Section 6

Evaluation and Justification of the Project

PREAMBLE

This section concludes the assessment of the Project. The key assessment requirements (identified by the Director-General s Requirement's) and other issues identified as having medium, high or extreme 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.

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 Cudgen Lakes Sand Extraction Project is evaluated and justified through consideration of its potential impacts on the environment and potential benefits to the local and wider community.

The project evaluation has been undertaken by firstly reassessing of the risks posed to the environment by Project activities, assuming the implementation of the controls, safeguards and mitigation measures 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 of Section 4 has determined that the impact would not occur.

Table 6.1
Analysis of Environmental Risk

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Potential Environmental Impacts (see Table 3.6)	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 hydrocarbon	Contamination requiring minor recovery works.	L	2	E	L
	Contamination requiring major recovery works.	M	3	E	M
Drawdown of groundwater levels	Drawdown resulting in reduction of bore yields of <15%.	H	1	B	M
	Drawdown resulting in reduction of bore yields of >15%.	H	2	C	M
	Drawdown resulting in acidification of limited amounts of PASS.	H	1	C	L
	Drawdown resulting in acidification of significant amounts of PASS.	H	2	D	L

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

Table 6.1 (Cont'd)
Analysis of Environmental Risk

Potential Environmental Impacts (see Table 3.6)	Level / Scale of Impact (if applicable)	Unmitigated Risk Rating	Consequence of Occurrence if Mitigated	Likelihood of Occurrence if Mitigated	Residual Risk Rating
Groundwater					
Impacts on Groundwater Dependent Ecosystems	Drawdown external to Project Site within natural fluctuation levels.	H	1	B	M
	Drawdown external to Project Site beyond natural fluctuation levels.	H	1	B	M
Air Quality					
Nuisance - deposited dust	Deposited dust levels attributable to the Project occasionally (for one or two months every year) above DEC guideline, affects only adjacent landholders.	H	2	D	L
	Deposited dust levels attributable to the Project regularly (exceedances greater than DEC guideline for >5 months per year) affects landholders some distance from the Project Site.	H	3	E	M
Health - PM_{10}	PM_{10} levels attributable to the Project occasionally (once every 1 to 2 years) above the Project goal, affects only adjacent landholders.	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.	M	3	E	M
Greenhouse Gas Emissions.		M	1	B	M
Erosion and Sedimentation					
Soil erosion	Minor erosion within Project Site.	M	1	C	L
	Minor erosion external to the Project Site.	L	2	D	L
	Major erosion external to the Project Site.	M	3	E	M
Sediment Load and Turbidity	One-off discharge of dirty water from the Project Site.	M	2	D	L
	Regular discharge of dirty water from the Project Site.	M	2	E	L
Flooding and Drainage					
Flood levels and land inundation	Increased flood levels at surrounding residences (above background levels).	H	4	-	
Threatened Flora and Fauna (Terrestrial and Aquatic)					
Loss of, or alteration to, existing habitats	Disturbance to native vegetation / habitat within nominated areas.	H	-	A	
	Disturbance to native vegetation / habitat outside nominated areas.	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 Environmental Risk

Potential Environmental Impacts (see Table 3.6)	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 (terrestrial and aquatic) (Cont'd)					
Direct adverse impact on Threatened species.	Disturbance to Threatened flora / fauna and endangered communities.	H	2	E	L
	Disturbance leading to local population reduction.	H	4	-	
	Disturbance leading to local extinction(s).	E	5	-	
Reduced biodiversity	Local biodiversity.	M	3	-	
	Regional biodiversity.	H	4	-	
Noise					
Increased noise levels associated with Project related road traffic activities causing annoyance, distractions, ie. amenity impacts.	Occasional minor exceedance of noise criteria (1-2dB(A)).	M	2	D	L
	Regular minor exceedance of noise criteria (1-2dB(A)).	M	3	E	M
	Occasional marginal exceedance of noise criteria (3-5dB(A)).	M	2	D	L
	Regular marginal exceedance of noise criteria (3-5dB(A)).	M	3	E	M
	Occasional major exceedance of noise criteria (>5dB(A)).	M	2	D	L
	Regular major exceedance of noise criteria (>5dB(A)).	M	3	E	M
Maximum noise levels resulting in sleep disturbance.		M	2	D	L
Acid Sulfate Soils and Sediments					
Soil stripping and extraction leading to exposure of PASS.	Temporary exposure of small areas (<4ha) of PASS.	H	-	A	
	Extended exposure of small areas (<4ha) of PASS.	M	2	D	L
	Temporary exposure of small areas (>4ha) of PASS.	L	1	D	L
	Extended exposure of small areas (>4ha) of PASS.	H	3	E	M
Agricultural Land					
Loss of agricultural land.	Temporary loss of agricultural land.	H	-	A	
	Permanent loss of agricultural land.	H	-	A	
Traffic and Transport					
Increased traffic congestion.		H	2	D	L
Road pavement deterioration.		H	3	D	M

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

Table 6.1 (Cont'd)
Analysis of Environmental Risk

Potential Environmental Impacts (see Table 3.6)	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					
Elevated risk of accident/ incident on local roads	Minor accident - no injury.	M	2	D	L
	Minor accident - minor injury.	M	3	D	M
	Major accident -moderate injuries requiring hospitalisation.	H	4	E	H
	Severe accident - severe injuries or death injury.	H	5	E	H
Aboriginal Heritage					
Impact on unidentified sites and/or artefacts of Aboriginal cultural heritage as a result of soil stripping and extraction activities.		M	3	E	M
Visual Amenity					
Reduced Visual Amenity	Temporary (<2 years) views of disturbed areas.	H	1	A	H
	Medium-term (>2, <15 years) views of disturbed areas.	H	1	B	M
	Long-term (>15 years) views of disturbed areas.	L	1	D	L
Land Contamination					
Transfer of contaminated material	Small area affected (<0.1ha).	L	1	E	L
	Large area affected (>0.1ha).	M	2	E	L
Socio-Economic Impacts and Property Values					
Improved economic activity and related social impacts attributable to reduced unemployment .		n/a	n/a	n/a	n/a
Reduced quality of life (actual or perceived).		M	3	E	M
Reduced property values	Temporary (<2 years) decrease in property values.	M	3	D	M
	Moderate term (>2, <15 years) decrease in property values.	M	2	D	L
	Long term (>15 years) 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 outlined in Section 4 and summarised in Section 5, the **mitigated** 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 of Section 4 determined the likelihood to be so low, or consequence so insignificant, as to be non-existent. This approach was taken generally 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.

- Major or severe accident resulting in moderate or severe injuries or death.

  Every precaution would be taken by the Proponent in relation to the design of traffic management and education of its workforce and the likelihood of a major or severe accident involving Project-related traffic has been considered rare. However, it is considered that the likelihood cannot be reduced to non-existent. Therefore, even though it is highly unlikely that an accident would occur, as the consequence of a major or severe accident is considered major or catastrophic, the overall risk rating has been retained as high.

- Temporary (<2 years) views of disturbed areas.

  It is certain that there will be views of 'disturbed' areas for short periods of time. With the proposed mitigation measures, and in the context of adjoining land uses, both the consequence and duration of these views would be extremely limited. Despite this, as the perceived impact on visual amenity would vary between different people, the significance of such impacts, although considered insignificant, was not considered non-existent. Therefore, though the consequence of occurrence is insignificant, as the likelihood is considered almost certain, a high risk rating is retained.

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 well 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 as identified during the 1992 *Inter-governmental Agreement on the Environment* and defined in Section 6(2) of the *Protection of the Environment Administration Act 1991*.

The following sub-sections draw together the features of the Project that reflect the four principles of sustainable development, namely:

- the precautionary principle

  "If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:

  (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and

  (ii) an assessment of the risk-weighted consequences of various options"

- the principle of social equity

  "The present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations."

- the principle of the conservation of biodiversity and ecological integrity

  "Conservation of biological diversity and ecological integrity should be a fundamental consideration"

- the principle for the improved valuation and pricing of environmental resources.

  "Environmental factors should be included in the valuation of assets and services, such as:

  (i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

  (ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

  (iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems."

6.2.2.2 The Precautionary Principle

In order 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.

A summary of how the precautionary principle has been considered throughout the preparation of the Environmental Assessment is outlined as follows.

Objectives of the Project

The Project has been designed with the principal objective of developing and operating the proposed development 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

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

- Several alternatives for the placement of processing area were considered by the Proponent. The final location of the processing area was chosen as it was considered that it would result in the least noise, air quality and visual amenity impacts upon surrounding receptors and would reduce potential for resource sterilisation (see Section 2.15.3).
- Final batters of the southern extraction pond have been proposed at 1:5 (V:H) to provide long term stability of the final lake edges.
- Alternative pipeline corridors have been considered to allow flexibility and hence achieve the best environmental, social and economic outcome.

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 an integrated environmental management plan for the site. This plan would incorporate the following elements.

- The site would be managed and monitoring undertaken in accordance with the commitments listed in Section 5.
- A range of site-specific environmental procedures would be adopted to achieve consistency with specified outcomes and to avoid environmental harm.
- All on-site procedures would be regularly reviewed, particularly in light of the results of monitoring and any feedback through ongoing community consultation.

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 wetlands and parkland areas utilising native vegetation. In fact, the Project Site in its current state provides limited ecological value with the proposed rehabilitation likely to improve its long term ecological value. The final land use would also provide for various recreational uses and meet community needs for open space.

Conclusion

The precautionary principle has been considered during all stages of the design and assessment of the Project. The approach adopted, ie. consultation, specialist investigations and safeguarded 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 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 Project are outlined as follows.

Identification of Project Objectives

The primary objective of the Project is to provide the necessary fill sand to implement the Proponent's Structure Plan. The implementation of the Structure Plan would allow the construction of a range of community facilities including a District Town Centre and residential areas providing significant employment during construction and ongoing employment. The implementation of the Structure Plan would result in a range of economic and social benefits to the local and wider community both now and in the future.

The Project has also been designed with the following objectives.

- Provision of high quality materials to the construction industry to meet identified market demands.
- Provision of local employment and economic benefits to the community throughout the life of the Project including approximately $300 000 per year in wages relating to direct on-site employment.
- Progressive rehabilitation so as to provide a final landform and use which meets the ongoing community need for open space and recreational facilities.

Design of Project Components

The Project has been designed to maintain inter-generational equity, ie. in recognition that extraction 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. Particular design components include the following.

- The availability of groundwater to surrounding landholders 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.
- Progressive rehabilitation to provide a final landform suitable for nature conservation and recreational use.

Integration of Safeguards and Procedures

The Proponent recognises that all members of the Kingscliff / Chinderah /Cudgen community should benefit 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 and land use would provide for nature conservation and improved ecological values within the area together with open space and recreational facilities. This land use would continue to provide social benefits within the local community over the long term.

Conclusion

The principle of social equity has been addressed throughout the design of the Project. The Project would contribute significantly to the economic activity of Kingscliff / Chinderah / Cudgen area and the wider region through:

- the generation of employment throughout the Project life and ongoing employment through the implementation of the Proponent's Structure Plan;
- provision of required construction materials to meet the demands of the local and regional construction industry; and
- provision of areas of long-term ecological and recreational value.

The Proponent would also 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 as follows.

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; and
- through progressive rehabilitation, ultimately result in improvements in the ecological value of the Project Site.

Design of Project Components

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

- Minimisation of native vegetation clearing through strategic placement of pipelines.
- Appropriate design and management of the relocation of the western drainage channel running through the Project Site.
- Use of water management structures (ie. bunding surrounding the extraction sites) to reduce the potential for 'dirty water' discharge into surrounding drainage networks.

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.

- Clearly defining vegetation to be retained prior to commencement of site establishment and construction.
- Control of noxious weeds within the Project Site.
- Management of water quality within the extraction ponds and development of a Blue-Green Algae management plan.
- Progressive rehabilitation of the Project Site using native vegetation and creation of wetlands within the final lake.
- 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.

Rehabilitation and Subsequent Land Use

The final landform has been designed to provide for fringing wetlands and parkland utilising native vegetation. As discussed, it is considered that the Project would in fact increase the ecological value of the Project Site.

Conclusion

The Project would address the principle of conservation of biological diversity and ecological integrity through the implementation of the design and safeguard measures and establishment of wetlands and native vegetation improving the ecological value of the Project Site.

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 Project is set out below.

Identification of Project Objectives

It is the Proponent's objective 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 and mitigation measures to prevent irreversible damage to environmental resources, other than the sand to be extracted, is evidence of the value placed by the Proponent on these resources.

The Proponent's commitment to realigning and upgrading Altona Drive and its intersection with Crescent Street also reflects the Proponent's commitment to this principle in that works external to the Project Site required to allow the safe and responsible conduct of the Project would be undertaken by the Proponent.

Rehabilitation and Subsequent Land Use

The design of the final landform to integrate ongoing recreational activities with the nature conservation illustrates the value placed by the Proponent on both the social 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 sand and receipt of VENM 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.

6.2.3 Conclusion

The approach taken in planning the Project has been multi-disciplinary, involved consultation with potentially affected local residents, community groups 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 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 biophysical and socio-economic factors including the predicted residual impacts on the environment and the potential benefits of the Project. This section also considers the consequences of the Project not proceeding.

6.3.2 Biophysical Considerations

Table 6.1 presents 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.

Landform

The Project would result in the modification of the landform within the Project Site through the creation of a 37ha lake. With the proposed progressive rehabilitation including creation of wetlands and native parklands it is considered that the Project would result in the creation of a visually attractive and ecologically and socially valuable landform.

Water Resources

Throughout the life of the Project the groundwater levels surrounding the Project Site, particularly to the south, are likely to be reduced. It is possible that some landholders may experience decreases in yields from groundwater bores and spears. In the event that the Project results in the reduction of groundwater quality or quantity, the Proponent has committed to providing a replacement source of water or other form of compensation.

It is important to note that any groundwater drawdown resulting from the Project would return to normal levels within 1 year following cessation of extraction activities.

Acid Sulfate Soils and Sediments

The Project would result in the exposure of Potentially Acid Sulfate Soil and Sediments. It has been assessed that the soil and sediments generally contain sufficient buffering capacity so as to neutralise any acid generation. However, a range of safeguards and mitigation measures have also been proposed to ensure the excess acidification does not result in any significant impacts upon surface or groundwater. Additionally, a monitoring program has been outlined in order to verify that the proposed safeguards and mitigation measures are effective.

Noise

The Project would generate noise above current ambient noise levels. However, it has been assessed that the Project would not result in noise levels above criteria nominated by DECC at any surrounding residences or sensitive receptors during site establishment or operational activities.

Air Quality

With the adoption of the proposed design, safeguard and mitigation measures, air pollutant levels are predicted to be below DECC criteria for deposited dust, TSP and PM_{10} at all surrounding residences and sensitive receivers.

Transportation

The Project would require the upgrade of the Altona Drive / Crescent Street intersection and eventual realignment and upgrade of Altona Drive. A range of safeguard and mitigation measures have also been proposed to reduce potential impacts upon the local road network and road users.

Based on predicted traffic levels throughout the life of the Project, it is assessed that the Project would not significantly affect the performance of surrounding key intersections. However, several improvements to the local road network were identified as being required regardless of whether or not the Project proceeds.

Visibility

It is considered that the processing area would be the primary area of visual intrusion and that broken views would be available whilst the vegetation screens are being established.

It is noted that most views of the Project Site would be against the setting of the new Kingscliff WWTP, Hanson Tweed Sand Quarry and Australian Bay Lobster Farm. It is therefore assessed that the nature and scale of buildings associated with the sand extraction operation would be consistent with the scale and character of development in the immediate vicinity of the site.

As the Project progresses and following completion of rehabilitation activities, it is considered that the visual character of the landscape would in fact improve with the addition of the final lake and fringing wetlands and parklands.

Conclusion

When considering the implementation of the controls, safeguards and mitigation measures proposed by the Proponent and outlined in Section 4, the level of impact on the biophysical environment is relatively minor.

6.3.3 Socio-economic Considerations

The impacts of the Project on the socio-economic environment would be largely positive given:

- the provision of direct employment throughout the life of the Project;
- the provision of fill sand allowing the implementation of the Proponents Structure Plan and the associated ongoing employment and social benefits;
- the provision of construction material meeting the strong market demand from the construction industry; and
- progressive rehabilitation resulting in the provision of required open space and recreational facilities.

As discussed in Sections 2.12 and 4.11.4, once operational, the Project would provide direct full-time employment for between 5 and 8 people on site resulting in salaries in the order of $300 000 per year (plus ongoing expenditures for fuel etc) together with employment for approximately 14 truck drivers.

A range of ongoing employment benefits for approximately 3 390 people and capital expenditures of $2 072 million (including multipliers) would also result from the implementation of the Proponent's Structure Plan (see Section 4.11.4).

In addition to this, the facility would provide a required VENM(b) receival facility which is currently not available within the region.

Compared to the historic utilisation of the Project Site, it is assessed that the use of the land for sand extraction purposes as proposed, far exceeds its value for agricultural purposes, which is of questionable viability. Furthermore, the final land use would provide ecological value through the creation of wetlands and social value through the provision of recreational facilities and native parklands.

6.3.4 Consequences of not Proceeding with the Project

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

(i) The Proponent would not be able to successfully implement the Structure Plan and the associated social and economic benefits of the Structure Plan would not eventuate.

(ii) A regionally significant extractive resource as identified by the Far North Coast Regional Strategy would not be developed or supply identified market demands within the construction industry.

(iii) The disposable wages for workforce and ongoing expenditure associated with the Project would be foregone.

(iv) A required VENM(b) receival facility would not be provided.

(v) The minor impacts on the local biophysical environment would not eventuate.

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 Project.

6.4 CONCLUSION

The 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 extraction and transport of fill sand and processing of construction materials, processing of VENM and disposal of VENM unable to be processed. The provision of fill materials would allow the Proponent to implement its Structure Plan providing significant social and economic benefits to the local and wider community.

In addition to the above, the final landform and use be ecologically valuable and provide social value through the provision of parklands and recreational facilities.

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

(i) provide necessary fill sand;

(ii) contribute towards satisfying the demand for construction materials within the region;

(iii) reduce risk levels associated with possible incidents and impacts on the environment to an acceptable level;

(iv) have a minimal and manageable impact on the biophysical environment;

(v) satisfy sustainable development principles;

(vi) provide for continuing and future use of the Project Site for nature conservation and recreation;

(vii) provide social and economic benefit to the local and wider community; and

(viii) address perceived social impacts.

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