

Section 6

Evaluation and Justification of the Project

This section concludes the assessment of the proposed Belmont Coal Project. The key assessment requirements (of the Director-General's requirements) and other issues identified as having higher unmitigated risk rankings (see Section 3.3.1) are reassessed based on the implementation of the proposed safeguards, controls and mitigation measures and a residual risk level determined. The Project is then evaluated based on the residual risk posed and in consideration of ecologically sustainable development (ESD) principles.

A justification for the Project is then provided based on the residual impacts of the Project, the likely economic and social benefits that would be generated and the consequences locally, regionally and nationally of the Project not going ahead.



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6.1 INTRODUCTION

As a conclusion to the *Environmental Assessment*, the development and operation of the Belmont Coal Project is evaluated and justified through consideration of both the potential impacts on the environment and benefits to the local and wider community.

Project evaluation has been undertaken by firstly reassessing of the risks posed to the local environment by project activities, following consideration of the controls, safeguards and/or mitigation measures proposed by the Proponent and summarised in Section 5. The Project has also been evaluated against the principles of Ecologically Sustainable Development (ESD) in order to provide further guidance as to the acceptability of the Project, as presented in the *Environmental Assessment*.

Section 6.3, which presents the justification of the Project, revisits the predicted residual impacts on the biophysical environment, considers the socio-economic benefits which would be provided and assesses the consequences of not proceeding with the Project.

6.2 EVALUATION OF THE PROJECT

6.2.1 Residual Environmental Risk and Impacts

Following consideration of the proposed operational safeguards, controls and mitigation that would be implemented by the Proponent as part of the project design, **Table 6.1** reassesses the risk associated with each of the potential environmental impacts identified in Section 3.3. It is noted that in some cases no residual risk rating has been allocated as the assessment recorded in Section 4B has determined that the impact would not occur.

Table 6.1
Analysis of Risk

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Potential Environmental Impacts (see Table 3.5)	Level / Scale of Impact (if applicable)	Unmitigated Risk Rating	Consequence of Occurrence if Mitigated	Likelihood of Occurrence if Mitigated	Residual Risk Rating
Groundwater					
Groundwater Pollution by leaking/spilt pollutant	Contamination requiring minor recovery works	M	2	E	L
	Contamination requiring major recovery works	H	2	E	L
Drawdown of groundwater levels	Significant drawdown (>2m) beyond 100m of the Project Site boundary	M	1	B	M
	Major drawdown (>10m) beyond 100m of the Project Site boundary	H	2	D	L
	Significant drawdown (>2m) at non project-related bores	H	2	E	L
	Significant drawdown (>10m) at non project-related bores	E	2	E	L
Reduction in groundwater bore yields	Impacts restricted to groundwater bores on the Project Site, or Proponent-owned land	H	1	B	M
	Reduction in yield of <10% of non-project related bores	H	2	E	L
Impacts on Groundwater Dependent Ecosystems		H			
Consequence of Occurrence: 1 = Insignificant; 2 = Minor; 3 = Moderate; 4 = Major; 5 = Catastrophic Likelihood of Occurrence: A = Almost Certain; B = Likely; C = Possible; D = Unlikely; E = Rare Risk Rating: E = Extreme; H = High; M = Moderate; L = Low					



Table 6.1 (Cont'd)
Analysis of Risk

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Potential Environmental Impacts (see Table 3.5)	Level / Scale of Impact (if applicable)	Unmitigated Risk Rating	Consequence of Occurrence if Mitigated	Likelihood of Occurrence if Mitigated	Residual Risk Rating
Air Quality					
Nuisance - deposited dust	Deposited dust levels attributable to the Project occasionally (for one or two months every year) above DECC guideline, affects only adjacent landholders	M	2	D	L
	Deposited dust levels attributable to the Project regularly (exceedances greater than DECC guideline for >5 months per year) affects landholders some distance from the Project Site	H	3	E	M
Health - PM10	PM ₁₀ levels attributable to the Project occasionally (once every 1 to 2 years) above the Project goal, affects only adjacent landholders	M	2	D	L
	PM ₁₀ levels attributable to the Project occasionally (>5 times per year) above the Project goal, affects landholders some distance from Project Site	H	3	E	M
Greenhouse Gas Emissions		M	1	B	M
Erosion and Sedimentation					
Soil erosion	Minor gully erosion of drainage lines, stockpiles or created slopes	H	2	D	L
	Minor sheet or gully erosion of rehabilitated landform	M	2	D	L
	Major gully or sheet erosion formation	H	3	E	M
Sediment Load and Turbidity	One-off discharge of dirty water from the Project Site	H	2	D	L
	Regular discharge of dirty water from the Project Site	H	3	E	M
Surface Water/Flooding and Drainage					
Reduced natural surface water flows	Reduced productivity of downstream grazing lands	L	1	E	L
	Stressing of downstream native vegetation due to restricted flows	L	1	E	L
Reduced quality of downstream waters	Isolated and minor event resulting in temporary degradation of water quality in local creeks and tributaries, eg. Minor and one-off discharge of hydrocarbon	M	3	E	M
	Continuing discharge of contaminated water resulting in ongoing degradation of water quality in local creeks and tributaries, eg. frequent/periodic discharge of dirty water	H	3	E	M
	Isolated and major event resulting in temporary but wider spread degradation of water quality, eg. Large discharge of hydrocarbons	M	4	-	
	Repeated major event resulting in long-term and wide spread degradation of water quality, eg. continued discharge of dirty or contaminated water	H	4	-	
Changes to local flooding patterns and indirect impacts on native vegetation communities and ecosystems		M	2	E	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					



Table 6.1 (Cont'd)
Analysis of Risk

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Potential Environmental Impacts (see Table 3.5)	Level / Scale of Impact (if applicable)	Unmitigated Risk Rating	Consequence of Occurrence if Mitigated	Likelihood of Occurrence if Mitigated	Residual Risk Rating
Threatened Flora and Fauna					
Loss of, or alteration to, existing habitats.	Disturbance to native vegetation / habitat within nominated areas	H	1	B	L
	Disturbance to native vegetation / habitat outside nominated areas	M	2	D	L
Direct adverse impact on threatened species.	Disturbance to Threatened flora / fauna and endangered communities	H	1	A	H
	Disturbance leading to local population reduction	H	2	E	L
	Disturbance leading to local extinction(s)	E	4	-	
Reduced biodiversity	Local biodiversity	M	3	-	
	Regional biodiversity	H	4	-	
Noise and Vibration					
Increased noise levels associated with Project Site activities causing annoyance, distractions, ie. amenity impacts.	Occasional minor exceedance of noise criteria (1-2dB(A))	H	2	D	L
	Regular minor exceedance of noise criteria (1-2dB(A))	H	2	E	L
	Occasional marginal exceedance of noise criteria (3-5dB(A))	H	2	D	L
	Regular marginal exceedance of noise criteria (3-5dB(A))	H	2	D	L
	Occasional major exceedance of noise criteria (>5dB(A))	E	2	E	L
	Regular major exceedance of noise criteria (>5dB(A))	E	2	E	L
Increased noise / vibration levels associated with project traffic activities causing annoyance, distractions, ie. amenity impacts.	Occasional minor exceedance of noise criteria (1-2Db(A))	M	2	E	L
	Regular minor exceedance of noise criteria (1-2Db(A))	M	2	E	L
	Occasional marginal exceedance of noise criteria (3-5Db(A))	M	2	E	L
	Regular marginal exceedance of noise criteria (3-5Db(A))	M	2	E	L
	Occasional major exceedance of noise criteria (>5Db(A))	M	2	E	L
	Regular major exceedance of noise criteria (>5Db(A))	M	2	E	L
Maximum noise levels resulting in sleep disturbance		M	3	-	E
Increased noise levels associated with the Project leading to reduced production, ie. impacts on livestock		M	2	E	L
Noise and Vibration from blasting impacting on local amenity		M	2	E	L
Noise and Vibration from blasting impacting on local livestock		M	2	E	L
Vibration from blasting resulting in damage to non-project related buildings and structures		M	3	E	M
Consequence of Occurrence: 1 = Insignificant; 2 = Minor; 3 = Moderate; 4 = Major; 5 = Catastrophic Likelihood of Occurrence: A = Almost Certain; B = Likely; C = Possible; D = Unlikely; E = Rare Risk Rating: E = Extreme; H = High; M = Moderate; L = Low					



Table 6.1 (Cont'd)
Analysis of Risk

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Potential Environmental Impacts (see Table 3.5)	Level / Scale of Impact (if applicable)	Unmitigated Risk Rating	Consequence of Occurrence if Mitigated	Likelihood of Occurrence if Mitigated	Residual Risk Rating
Traffic and Transport					
Increased traffic congestion		M	2	C	M
Increased noise levels at residences along proposed transport route		See “noise and vibration”			
Road pavement deterioration		H	1	C	L
Elevated risk of accident/incident on local roads	Minor accident – no injury	M	2	D	L
	Minor accident – minor injury	M	3	E	M
	Major accident – moderate injuries requiring hospitalisation	H	4	E	H
	Severe accident – severe injuries or death injury	H	5	E	H
Rehabilitation, Final Landform & Biodiversity Offsets					
Reduced access to agricultural lands		M	2	D	L
Aboriginal Heritage					
Impact on identified sites and/or artefacts of Aboriginal cultural heritage as a result of the proposed construction and mining activities and without the permission of LALC or DEC		E	-	E	L
Impact on unidentified sites and/or artefacts of Aboriginal cultural heritage as a result of subsidence and without the permission of LALC or DEC		H	3	E	M
European Heritage					
Impact on identified sites of European cultural heritage		L	-	-	
Visual Amenity					
Reduced amenity of altered Project Site landform	Temporary disturbance to landform	H	1	A	H
	Marginally identifiable change to landscape	H	1	C	L
	Highly identifiable change to landscape	H	2	C	L
Impacts on the effectiveness of the Siding Springs Observatory		L	1	E	L
Waste Management					
Contamination by waste oil.	Contamination requiring minor recovery works	L	2	E	L
	Contamination requiring major recovery works	M	3	E	M
Acid generation from overburden used in construction of overburden emplacements		M	1	E	L
Reduced amenity of Project Site due to poor rubbish, litter management		L	2	D	L
Soil and Land Capability					
Insufficient soil quantities for rehabilitation		H	1	D	L
Degradation of soil quality		M	2	D	L
Elevated erosion or erosion potential.		M	2	D	L
Decreased land and agricultural capability of the final landform		H	2	E	L
Land Contamination					
Transfer of contaminated material	Small area affected (<0.01ha)	L	2	D	L
	Large area affected (>0.01ha)	M	2	E	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					



Table 6.1 (Cont'd)
Analysis of Risk

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Potential Environmental Impacts (see Table 3.5)	Level / Scale of Impact (if applicable)	Unmitigated Risk Rating	Consequence of Occurrence if Mitigated	Likelihood of Occurrence if Mitigated	Residual Risk Rating
Land Contamination (cont'd)					
Contamination of surface water as a result of exposing contaminated lands	Minor and temporary contamination of water quality in local creeks and tributaries	M	2	E	L
	Minor and continuing contamination of water quality in local creeks and tributaries	M	3	E	M
	Major and temporary contamination of water quality in local creeks and tributaries	M	3	E	M
	Major and continuing contamination of water quality in local creeks and tributaries	M	5	-	
Bushfire Hazard					
Initiation of fire leading to impacts on the Project Site	Minor disturbance to Project Site lands and equipment resulting in temporary suspension of operations	L	2	E	L
	Major damage to Project Site lands and equipment resulting in long-term or complete suspension of operations	H	3	E	M
	Impacts on health and safety of project personnel	H	4	D	H
Initiation of fire leading to impacts outside the Project Site	Minor disturbance to lands and property external to the Project Site	L	2	E	L
	Major disturbance to lands and property external to the Project Site, eg. Entry into Vickery State Forest	H	3	E	M
	Impacts on health and safety of local landowners, residents and the general public	H	5	E	H
Spontaneous Combustion					
Injury sustained as a consequence of fire	Minor injury	L	2	E	L
	Moderate injury requiring first aid	M	3	E	M
	Injury requiring hospitalization	H	4	E	H
	Severe injury or death	H	5	E	H
Impacts on native flora and fauna in the event of fire spreading beyond coal stockpiles	Small fire within Project Site	L	2	E	L
	Moderate fire extending beyond the Project Site	M	3	E	M
	Large fire extending far beyond the Project Site	H	4	E	H
Socio-economic Impacts					
Reduced quality of life (actual or perceived)		M	2	E	L
Reduced property values	Temporary decrease in property values	M	2	E	L
	Moderate term decrease in property values	H	2	E	L
	Long term decrease in property values	H	3	E	M
Consequence of Occurrence: 1 = Insignificant; 2 = Minor; 3 = Moderate; 4 = Major; 5 = Catastrophic Likelihood of Occurrence: A = Almost Certain; B = Likely; C = Possible; D = Unlikely; E = Rare Risk Rating: E = Extreme; H = High; M = Moderate; L = Low					

Through the implementation of the proposed controls, safeguards and mitigation measures summarised in Section 5, the risk rating for the majority of potential environmental impacts has been reduced to either a moderate or low risk rating.



In some cases, a rating is no longer provided as the relevant assessment recorded in Section 4B determined the likelihood to be so low, or consequence so insignificant, as to be virtually non-existent. This approach was generally taken when the risk rating could not be considered any lower than “high” (due to a likelihood classification as “almost certain” or consequence classification as “catastrophic”) so as not to suggest a significance that does not exist.

Further consideration is given to the potential impacts which retain a “high” risk rating as follows.

- Impact on identified sites and/or artefacts of Aboriginal cultural heritage as a result of the proposed construction and mining activities and without the permission of LALC or DEC.

The accidental disturbance to an identified Aboriginal artefact or site cannot be categorically ruled out and therefore, even though the potential likelihood is considered rare, as the potential consequence is major, a high risk rating is retained.

- Temporary disturbance to the existing landform and marginally identifiable change to the landscape.

While the potential consequence of the impact is considered insignificant, because it is considered almost certain to occur, the high risk rating applies.

- Major or severe accident resultant from road transport from the Project Site.

While every precaution has been and would be taken by the Proponent in relation to the design of traffic management and education of its workforce, the potential consequence of a major or severe accident is such that a high risk rating applies.

- Major or severe injury sustained as a consequence of spontaneous combustion related fire.

As above, while the likelihood of such an occurrence is reduced to rare through the implementation of project safeguards, the potential consequence of a major or severe accident is such that a high risk rating applies.

- Impacts on native flora and fauna as a consequence of a bushfire extending well beyond the limits of the Project Site.

While considered a potentially rare occurrence, the consequence could be major and as such a high risk rating applies despite the incorporation of project safeguards which would minimise the potential for fire on the Project Site.

The risks associated with the majority of possible environmental impacts are considered moderate or less and therefore, while these may result in impacts deemed unacceptable to some stakeholders, the development and operation of the Project, with the implementation of appropriate management plans, 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) that have been recognised for over a decade were 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 Project, the Proponent has endeavoured to address each of the sustainable development principles. The following sub-sections draw together the features of the Project that reflect the four principles of sustainable development, namely:

- the precautionary principle;
- the principle of social equity;
- the principle of the conservation of biodiversity and ecological integrity; and
- the principle for the improved valuation and pricing of environmental resources.

6.2.2.2 The Precautionary Principle

To satisfy this principle of ESD, emphasis must be placed on anticipation and prevention of environmental damage, rather than reacting to it. During the planning phase for the Project and throughout the preparation of the *Environmental Assessment*, the Proponent 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 Project, the Proponent and its consultants have adopted an anticipatory approach to impacts, particularly that of irreversible ecological damage, by undertaking an analysis of the risks posed by activities of the Project, 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 Project activities.

The implementation of the environmental safeguards, controls and mitigation measures has been formalised by the Proponent 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 Project are listed below.

Objectives of the Project

The Project has been designed with the principal objective being to develop and operate the mine in a safe and environmentally responsible manner, and which meets the requirements of local and State government agencies, accepted industry standards and wherever possible, reasonable community expectations. The Proponent recognises that only through comprehensive environmental assessment and an environmentally responsible approach to the design and operation of the proposed development can the risk of harm to the environment be minimised.



Design of Project Components

Several design aspects of the Project were modified during the planning stage in order to ensure the requirements of local and State government agencies, accepted industry standards and wherever possible, reasonable community expectations were met. These included the following.

- In-pit placement of overburden would be undertaken in preference to out-of-pit placement to restrict disturbance external to the limit of open cut mining.
- Several alternatives for the placement of overburden were considered by the Proponent. The location of the Northern and Western Emplacements were chosen as they offered the most efficient disposal option, whilst minimising the disturbance of native vegetation outside the limit of open cut mining. In particular, the Northern Emplacement was designed to avoid disturbance to a remnant patch of Brigalow community.
- The orientation of the proposed transport route between the Project Site and Hoad Lane has been designed to minimise disturbance to native vegetation. In particular, the alignment skirts the edge of Vickery State Forest, traverses a cleared paddock on the “Stratford” property (rather than remain within an existing road reserve between the “Stratford” and “Roseberry” properties which contains remnant native vegetation and two scarred trees) and meanders within the Shannon Harbour Road reserve so as to minimise the number of native trees that would be felled.
- The locations of soil stockpile areas were chosen to also provide visual screening of the Project Site from Wean Road.
- The final landform was designed to provide for the re-establishment of land suitable for agriculture whilst integrating the conservation of significant areas of native vegetation and the establishment of habitat/vegetation linkages between currently isolated pockets of native vegetation and Vickery State Forest.

Integration of Safeguards and Procedures

The framework for ongoing environmental management, operational performance and rehabilitation of the Project Site would be provided through the project approval and be managed in accordance with the DPI (MR) Mining, Rehabilitation and Environmental Management Process, both of which would involve the input from relevant State and local government agencies. The Mining Operations Plan, which would contain a range of site specific environmental procedures to achieve consistency with specified outcomes and to control identified risks, would be updated periodically, while the Annual Environmental Management Report which would report on the progress of the operation and provide an opportunity to review the effectiveness of the environmental management strategies adopted. In addition:

- all on-site procedures would be regularly reviewed, particularly in light of monitoring results;



- surface water, groundwater, noise, deposited dust levels, airblast overpressure and ground vibration would be monitored at locations potentially most affected by the Project in order to ensure the continued compliance of the operation with goals outlined in this document;
- the principles outlined in the surface water management plan would be adopted to minimise any impact on water quality or quantity exiting the Project Site. Wherever possible, areas not required for mining or associated activities would remain grassed to assist in minimising erosion and reducing the suspended sediment load in surface water flowing through the Project Site; and
- topsoil and subsoil would be stripped, stockpiled and re-spread on the basis of the quality of the soil (as indicated by the soil mapping unit), and planned final land use of different areas of the final landform.

Rehabilitation and Subsequent Land Use

Long term adverse impacts on the local environment would be avoided through the design and rehabilitation of a landform suitable for the establishment / maintenance of significant areas of native vegetation and the linking of isolated pockets of native vegetation with Vickery State Forest.

Conclusion

The precautionary principle has been considered during all stages of the design and assessment of the proposed Belmont Coal Project. The approach adopted, ie. initial assessment, consultation, specialist investigations and safeguard design, provides a high degree of certainty that the Project would not result in any major unforeseen impacts.

6.2.2.3 Social Equity

Social 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. Social equity includes 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 Project.

Both elements of social equity are addressed through the design of the Project 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 Project Objectives

The Project has been designed with the objective of providing significant employment opportunities to residents of the Gunnedah (and to a lesser extent Narrabri) Shire. This objective would require a commitment to employee training.

Consideration has also been given to the ability of the Gunnedah Shire to accommodate a Project of the scale proposed. Consultation with local community stakeholders completed for a similar mining project in 2005, aimed at ensuring adequate facilities and services would be available to the Project and project employees, was reviewed.

The Project has been designed with the objective to ensure the continued viability of surrounding land uses throughout and beyond the life of the mine.

Design of Project Components

The Project has been designed to maintain inter-generational equity, ie. in recognition that mining is a relatively short-term land use, and to ensure components of the existing biological, social and economic environment available to existing generations would also be available to future generations.

- The proposed limit of open cut mining and out-of-pit overburden emplacements have been designed to ensure that disturbance to the threatened vegetation communities and sensitive fauna habitats would be minimised.
- The proposed limit of open cut mining, out-of-pit overburden emplacements and transport route have been designed to ensure that disturbance to Aboriginal heritage sites would be restricted to three of the seven sites identified.
- The availability of groundwater to surrounding landholders, although not predicted to be noticeably affected by the Project, would be monitored throughout the life of the mine and compensatory measures taken should a short-term reduction in the availability of groundwater to local landholders occur.
- The rehabilitation of the Project Site has been designed to integrate the re-establishment of agricultural land with the conservation of native vegetation and improving links between isolated pockets of native vegetation with Vickery State Forest.

Integration of Safeguards and Procedures

The Proponent recognises that all members of the local Gunnedah community should benefit appropriately from the Project either directly or indirectly. In order to ensure a realistic distribution of benefits, the Proponent would continue to consult with the local community and maintain a pro-active approach to issues of interest. This dialogue would also include a system to record, manage and respond to any complaints relating to the operation.

Rehabilitation and Subsequent Land Use

The final landform would be constructed and rehabilitated in a manner that would generally retain a reasonable proportion of land with an agricultural capability similar to that prior to mining, thereby providing the basis for continuing economic activity within the local community.



Conclusion

The principle of social equity has been addressed throughout the design of the Project. The Belmont Coal Project would contribute significantly to the economic activity of Gunnedah and surrounding communities through the generation of employment and increased demand for local goods and services and flow-on effect. As such, the benefits of the Project would be distributed throughout the wider community. The Project was also designed such that elements of the existing environment available to this generation, including agricultural land, water and local biodiversity would continue to be available to future generations. The Proponent would adopt a pro-active approach in identifying and addressing any concerns identified by the local community.

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 Project has been designed to achieve compliance with these principles are set out below.

Identification of Project Objectives

The Proponent 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 Project has been designed to incorporate measures that would:

- minimise impacts on the flora and fauna of the Project Site, whilst allowing the extraction of an economically viable resource;
- through progressive rehabilitation, ultimately result in improvements in the extent and viability of vegetation habitat available; and
- implementation of a biodiversity offset strategy which encourages the re-establishment of native vegetation and development of linkages between isolated pockets of native vegetation with Vickery State Forest. The offset strategy also provides for the long-term security of remnant native vegetation on the “Yarrowonga” property adjacent to Vickery State Forest.

Design of Project Components

The Proponent, on advice from the specialist consultancy’s commissioned to assess the impact of the Project, has provided for the conservation of biological diversity and ecological integrity through the following design elements.

- Water management structures have been designed and would be constructed to ensure that only water within DECC specified criteria leaves the Project Site and enters the Namoi River catchment.
- The placement of overburden has been designed to avoid disturbance to areas of threatened native vegetation and sensitive fauna habitat.



- The construction of internal roads and the transport route would minimise disturbance to native vegetation.
- Progressive rehabilitation of the Project Site would include the creation and enhancement of habitat corridors between Vickery State Forest and other isolated remnants of native vegetation.

Integration of Safeguards and Procedures

The Proponent would implement the following Safeguards and Procedures to maximise the conservation of biological diversity and ecological integrity on and surrounding the Project Site.

- Pre-clearing surveys of native tree species would be undertaken and any threatened species encountered would be relocated prior to clearing.
- Cleared vegetation <300mm in diameter or containing hollows would be retained and used in the rehabilitation of areas designated for native vegetation re-establishment.
- Post-mining rehabilitation of the Project Site would include the establishment of native vegetation.
- Weed eradication programs would be developed and implemented, as required.

Rehabilitation and Subsequent Land Use

The final landform has been designed to provide for some agricultural activity but with an emphasis upon the re-establishment of native vegetation, fauna habitat and habitat corridors. The areas designated for native vegetation re-establishment have been selected to enable the development of linkages between isolated pockets of native vegetation and hence increase the conductivity and connectivity of wildlife corridors for native fauna.

Conclusion

The Project would address the principle of conservation of biological diversity and ecological integrity through the minimisation of disturbance to areas of native vegetation, and re-establishment of greater areas of native vegetation than are disturbed. Should threatened species be identified within those areas of the Project Site to be disturbed, these would be relocated or managed appropriately in consultation with DECC or a suitably qualified professional. Weed eradication programs would be implemented as appropriate and 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 principle based upon the full life cycle of the costs. A reflection of these issues on the proposed Belmont Coal Project is set out below.



Identification of Project Objectives

The Proponent's principal objective is to operate the Project 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 Project 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 coal to be mined, is evidence of the value placed by the Proponent on these resources.

The Proponent's commitment to improving the local road network used by trucks transporting coal and continuing to contribute to funding of road maintenance also reflects the Proponent's commitment to this principle.

Rehabilitation and Subsequent Land Use

The design of the final landform to integrate ongoing agricultural activities with the re-establishment of native vegetation illustrates the value placed by the Proponent on both the agricultural and ecological elements of the Project Site.

Conclusion

The value placed by the Proponent on environmental resources is evident in the identification of project 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 Project Site. It is planned that the income received from the sale of the coal would be sufficient to enable the Proponent to achieve an acceptable profit level whilst undertaking all environmentally-related tasks and meeting all commitments in all consents, leases, licences and approvals and those made to the local community.

6.2.2.6 Conclusion

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



6.3 JUSTIFICATION OF THE PROJECT

6.3.1 Introduction

In assessing whether the development and operation of the Project is justified, consideration has been given both to the predicted residual impacts on the local and wider environment and the potential benefits the Project would have for the Proponent, Gunnedah and Gunnedah Shire, NSW and Australia. When considering the predicted residual impacts, a review of the proposed controls, safeguards and mitigation measures of the Proponent 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 Project not proceeding.

6.3.2 Biophysical Considerations

Sections 4B.1 to 4B.13 present the range of residual impacts on the biophysical environment predicted should the Project proceed, ie. after the adoption of a number of design and operational procedures, mitigation measures and/or offset strategies. The Project would have a range of impacts on the biophysical environment with those considered of greatest significance, and the proposed management of these, summarised as follows.

Topography

The local topography would be modified through the construction of two out-of-pit overburden emplacements covering approximately 81.4ha and the creation of a final mine void covering approximately 20ha. The level of impact on local topography, which would influence impacts on visual amenity, drainage and land use, has been minimised through design of the two overburden emplacements to blend into the surrounding topography.

Water Resources

A proportion of the surface water currently flowing through the Project Site would be retained on site for use in dust suppression. The “clean” water component captured would be within the maximum dam capacity for the Project Site, with additional clean water diverted to natural watercourses. Sediment-laden or “dirty” water originating from disturbed areas would be collected and preferentially used for dust suppression. Any excess dirty water would be retained to allow sufficient time for suspended solids to settle out and enable it to be discharged within DECC criteria. To minimise the flow of water over disturbed sections of the Project Site, a 67ha area of the southern Project Site catchment would be captured and diverted to the Driggle Draggie Creek catchment for the life of the Project. This represents approximately 7% of the southern catchment and the overall impact is considered minimal.

Several ephemeral watercourses would be traversed by the site access road and transport route. Concrete or pipe causeways would be constructed at these crossings to ensure the natural surface water flows through these watercourses are not impeded and scouring is avoided.



During the life of the Project, the groundwater level surrounding the proposed limit of open cut mining would be reduced by up to 15m at the edge of the Project Site but reducing to less than 2m at the location of all non Project-related residences. No non Project-related registered groundwater bore would have the available saturated thickness reduced by more than 10%. This is within what is considered seasonal variation and therefore unlikely to significantly impact on the availability of the water source.

Soils and Land Capability

Impacts on the soils of the Project Site would be temporary and manageable given the procedures intended to stockpile and revegetate all soils.

Approximately 121ha of Class III capability land would be temporarily removed during the development and operation of the Project. Rehabilitation of the Project Site would attempt to re-establish a similar area of this higher class land in the final landform.

Flora and Fauna

The Project would result in 36.3ha of native vegetation being removed on the Project Site and the felling of 19 native trees, the bulk of which are smaller or saplings, along the alignment of the proposed transport route. This vegetation provides important habitat for native fauna.

To mitigate these impact, the Proponent has committed to a progressive rehabilitation program to re-establish 84ha of native vegetation on the Project Site. To further offset any impacts:

- habitat corridors between the Vickery State Forest and remnant patches of native vegetation would be enhanced or established along the northern and southern Project Site boundaries and within the corridors of the proposed transport route and the relocated Wean Road and Jaeger Lane;
- a 42.3ha area of the Project Site on the “Glenroc” property would be excluded from agricultural activity and native woodland allowed to regenerate; and
- a 80ha area of undisturbed native vegetation on the “Yarrowonga” property would be allocated as an offset to disturbance of the Belmont Coal Project.

Aboriginal Heritage

A total of seven Aboriginal heritage sites were identified on the Project Site and within the proposed transport route corridor. The layouts of both the Project Site and transport route considered the location of these allowing for disturbance to four of the sites to be avoided. Disturbance to three sites would be unavoidable. The artefacts contained at these two open scatter sites would be salvaged and transferred to the Cumbo Gunerah Keeping Place. The retained sites would be fenced and marked on mine plans as a “culturally sensitive area”.

Noise

The Project would generate noise levels over and above those currently experienced throughout the existing environment. These noise levels, assuming the implementation of the operational commitments identified in Section 5, would remain within the DECC nominated criteria for all operational activities.



Blasting

No exceedances of airblast overpressure or ground vibration criteria were predicted at the surrounding residences. Notwithstanding this prediction, a notification and monitoring program would be implemented by the Proponent.

Air Quality

Air pollutant levels are predicted to be below DECC criteria for deposited dust, PM₁₀ and PM_{2.5} at all non-project related residences, ie. assuming the adoption of a range of standard dust control measures. Similarly, SO₂ and NO₂ emissions would satisfy DECC and Heritage, WHO and NEPC criteria and greenhouse gas emissions would only lead to a minor increase in Australia-wide and International emissions.

Visibility

Predominantly distant, broken views of sections of the proposed Belmont Coal Project and transport route would be possible from several surrounding residences. Progressive rehabilitation of the Northern and Western Emplacements would reduce the visual impact of the most exposed areas of the mining operation with strategically placed soil stockpiles screening the majority of other mining-related activities.

Transportation

The Project would require the construction of a section of road between the southwestern corner of the Project Site and Hoad Lane, largely within the reserve of Shannon Harbour Road. This road would be signposted as a “No Through Road” to restrict use to mine and local property related traffic. The Project would also result in minor disruption to local traffic whilst sections of Wean Road and Jaeger Lane are realigned around the Project Site. As these roads are very lightly trafficked, the impact would be relatively minor, however, all endeavours would be made to minimise any delays or inconveniences.

Traffic could potentially increase on the sections of Hoad Lane and Blue Vale Road that form part of the transport route, although traffic generated by the Project would more than likely replace traffic that is currently being generated by the Whitehaven Coal Mine (scheduled to cease production in 2008). Based on current traffic levels, the number of truck movements along these sections of road could increase by up to 196 per day and 6 per hour. The Project would also result in the commencement of 24 hour coal transport, which should ensure that any increases in hourly truck movements is reduced through the spreading of total daily movement over 24 hours, not 15 hours as currently. All project related truck drivers would be required to adhere to a strict code of conduct and abide by a number of operational safeguards and management controls to minimise impacts on other users of these local roads.

The predicted noise levels generated by the proposed traffic levels would meet DECC nominated road noise criteria at all residences adjacent to the proposed transport route.



Conclusion

When considering the implementation of the controls, safeguards and mitigation measures proposed by the Proponent and summarised in Section 4B, the level of impact on the biophysical environment is relatively minor. The relatively minor impact is further emphasised when compared to operating coal mines elsewhere which require disturbance to larger areas of native vegetation, are in closer proximity to local communities and require widespread disturbance to items of Aboriginal or European heritage significance.

6.3.3 Socio-economic Considerations

The impacts of the Project on the socio-economic environment would be largely positive given the employment and training opportunities provided, the Proponent's commitment to employing local residents, the consolidation of the mining industry within the Gunnedah Shire and the flow-on effects to subsidiary and associated industries and businesses of the Project.

Once operational, the Project would provide full-time employment for 56 people (including truck drivers and additional Whitehaven CHPP staff) for the 7 to 10 year life of the mine. It is estimated that direct and indirect employment associated with the Belmont Coal Project could contribute to a combined increase in population within Gunnedah of up to 13 persons. Although modest, any increase would also stimulate employment in ancillary businesses, as well as those benefiting from the increased economic activities within the towns.

Following the grant of a mining lease for the Project, annual rates paid to Gunnedah Shire Council would increase funds available for a wide range of community services paid by general rates.

Based on a review of previous socio-economic studies completed in the region for similar coal mining projects, it is assessed that Gunnedah Shire has sufficient existing facilities and services to cater for any possible population growth. In any event, the Proponent through its associated companies, has proven itself to be a significant contributor to the communities in which it has operated other mines, eg. Gunnedah, Boggabri and Werris Creek.

The Project would also have significant economic benefits to Gunnedah, NSW and Australia. Based on existing contributions from the Whitehaven Coal Mine, and assumptions over employment multiplier effects and income levels, it is estimated that the Belmont Coal Project would provide the following economic contributions.

- \$27 250 000 would be injected into the local / regional economy each year through the payment of wages, payments to local contractors and expenditure on other goods and services.
- An estimated \$200 000pa would continue to be spent on local community and charitable projects.
- \$26 100 000 would be contributed through expenditure on other contract companies and goods and services from beyond the local area.
- The NSW and Commonwealth governments would receive an estimated \$5 140 000pa through the payment of income tax, payroll tax and royalties on the coal.



6.3.4 Planning Considerations

This section reviews the compliance of the Project with local, regional and State planning instruments. It is noted that whilst the relevance of these instruments may change in the future, the following represents the application of these in their current form to the Project as described in Section 2.

Gunnedah Local Environmental Plans 1998

The proposed activities would be undertaken within land zoned 1(b) Rural (General) Zone with mining permissible within this zone with development consent.

Orana Regional Environmental Plan (REP) No 1 – Siding Spring

While the Project Site is approximately 130km from Siding Spring and lies within 200km of the Observatory, no consultation or concurrence is required with the Observatory Director as, under Section 8 of the REP, consultation or concurrence is only required for locations within 100km of the observatory.

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

The SEPP specifies matters requiring consideration in the assessment of any mining, petroleum production and extractive industry development, as defined in NSW legislation. **Table 6.2** presents a summary of each element requiring consideration and a reference to the section in the Environmental Assessment where this is addressed.

Table 6.2
Application of SEPP (Mining, Petroleum Production and Extractive Industries) 2007

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Relevant SEPP Clause	Description	EA Section
12: Compatibility with other land uses	Consideration is given to: - the existing uses and approved uses of land in the vicinity of the development; - the potential impact on the preferred land uses (as considered by the consent authority) in the vicinity of the development; and - any ways in which the development may be incompatible with any of those existing, approved or preferred land uses. The respective public benefits of the development and the existing, approved or preferred land uses are evaluated and compared. Measures proposed to avoid or minimise any incompatibility are considered.	4A.3.3 4B.9.3, 4B.2.2.5, 4B.2.3.4 4B11.6 6.2 Throughout Section 4B
13: Compatibility with mining, petroleum production or extractive industry	Consideration is given to whether the development is likely to have a significant impact on current or future mining, petroleum production or extractive industry and ways in which the development may be incompatible. Measures taken by the applicant to avoid or minimise any incompatibility are considered. The public benefits of the development and any existing or approved mining, petroleum production or extractive industry must be evaluated and compared.	2.3 2.3 6.2



Table 6.1 (Cont'd)
Application of SEPP (Mining, Petroleum Production and Extractive Industries) 2007

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Relevant SEPP Clause	Description	EIS Section
14: Natural resource and environmental management	Consideration is given to ensuring that the development is undertaken in an environmentally responsible manner, including conditions to ensure: - impacts on significant water resources, including surface and groundwater resources, are avoided or minimised; - impacts on threatened species and biodiversity are avoided or minimised; and - greenhouse gas emissions are minimised and an assessment of the greenhouse gas emissions (including downstream emissions) of the development is provided.	4B.1, 4B.7 4B.2 4B.10
15: Resource recovery	The efficiency of resource recovery, including the reuse or recycling of material and minimisation of the creation of waste, is considered.	2.5, 2.6
16: Transportation	The following transport related issued are considered. - The transport of some or all of the materials from the site by means other than public road. - Limitation of the number of truck movements that occur on roads within residential areas or roads near to schools. - The preparation of a code of conduct for the transport of materials on public roads.	4B.4 4B.4 4B.4
17: Rehabilitation	The rehabilitation of the land affected by the development is considered including: - the preparation of a plan that identifies the proposed end use and landform of the land once rehabilitated; - the appropriate management of development generated waste; - remediation of any soil contaminated by the development; and - the steps to be taken to ensure that the state of the land does not jeopardize public safety, while being rehabilitated or at the completion of rehabilitation.	2.14.3, 2.14.4 2.7 4B.9.2.5 2.14.5

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

Based on the risk screening method of DUAP (1997), neither the storage nor transport of the hazardous materials to be stored on the Project Site would result in the Project being considered a hazardous, offensive or potentially hazardous under SEPP 33 (see **Appendix 3**).

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

SEPP 44 has been addressed by the fauna consultant to the Project (Countrywide Ecological Service, 2007 - see *Specialist Consultant Studies Compendium* - Part 3). The Project Site does not represent core or potential Koala habitat (see Section 4B.2.2.3.5).



6.3.5 Consequences of not Proceeding with the Project

The consequences of not proceeding with the Project include the following.

- (i) The recoverable coal would not be mined by the Proponent. Such an outcome would be contrary to the DPI (MR) and the Proponent's objective to maximise resource utilisation.
- (ii) The opportunity to create up to 56 full-time jobs would be foregone.
- (iii) The disposable wages for the full-time and part-time workforce would be foregone, a substantial proportion of which would be spent in the Gunnedah Shire.
- (iv) The opportunity to consolidate a growing industry (mining) within Gunnedah Shire would be foregone along with the training opportunities proposed by the Proponent. This loss of training opportunities would also reduce the ability of the local communities to retain younger people who are generally leaving to pursue greater opportunities elsewhere.
- (v) Foregoing PAYE taxes for the 7 to 10 year life of the Project.
- (vi) Foregoing coal royalties and payments to State authorities as well as export earnings which would help offset, at least in part, Australia's foreign debt.
- (vii) The minor impacts on the local biophysical environment would not eventuate.

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

6.4 CONCLUSION

The Belmont Coal Project has, to the extent feasible, been designed to address the issues of concern to the community and all levels of government. The Project provides for the mining, production, sale and despatch of a high quality coal product which would be significant in generating employment opportunities and boosting the local Gunnedah economy. The post-mining landform would integrate the re-establishment of agricultural land with areas designated for the conservation and extension of native vegetation and fauna habitat.

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

- (i) contribute towards satisfying the demand for export quality coal;
- (ii) reduce risk levels associated with possible incidents and impacts on the environment to an acceptable level;
- (iii) have a minimal and manageable impact on the biophysical environment;
- (iv) satisfy sustainable development principles;
- (v) provide for continuing and future use of the Project Site for agriculture;



- (vi) provide significant training and employment opportunities for residents of Gunnedah and surrounding communities;
- (vii) contribute to the continued growth in economic activity in the Gunnedah Shire;
and
- (viii) address the perceived social impacts.



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