interest through their ‘open door’ policy to interaction with community members. This dialogue would also include a system to record, manage and respond to any complaints relating to the operation of the quarry.

Continued implementation of the Hy-Tec *Chain of Responsibility – Driver Check System* would provide, to the greatest extent possible, for the safety of communities through which the quarry related truck transport operators pass to deliver the products of the Austen Quarry. This system has been recognised nationally for its workplace health and safety benefits and directs compliance with all road laws, Stage 2 Site requirements and physical attributes such as alertness and driving behaviours that ensure safety while driving.

Rehabilitation and Subsequent Land Use

The final landform would be constructed and rehabilitated to minimise visual impacts of the Stage 2 Site and accommodate passive nature conservation over the majority of the Stage 2 Site. A return to low intensity agriculture is also proposed to limited areas of the Stage 2 Site now used for processing, administrative facilities and stockpiling. Inter-generational equity would be provided by a return to agriculture of appropriate areas and provide potential agricultural industry while preservation of remaining areas for nature conservation would provide habitat for long term fauna movements.

An important consideration in the rehabilitation of Stage 2 Site has been the minimisation of visual impact such that scenic landscape is preserved to the greatest extent possible for the current and future generations.

Conclusion

The principle of social equity has been addressed throughout the design of the Proposal. The Stage 2 extension would contribute significantly to the ongoing economic activity of Lithgow and the communities of the Lithgow City LGA and surrounding districts through the generation of employment and ongoing demand for local goods and services and other flow-on effects. As such, the benefits of the Proposal would be distributed throughout the local community. Furthermore, the products from Austen Quarry are important for the cost-effective development and growth of the Lithgow City LGA.

The Proposal was also designed such that elements of the existing environment available to this generation, including the natural environment, water and local biodiversity would continue to be available to future generations. The Applicant would adopt a pro-active approach in identifying and addressing any concerns identified by the local community.

In terms of Aboriginal heritage, intergenerational equity has been considered in terms of the cumulative impacts to Aboriginal objects and places in a region. In the absence of any artefactual material or of known specific Aboriginal association with the Stage 2 Site, the impact of the Proposal is assessed to be low.

6.2.2.4 Conservation of Biological Diversity and Ecological Integrity

The protection of biodiversity and maintenance of ecological processes and systems are central goals of sustainability. It is important that developments do not threaten the integrity of the ecological system as a whole or the conservation of threatened species in the short- or long-term. Details of how the Proposal has been designed to achieve compliance with these principles are set out below.

Identification of Proposal Objectives

The Applicant is committed to undertake all activities in an environmentally responsible manner, and recognises the need to ensure that changes to natural components of the environment do not adversely affect biological diversity or ecological integrity. As such, the Proposal has been designed to avoid or minimise disturbance to biodiversity with an offset developed to compensate for unavoidable residual impacts.

One of the Applicant's main objectives has been to ensure that while there is a proposed loss of biodiversity through the disturbance of three native vegetation communities and direct impacts to the threatened *Eucalyptus pulverulenta*, an offset including these or equivalent communities and species is established in accordance with the guidelines of the BioBanking Assessment Methodology advocated by OEH. In addition, areas of existing and proposed cleared vegetation would be the subject to progressive active rehabilitation works to be integrated with the biodiversity offset area.

Integration of Safeguards and Procedures

The Applicant would implement the following safeguards and procedures to maximise the conservation of biological diversity and ecological integrity on and surrounding the Stage 2 Site.

- The location and orientation of the extraction areas, and location and orientation of progressive disturbance over the Stage 2 Site has been designed to minimise disturbance upon native vegetation, threatened species to the greatest extent possible.
- The Biodiversity Offset Area proposed would, on confirmation of acceptability by DP&E and OEH, be legally protected and managed within the property to ensure there is no net loss in biodiversity values attributable to the proposed extension.
- The controls and management measures outlined in the surface water and groundwater management section of this document (Sections 4.5 & 4.6) would be adopted to minimise any impact on water quality and quantity. Adoption of these measures would also minimise impacts to aquatic flora and fauna in nearby water bodies
- Groundwater, surface water, noise and deposited dust levels would (continue to) be monitored at locations deemed potentially most affected by the Proposal and suitable to estimate any impacts attributable to the Stage 2 Site, in order to ensure the continued compliance with the objectives outlined in this document.
- Soil would be stripped and carefully stockpiled such that it may be applied to the planned final land use of different areas of the final landform.
- Weed eradication and feral animal management programs would be included in environmental management plans, as required.
- Management of hazards such as quarry related traffic and potential bushfires would include appropriate protections for flora and fauna within the Stage 2 Site.

Other ecological management commitments are included in Sections 4.7 and 4.8, as well as the draft Statement of Commitments (**Table 5.1**).

Rehabilitation and Subsequent Land Use

The final landform has been designed, with limited exception where low intensity agriculture is proposed, to re-instate the natural landforms and vegetation communities. Planting of the threatened species, *E. pulverulenta*, would continue in accordance with the current successful program. Long-term conservation would be secured through the Biodiversity Offset Strategy.

Conclusion

The Proposal would address the principle of conservation of biological diversity and ecological integrity through the minimisation of disturbance to areas of native vegetation, re-establishment of areas of native vegetation and implementation of a Biodiversity Offset Area. The implementation of weed eradication and feral animal management programs would further assist in addressing the principle of sustainable development.

6.2.2.5 Improved Valuation and Pricing of Environmental Resources

The issues that form the basis of this principle relate to the acceptance that the polluter pays, all resources are appropriately valued, cost-effective environmental stewardship is adopted and the adoption of user-pays principles based upon the full life cycle of the costs. A reflection of these issues relative to the Proposal is set out below.

Identification of Proposal Objectives

The Applicant's principal objective is to operate the quarry in a profitable, safe and environmentally responsible manner, which demonstrates that an appropriate value has been placed on elements of the existing environment.

Design of Proposal Components and Integration of Safeguards and Procedures

The extent of research, planning and design of environmental safeguards, mitigation measures and offset strategies to prevent irreversible damage to environmental resources, other than the rhyolite to be extracted, is evidence of the value placed by the Applicant on these resources.

Rehabilitation and Subsequent Land Use

The design of the final landform to provide a return to agriculture of appropriate areas and the re-establishment of native vegetation, illustrates the value placed by the Applicant on both the future land use and ecological elements of the Stage 2 Site.

Conclusion

The value placed by the Applicant on environmental resources is evident in the identification of Proposal objectives, extent of site-specific research, planning and environmental safeguards and measures to be implemented to prevent irreversible damage to the environment on and surrounding the Stage 2 Site. It is planned that the income received from the sale of products would be sufficient to enable the Applicant to achieve an acceptable profit level whilst undertaking all environmentally-related tasks to a high standard and meeting all commitments in all the Proposal approval, leases and licences and those made to the local community.

6.2.2.6 Conclusion

The approach taken in planning the Austen Quarry Stage 2 Extension has been multi-disciplinary, involved consultation with potentially affected local residents and various government agencies and incorporated the application of safeguards to minimise potential environmental, social and economic impacts. The design of the Proposal has addressed each of the sustainable development principles, and on balance, it is concluded that it achieves a sustainable outcome for the local and wider environment

6.3 JUSTIFICATION OF THE PROPOSAL

6.3.1 Introduction

In assessing whether the development and operation of the Proposal is justified, consideration has been given both to biophysical and socio-economic factors including the predicted residual impacts on the local and wider environment and the potential benefits of the Proposal. When considering the predicted residual impacts, a review of the proposed controls, safeguards and mitigation measures was also undertaken to determine the emphasis placed on impact minimisation and the incorporation of the principles of ESD. This section also considers the consequences of the Proposal not proceeding.

6.3.2 Biophysical Considerations

Section 4 presents a range of residual impacts on the biophysical environment that are predicted should the Proposal proceed, after the adoption of a number of design and operational procedures, mitigation measures and/or offset strategies. The residual impacts considered of greatest significance, and the proposed management of these, are summarised as follows.

Land Resources

Residual risks associated with rehabilitation potential, soils and land capability have been assessed to be low. The proposed final landform and rehabilitation plan, and associated processes, are well documented through the assessment and are unlikely to be constrained by compromised soil resources. The desired result for the Applicant is a final landform comprising an area of land suitable for low intensity agriculture and land that has been rehabilitated back to a nature conservation land use.

Land capability was assessed to be Class 6 indicating severe limitations for a wide range of land uses with few management practices available to overcome them. It is therefore considered likely that the landform could be rehabilitated to provide an equivalent land capability class.

Traffic and Transport

An assessment of the impact of the Proposal on the local and regional traffic setting has established that the product trucks travelling to and from the Austen Quarry can be accommodated on both Jenolan Caves Road and the Great Western Highway. While noting that the proportion of heavy vehicle traffic on Jenolan Caves Road attributable to the quarry would be relatively high (approximately 24% on peak production days), there would be no change to the level of service experienced on Jenolan Caves Road. While the level of service experienced on the Great Western Highway is less than that of Jenolan Caves Road, the contribution of the Proposal to total traffic is so small (0.47% of the overall traffic at Leura in 2025 reducing to 0.41% in 2035) as to have no impact on this.

The performance of the Jenolan Caves Road – Great Western Highway intersection during peak traffic periods is predicted to go over capacity, i.e. result in unacceptable delays, in approximately 2024. It is noted, however, that this reduced level of service would be as a result of traffic growth on the Great Western Highway, not quarry-related traffic. Furthermore, upgrading of this intersection is contained within plans of the RMS for the Great Western Highway which would undoubtedly improve the performance of the intersection.

While the risk of a traffic incident involving a truck travelling to or from the quarry cannot be completely eliminated, the Applicant would continue to implement the following safeguards and procedures as part of an updated Traffic Management Plan.

- Maintain the existing complaints management system.
- Continued implementation of the Hy-Tec *Chain of Responsibility – Driver Check System* to ensure the smooth and appropriate operation of heavy trucks associated with the Austen Quarry.
- Plan transport operations logistics, where feasible, to ensure the appropriate level of quarry-related traffic is on the road at any one time, taking into account peak traffic hours, school bus operating peaks and potential sleep disturbance from trucks operating early in the morning and late in the evenings.

Visibility

The current and proposed quarry operations are, and would continue to be visible from a number of public and private vantage points surrounding the Stage 2 Site. The design of the quarry extraction area, orientation of active quarry faces and sequence of quarry development has been chosen to reduce the areas of the Stage 2 Site visible at any one time.

Additional visual impact mitigation measures such as progressive rehabilitation, application of a bituminous film to the completed or inactive extraction faces, and drawdown of stockpiled material within the Yorkeys Creek stockpile area have been proposed to mitigate the effect of any exposed areas from the various vantage points surrounding the Stage 2 Site.

This approach has minimised impacts to visual amenity, however, some mitigated, obscured or distant views of operations on the quarry operations would continue to be available from some locations, most notably:

- Hassans Walls, Second Lookout and Hassans Walls Road (distant and obscured);
- Mount York and Mount York Road (obscured and mitigated);
- Kanimbla locality (notably elevated residences of Kanimbla Drive and Megalong Place) (distant);
- McKanes Falls Road (limited and obscured); and
- the Great Western Highway (obscured).

The Applicant has committed to an ‘adaptive management’ approach and annual monitoring of visual impacts to manage, to the greatest extent possible, the residual impacts on visual amenity.

Surface Water Resources

The results of the site water balance for the Proposal confirms that both controlled and uncontrolled discharges from Stage 2 Site sediment basins and storage dams would be required or occur. Notably, the number of uncontrolled discharges would be minimised by designing and maintaining the various sediment basins and storage dams to accommodate a 5-day 95th percentile rainfall event. This represents a medium risk but would be appropriately managed through design and operational safeguards described in Section 4.5.4.

A small reduction of water flowing annually to local creeks and rivers (in the order of 7.5MLpa) would be unavoidable and represents a medium risk on the basis that the impact would almost certainly occur. Notably, an impact of this magnitude would be effectively imperceptible and the consequence negligible.

An Erosion and Sediment Control Plan (ESCP) would be developed to provide for diversion of clean water, and the collection and management of sediment-laden water, to ensure that erosion and sedimentation on the Stage 2 Site would be minimised for the life of the Proposal. The ESCP would be complemented by a monitoring and maintenance program and largely on the basis of the ESCP and associated monitoring and maintenance program(s), a low residual risk is associated with the majority of potential impacts on surface water use and quality. With respect to water quality impacts, specific reference is made to the following.

- The surface water assessment (Groundwork, 2014) indicates that while potential exceedances of Locally Derived Water Quality Objectives may occur, these levels would pose no genuine risk to the environmental values of the receiving waters. Furthermore, the likely concentrations (and exceedances) would almost certainly reflect the local geology or land uses rather than activities of the Proposal. The Applicant would undertake sampling and analysis of water upstream and downstream of the discharge point at the time of discharge to demonstrate minimal or no impact on receiving water quality.
- Groundwork (2014) has demonstrated a neutral or beneficial impact on the Sydney Drinking Water catchments indicating that the Proposal achieves the objectives of the *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011*.

Groundwater Resources

Residual risk is assessed to be low in relation to groundwater use and impact. The proposed depth of the extraction area would be below the existing standing water level (~730m AHD), with dewatering required to enable extraction below this elevation. The predicted volume of groundwater to be removed from the rhyolite hosted groundwater source would be limited and, when averaged over the life of the Proposal, approximate 8MLpa. Notably, the impact of this minor loss of groundwater would be isolated from other groundwater sources by local topographic features including the Coxs River, Yorkeys Creek and other gullies which occur at lower elevation to the groundwater standing water level. These act as natural barriers to the lateral flow of groundwater.

As a result of the isolated nature of the groundwater source to be impacted, the dewatering associated with the Proposal would result in a ‘one-off’ loss of the groundwater currently retained within the rock to be extracted and rock which lies within the cone of depression to extend (approximately 225m) from the edge of the extraction area. Once this groundwater is ‘taken’ from the aquifer, a new equilibrium standing water level would be established at an elevation equivalent to the base of the extraction area.

Some groundwater would continue to flow towards the extraction area and discharge as seepage into the void, however, the majority of water recharging the aquifer would continue to flow towards the Coxs River, Yorkeys Creek and local gullies as base flows to these. That is, the water balance would return to pre-quarry conditions where the volume of rainfall infiltration is equal to the volume of groundwater discharge into the adjacent valleys.

The Applicant is aware of the requirement to appropriately licence this ‘take’ of groundwater and has applied for a zero allocation Water Access Licence (WAL). An allocation, sufficient for the annual ‘take’ of groundwater predicted, to be attached to this WAL would either be obtained by permanent or temporary transfer of an existing WAL from one of the eight WAL holder within the groundwater source, or as a controlled allocation from the Minister for Natural Resources, Lands and Water.

Terrestrial Ecology

With the exception of the unavoidable impact on native vegetation associated with the extraction area and overburden emplacement extension, which remains ‘high’, the residual risks to terrestrial ecology have been reduced through the proposed impact avoidance, minimisation and offset measures. Notably, while the Proposal would result in direct disturbance to three vegetation communities and the threatened flora species *E. pulverulenta*, and as a result remove foraging, breeding or roosting habitat of native fauna species, the assessment found that these impacts would not be significant.

The Applicant would continue to incorporate *E. pulverulenta* in progressive rehabilitation and manage an on-site ‘nursery’ for cultivating seeds and saplings of various native vegetation species. The legal protection and management of an area of 94.3ha dedicated to a biodiversity offset, when combined with final rehabilitation of areas to return them to passive nature conservation would provide for the long-term biodiversity conservation of both flora and fauna species. Considering this alongside impact avoidance, mitigation and offset measures, the magnitude and duration of proposed impacts, and the ecology of the subject species, indicates that the Proposal is unlikely to have a significant impact on terrestrial ecology.

Aquatic Ecology

The aquatic ecology assessment (Cardno, 2014) found that residual impacts from the development, operation and final rehabilitation of the Stage 2 extension would be minor and reflective of the negligible impacts demonstrated through regular monitoring that have occurred since quarry operations began in 2005. No significant impact on threatened aquatic species or riparian conditions is considered likely.

No Groundwater Dependent Ecosystems (GDEs) have been recorded on, or adjoining the Stage 2 Site and a review of local vegetation and hydrogeological setting confirmed the likelihood of either surface and sub-surface GDEs being impacted by the Proposal as nil to negligible (Cardno, 2014).

Noise

The residual risk associated with potential noise related impacts is assessed to be low. The source of residual risk is in the most part related to traffic noise impacts that are expected to occur at residences located on Jenolan Caves Road. The noise assessment completed by Benbow (2014a) found that traffic noise at these residences was an existing feature of the local setting and the traffic generated under the Proposal would not significantly add to this. By adhering to management measures that restrict the hours of operation, maximum levels of truck movements per hour and implementing systems to guide driver behaviour, the impacts of truck noise could be suitably managed. Standard mitigation measures would be put in place to manage operational and blasting noise impacts though assessment has predicted these impacts would continue to be minor at all sensitive receptors.

Air Quality

With the exception of a medium residual risk associated with a minor increase to greenhouse gas emissions, the residual risk associated with potential air quality impacts is assessed to be low. The air quality assessment completed by Benbow (2014b) found that compliance with the annual average air quality criteria would be comfortably achieved. The predicted impacts highlighted blasting as the critical activity for short-term 24 hour impacts with this heavily influenced by the prevailing winds at the time of the blast. By scheduling blasts (on most occasions) for periods of emission mitigating wind conditions, and given the infrequent nature of blasting, the Applicant would be able to ensure that dust levels in the surrounding community remain below acceptable limits.

Indigenous and Historic Heritage

In the absence of any artefactual material in a depositional context, or of known specific Indigenous association with the Stage 2 Site, the residual risk to Indigenous and historic heritage is assessed to be low. All future clearing operations must be completed in accordance with the protocols established in Section 4.11.4, which include a procedure to be followed in the event that potential Indigenous artefacts are uncovered during vegetation clearing activities.

Hazards

Potential hazards associated with the Proposal include those caused by bush fires, traffic incidents, handling of hazardous material and through public misadventure.

A series of management and mitigation measures would be implemented or existing controls extended to address the likelihood and significance of potential impacts from the hazards. Generally these procedures would provide control measures to limit the likelihood of events occurring, mitigation measures to manage the significance of these events were they to occur and emergency procedures for personnel to follow if involved in an incident.

6.3.3 Socio-economic Considerations

The principal socio-economic impacts of the Proposal would relate to sustained higher levels of extraction and lengthening of the life of the Austen Quarry. As such, the potential social impacts would generally be similar to those currently experienced by neighbouring landowners, the local communities of Hartley and Little Hartley and elsewhere within the Lithgow City LGA. Principal social impacts relate to emissions and other physical impacts, the increased visibility of the Stage 2 Site and subsequent impacts on regional amenity and tourism, and the social impact of road transport between the Stage 2 Site and the Great Western Highway and through the Blue Mountains. Assessment of these impacts (see Section 4.15.5.3) found residual impacts to be relatively minor with the implementation of management and mitigation measures discussed throughout Section 4. The comparatively low level of these impacts is well understood by residents surrounding the Stage 2 Site and those adjacent to the transport route. As a result it is not anticipated that there would be a significant change in the current level of social impact.

The ongoing direct and indirect employment provided by the quarry would contribute to underpinning maintenance of social values both locally and regionally while operations at the quarry would provide continued and long-term contribution to the local economy through support of local businesses and services. In addition the Proposal provides for the removal,

processing and despatch of products important for the continued growth and prosperity of NSW. The estimated annual expenditure of \$5 million throughout the local area, surrounding region, NSW and Australia would have considerable direct and indirect economic benefits.

6.3.4 Consequences of Not Proceeding with the Proposal

The consequences of not extending the operational life of Austen Quarry would primarily relate to the rhyolite that would not be extracted by the Applicant to yield the range of products currently produced. The following consequences would result.

- The opportunity to confirm a long-term source of coarse aggregates for the greater Sydney metropolitan region construction industry would be lost. This would potentially impact on the direct contribution of coarse aggregate production to the NSW economy, estimated to be between \$310Mpa and \$366Mpa.
- Increased production costs of concrete would result in either reduced supply, or the requirement of concrete producers to source coarse aggregates from sources further from the greater Sydney region. This would have flow-on effects to the NSW economy as a result of reduced construction activity in response to either increased cost, or reduced supply of concrete.
- Customers would not be in a position to take advantage of the Austen Quarry's proximity to the Great Western Highway and direct access to Lithgow, the Sydney metropolitan region and central NSW.
- Development of alternative greenfield sites would likely be required. These would almost certainly result in much greater impacts to the biophysical environment than the incremental impacts addressed for the Proposal. For example, it is unlikely that a site with the significant buffer distances to the closest residences and thus able to limit both local environmental and amenity impacts in a similar manner, would be available.
- Higher levels of greenhouse gases would be generated as products would potentially need to be transported further.

In addition, the opportunity to provide employment for approximately 20 people directly and the indirect impact to the economy within the Lithgow City LGA would be foregone. This includes the disposable wages for the workforce, a substantial proportion of which would be spent in the Lithgow City LGA and surrounding communities, and the additional GST and PAYE taxes that would result from the extended life of the quarry.

Should the Proposal not proceed, the additional minor impacts on the local biophysical environment would not eventuate.

It is considered that the benefits of proceeding with the Proposal therefore far outweigh the minor impacts on the environment that would result. The nominated consequences of not proceeding with the Proposal also weigh heavily in favour of proceeding with the Proposal.

6.3.5 Objects of the Environmental Planning & Assessment Act 1979

As noted in Section 1.1, development consent is being sought under the EP&A Act and the Proposal must therefore satisfy the objects of the Act as presented in Section 5. **Table 6.2** identifies the objects of the EP&A Act and confirms that each has been satisfied by the Proposal and this EIS.

Table 6.2
Objects of the EP&A Act

Page 1 of 2

Object	EIS Coverage
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,	Section 4.2.3 confirms that the Stage 2 Site has severe limitations for agricultural land uses and Section 4.14 confirms the Proposal would have negligible impact on agricultural resources and production. The Stage 2 Site does not contain forestry or mineral resources and therefore no specific management measures for these have been developed. Sections 4.5 to 4.8 confirm that management of water and ‘natural areas’ on the Stage 2 Site and surrounds would be managed to avoid, minimise and offset impacts on the natural environment. Section 4.15 (and Section 6.3.3) considers the residual impacts and the potential benefits associated with the Proposal, and demonstrates that the proposed management measures proposed by the Applicant would be of net benefit to the socio-economic fabric of the local, regional and NSW setting
(ii) the promotion and co-ordination of the orderly and economic use and development of land,	Section 4.2 reviews the land use of the local area and demonstrates the Proposal would have only minimal impact on the non-economic ‘passive biodiversity conservation’ land use. Section 4.15 confirms, with reference to local and regional economic statistics and strategies, that the Proposal would be a significant contributor to the local and regional economy and community.
(iii) the protection, provision and co-ordination of communication and utility services,	Section 2.10 reviews the infrastructure and services required by the Proposal and confirms there would be minimal impact requiring specific consideration and management. This notwithstanding, the Applicant’s commitment to development and implementation of appropriate emergency management plans, including maintenance of effective communication between Site management and service providers, is demonstrated by the procedures in place for management in the event of a bush fire emergency (see Section 4.13.2.4).
(iv) the provision of land for public purposes,	The Stage 2 Site is located on private freehold land and it is not proposed that this land be provided for public purposes. This notwithstanding, it is noted that appropriate management measures have been proposed to ensure there would be no detrimental effect on the Coxs River, a regionally significant watercourse used for a variety of public purposes. Furthermore, the Applicant has proposed the establishment of a Biodiversity Offset Area on the Stage 2 Site for the conservation and management of biodiversity (refer to Section 2.14 and 4.7.5.2).
(v) the provision and co-ordination of community services and facilities, and	Section 3.2.2 demonstrates the Applicant’s approach to effective community engagement. Section 4.15.4 confirms the commitment of the Applicant to an ongoing contribution to services and facilities of local and regional significance.

Table 6.2 (Cont'd)
Objects of the EP&A Act

Object	EIS Coverage
(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	Sections 4.7 and 4.8 demonstrate the significant effort taken by the Applicant to avoid and minimise the impact of the Proposal on local and regional biodiversity. Section 4.7 (with reference to Section 2.14) also demonstrates that any residual impacts would be offset in accordance with the guidelines and policies of the relevant NSW and commonwealth agencies responsible for management of NSW and Australian biodiversity respectively.
(vii) ecologically sustainable development, and	Section 6.2.2 reviews and confirms the Proposal would be undertaken in accordance with the principles of ecologically sustainable development.
(viii) the provision and maintenance of affordable housing, and	The Proposal would not contribute to any additional pressure on local housing.
b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and	Section 3.2.3 reviews the relevant commonwealth, state, regional and local environmental planning regulations, plans and strategies. Reference to how (and where in the EIS) each have been addressed is included in Sections 3.2.3.2 to 3.2.3.5.
c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.	The Applicant has demonstrated through its consultation strategy (see Section 3.2.2) a transparent approach to information distribution and consideration of community concerns. The Applicant will undertake all future public notifications and representations in accordance with the current planning process.

6.4 CONCLUSION

The Proposal has been designed to address the issues raised by the community and all levels of government, as well as the principles of ecologically sustainable development. The Proposal provides for the continued extraction, processing, sale and despatch of products which would be significant in extending employment opportunities and maintaining stimulus to the local economies of Lithgow and surrounding communities. The ongoing operation of Austen Quarry for 30 years would provide a range of raw materials for ongoing growth throughout the Lithgow LGA and the Sydney metropolitan region.

In light of the assessments presented throughout the *Environmental Impact Statement*, it is concluded that the proposed Stage 2 Extension could be developed and operated in a manner that would satisfy all relevant statutory goals and criteria, environmental objectives and reasonable community expectations.

This document and the range of specialist consultant studies undertaken have identified that the Proposal should proceed because it would:

- contribute towards satisfying the demand for construction materials, particularly within the Sydney metropolitan region and the Lithgow City LGA;
- reduce risk levels associated with possible incidents and impacts on the environment to an acceptable level;

- have a minimal and manageable impact on the biophysical environment;
- satisfy sustainable development principles;
- provide for continuing and future use of the Stage 2 Site for agricultural use and nature conservation;
- promote continued growth in economic activity in the Lithgow City LGA; and
- address the actual and perceived social impacts.

This page has intentionally been left blank