

Sustainability

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16. SUSTAINABILITY

16.1. Introduction

The purpose of this Chapter is to assess the sustainability performance of the Port Bonython Bulk Commodities Export Facility Project (BCEF). A review the sustainability merits of the Project will be undertaken, in line with the requirements of the EIS Guidelines. These results will be used to identify mitigation measures and processes to ensure the Project meets sustainability objectives during construction and operation. The residual impact of these mitigation measures will also be assessed.

16.2. Background

16.2.1. Legislation and Policy Overview

A review of the most relevant sustainability legislation and policies was undertaken, including a review of qualitative sustainability objectives for the BCEF in regards to its construction and operation, consistent with existing national sustainability assessment methodologies. Sustainable development is defined in the World Commission on Environment and Development's report *Our Common Future* (1987) as: 'development that meets existing needs without compromising the ability of future generations to meet their own needs'. This definition was refined by the Federal Government in the National Strategy for Ecologically Sustainable Development (SEWPaC, 1992) to read as 'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'.

Sustainability and the principles of ecologically sustainable development form an integral part of South Australia's development planning system (Planning Institute of Australia). Through explicit mention in the state Planning Strategy (and as an underlying foundation of the *Environment Protection Act 1993* and other state legislation), economic development can be promoted in such a way that protects the environment and key ecological processes of South Australia.

The promotion of sustainability and climate change is included as one of three key objectives for South Australia in the state planning strategy (DPTI, 2013), a focus also reflected in the regional volume for the Eyre Peninsula. As an overall guiding framework for development across the state, the strategy informs local planning decisions to balance vegetation management, ecological protection and resilience with economic and community enhancement.

In line with the state strategy objective, the *Environment Protection Act 1993* (EP Act), administered by the EPA, is underpinned by the principles of ecologically sustainable development (ESD). Through application of the Act as part of the development approval process, specific measures can be mandated to ensure the protection, restoration and enhancement of the quality of the environment and promotion of the ESD principles. The EP Act aims to collectively address specific aspects of the environment including air quality, noise, water quality, contamination and waste that are covered in separate environment protection policies. Sustainability and ESD have also been incorporated into other state legislation including the Natural Resources Management Act 2004 and are regularly built into local government contracts.

The Federal Government has also introduced the National Strategy for Ecologically Sustainable Development (1992), a document which sets out a broad strategic and policy framework for all Australian governments to guide decisions actions to pursue ESD in Australia.

16.2.2. Achieving Sustainable Development at Port Bonython

In order to achieve sustainable development, SGPL recognises that it is important to:

- » Give integrated consideration to the values of sustainable development. That is consider the wider economic, social and environmental implications of decisions made and actions taken at a local, regional, national and international scale and with regard to both communities and the environment
- » Make decisions and undertake actions with due consideration of long-term views rather than focusing solely on short-term outcomes.

SGPL is committed to ensuring that their proposal for the BCEF is undertaken in a manner consistent with the principles of sustainable development.

Forming the basis of the sustainability assessment for the Project, a set of key sustainability objectives have been identified as shown in **Table 16.2a**. Further information on these objectives is given in **Section 16.3**.

Table 16.2a: Sustainability objectives for the BCEF

Focus Area	Objectives
Management Systems	Ensure sustainability of the Project during construction and operation by embedding sustainability processes and objectives in the key management plans and systems that will guide construction and operation of the Project.
Energy and Carbon	Opportunities to reduce energy consumption and GHG emissions throughout the life of the Project are maximised, including construction and operation
Water	Optimise the efficient use of water during construction and operation and maximise reuse and recycling.
Discharges to Air, Land & Water	Minimise adverse impact on the surrounding environment by avoiding or mitigating the discharges from construction and operation activities
Materials <i>and</i> Procurement	Minimise the impact of materials used during construction and optimise the supply of materials
Waste	Minimise the generation of construction waste and the resources/materials sent to landfill. Embed the waste hierarchy into construction practices to maximise resource efficiency
Community Health, Wellbeing & Safety <i>and</i> Stakeholder Participation	Ensure the community is involved in the Project development process and maximise opportunities to enhance the local community.

16.2.3. Sustainability Benchmarking

A high level assessment of sustainability management frameworks for other Australian seaports has been undertaken to provide guidance on best practices being applied. The results presented below in **Table 16.2b** indicate that a majority of ports rely on Environmental Management Plans as well as policies or systems consistent with ISO14001 to drive environmental sustainability outcomes. A number of ports do have a sustainability policy or guidelines in place, however.

This review provides a valuable understanding for the benchmark port facilities across Australia which will better inform the sustainability assessment described in **Section 16.3**.

Table 16.2b: Management framework for sustainability in ports

Australian Port	Management Framework for Sustainability in Ports
Cairns	Environmental Management Plans, Policy and Systems (ISO14001)
Brisbane	Environmental Management Plans, Policy and Systems (ISO14001) Precinct Plans incorporating sustainability criteria Supply Chain management Commitment to green buildings and sustainable design as part of development standards
Sydney	Environmental Management Plans, Policy and Systems (ISO14001) Green Port Guidelines Corporate Sustainability Reporting
Hobart	Environmental Policy
Melbourne	Environmental Management Plans, Policy and Systems (ISO14001) Sustainability Strategy Plans Management Framework
Fremantle	Environmental Management Plans, Policy and Systems (ISO14001)
Darwin	Environmental Management Plans, Policy and Systems (ISO14001)
Adelaide	Environmental Management Plans, Policy and Systems (ISO14001) Sustainability Policy

16.3. Methodology and Assessment Framework

16.3.1. Methodology

The steps undertaken as part of this assessment are outlined below:

- » A review of the Infrastructure Sustainability Council of Australia's (ISCA) Infrastructure Sustainability (IS) framework was undertaken to identify those credits which will act as the key focus areas for the Project (refer to **Section 16.3.3.1**). During this review, those credits which were not applicable to this Project were scoped out (refer to **Section 16.3.3.2**)
- » The information and assessment results from the EIS Chapters and relevant Project information were reviewed to determine relevant information to be used in the sustainability assessment

- » An assessment of the sustainability performance was undertaken for all credits not scoped out, with particular focus on the key objective areas as identified in **Section 16.3.3.1**. The assessment was undertaken in two phases:
 - Baseline assessment: The baseline assessment serves as a gap analysis for sustainability on the Project and is used as the basis for identifying mitigation measures to improve sustainability performance. This assessment is based on the current concept design, as detailed in **Chapter 2.0, Project Description**.
 - Residual Impact assessment: assuming the mitigation measures are implemented, a secondary assessment is undertaken to analyse the final sustainability performance of the Project
- » These assessments were undertaken using the ISCA credits based on the information from the EIS studies. This information was used to determine the Level of achievement for each credit (sub-indicator). Each credit was awarded an achievement Level of between 0 and 3 in line with the ISCA framework
- » The scores for each credit were totalled using the ISCA IS rating tool to generate an overall rating for each category
- » The assessment results were used to generate the results tables, shown in Section 16.5 and 16.6, along with reporting of the results of the analysis for the baseline and secondary assessments.

The ISCA IS tool has been selected for assessment of this Project as it is an industry recognised tool for assessing sustainability of infrastructure projects in Australia. A decision on whether to achieve a formal ICSA rating for the Project has not yet been made; the tool has been used to assist in planning for the Project, and as a basis for this EIS assessment only.

16.3.2. ISCA IS Rating Framework

The ISCA IS Rating Framework and tool were launched in Australia in February 2012. The IS tool is intended to guide and promote the design, construction and operation of infrastructure to maximise benefits in the areas of: project management and governance; economic performance; using resources; emissions, pollution and waste; biodiversity; people and place; and workforce.

The scheme provides both a benchmarking system that tracks sustainability performance against a sector standard, and a risk identification framework to ensure risks are appropriately identified and opportunities for innovation are highlighted in all phases of the infrastructure Project investment lifecycle. Through application of the IS tool, Projects can, if desired, achieve a formal certified rating for sustainability performance, in a similar manner to the Green Building Council of Australia's (GBCA's) Green Star program. The tool can also be used as an informal guidance framework for Projects.

The IS rating tool uses six broad themes to assess sustainability attributes of infrastructure projects:

- » Management and Governance
- » Using Resources
- » Emissions, Pollution and Waste
- » Ecology
- » People and Place
- » Innovation.

Under each theme are a number of categories and credits, each of which are assessed and scored against a comprehensive assessment framework which sets out the requirements for achieving a given Level of performance. A full list of the credits that apply to this Project can be found in **Section 16.3.3.2**.

The IS framework will form the basis for the sustainability assessment of the Project infrastructure for EIS purposes only, and there is no commitment to undertake a formal rating under the IS program. As the Project has currently progressed to only concept design phase, this assessment will compare the current design of the Project with the high Level principles of each credit, rather than the exact requirements, with the aim of finding a balance between maintaining the purpose of the credit and the Level of information that is realistically available and suitable for this stage in the Project. Where required, mitigation measures will be identified to ensure sustainability is embedded appropriately in future phases of the Project.

The IS Framework rates the sustainability performance of Projects using a three Level rating system. For each indicator, each Level has a set list of criteria that must be satisfied in order for the Project to be awarded that Level. The levels of performance are shown in **Table 3.3a**.

16.3.3. Sustainability Assessment Categories

16.3.3.1. Key Sustainability Objective Areas

For the purposes of this Project, a number of key focus areas were selected to maximise the sustainability performance of the Project, refer to **Section 16.2.2**. These were selected based on Project relevance, client sustainability objectives, EIS guideline requirements, identified opportunities and available information.

The assessment for this Project will be primarily undertaken in line with the requirements for the design rating, with some consideration of the requirements for the construction rating (where appropriate) under the ISCA IS rating framework.

The significance criteria have been adopted from the ISCA IS framework. The significance criteria, shown in **Table 16.3a**, will be the levels of performance achieved by the Project under each credit listed in **Table 16.3b** in **Section 16.3.3.2**. Not all credits have three possible levels of achievement. The levels available for each are indicated in the final score given for each credit.

Table 16.3a: Performance rating levels, from ISCA IS tool, for assessing the Project sustainability performance

Performance rating levels
Level 0 – Standard practice, business as usual performance
Level 1 – Good performance, beyond compliance
Level 2 – Excellent performance, best practice
Level 3 – Leading performance, beyond best practice

16.3.3.2. Broader Project Assessment Areas

The final credits used in the assessment are given in **Table 16.3b**, with the credits that have been scoped out given in **Table 16.3c** in **Section 16.3.3.3**. Scoping out refers to removal of credits which do not apply to the Project. Where a credit has been scoped out, justification has been provided.

Table 16.3b: Final Project significance criteria

Category	Category Objective	Credit
Management Systems	Ensure sustainability is comprehensively addressed and included in management systems and processes	Sustainability leadership and commitment Management system accreditation Risk and opportunity management Organisational structure, roles and responsibilities Inspection and auditing Reporting and review Knowledge sharing Decision-making
Procurement	Reflect and embed sustainability objectives and targets in procurement strategies	Commitment to sustainable procurement
Climate Change Adaptation	Effectively assess climate change risks and identify adaptation measures	Climate change risk assessment Adaptation measures
Energy and Carbon	Maximise opportunities to reduce energy use and GHG emissions and increase the use of renewable energy	Energy and carbon monitoring and reduction Energy and carbon reduction opportunities Renewable energy
Water	Optimise the efficient use of water, especially potable water, during construction and operation and maximise reuse and recycling	Water use monitoring and reduction Water saving opportunities Replace potable water
Materials	Minimise the impact of materials used in the construction across the life cycle of the material	Materials lifecycle impact measurement and reduction
Discharges to Air, Land & Water	Ensure the adoption of effective practices for preventing and mitigating discharges to the surrounding environment during construction and operation	Receiving water quality Noise Vibration Air quality Light pollution
Land	Optimise land use decisions and planning for the Project	Previous land use Conservation of onsite resources Flooding design

Category	Category Objective	Credit
Waste	Ensure effective waste management practices are adopted to achieve the goal of zero waste to landfill over the construction and operation of the Project through recycling, re-use, design optimisation and contract management	Waste management Deconstruction/ Disassembly/ Adaptability
Ecology	Minimise and/or mitigate adverse impacts to the surrounding ecosystems and maximise opportunities to enhance the surrounding ecological value	Ecologically sensitive sites Ecological value Biodiversity Habitat connectivity
Community Health, Wellbeing & Safety	Preserve and, where possible, enhance the health, wellbeing and safety of the local community	Community health and well-being Community and user safety
Heritage	Promote and maximise the conservation of heritage in the local area	Heritage assessment and management Monitoring of heritage (although this does not apply to the design rating, there are significant relevant heritage considerations in the Project)
Stakeholder Participation	Optimise the involvement of the local community and stakeholders throughout the Project development to effectively address concerns and issues	Stakeholder engagement strategy Level of engagement Effective communication Addressing community concerns
Innovation	Encourage identification of innovative opportunities to achieve more sustainable outcomes	Innovative strategies & technologies

16.3.3.3. Scoping Out of ISCA IS Categories

The credits shown in **Table 16.3c** were scoped out of the sustainability assessment:

Table 16.3c: Final Project significance criteria

ISCA Credit	Justification for Scoping Out
Pro-2 Identification of suppliers	The Project has not advanced sufficiently for the consideration of suppliers or development of supplier requirements to satisfy this credit
Pro-3 Supplier evaluation and contract award	This credit does not apply to the design rating
Pro-4 Managing supplier performance	This credit does not apply to the design rating
Mat-2 Environmentally labelled products and supply chains	This credit does not apply to the design rating
Lan-3 Contamination and remediation	There is no identified contamination present on the site.
Was-2 Diversion from landfill	This credit does not apply to the design rating
Was-3 Deconstruction/Disassembly/Adaptability	The Project has not advanced sufficiently and has a significant design life to make this credit currently not applicable. Aspects of deconstruction and adaptable design have been taken into account in the Project design and will be considered during detailed design.
Hea-2 Crime prevention	This credit applies to crime prevention in urban environments and is therefore not applicable to the Project
Urb-1 Site and context analysis	This credit applies to site and context analysis in urban environments and is therefore not applicable to the Project
Urb-2 Site planning	This credit applies to site planning in urban environments and is therefore not applicable to the Project
Urb-3 Urban design	This credit applies to site design in urban environments and is therefore not applicable to the Project
Urb-4 Implementation	This credit does not apply to the design rating

16.4. Baseline Assessment

The baseline assessment has been undertaken using information from the detailed studies developed as part of this EIS and relevant background Project information. The assessment assumes that all mitigation measures stated in the EIS studies will be implemented, with the residual impacts as stated. Credit objectives for each indicator have been adapted from the ISCA IS rating framework documentation (ISCA, 2012).

16.4.1. Baseline Assessment Results

Management Systems

a) Sustainability Leadership and Commitment

The aim of this credit is to reward a commitment to sustainability by senior management, essential for achieving sustainability outcomes. Commitment to mitigating negative social, environmental and economic impacts can be demonstrated through a sustainability policy or equivalent.

To ensure that sustainability is embedded as part of the construction and operation of the Project and to reflect the sustainability commitments of the Project proponent, a sustainability policy will be drafted prior to the commencement of works. This policy, while not currently finalised, will include commitments to minimising negative economic, environmental and social impacts due to the Project and will be linked to clear sustainability objectives.

ISCA Level: 1/3

b) Management System Accreditation

The aim of this credit is to reward the adoption of accredited management systems that promote sustainability. These management systems include environment, quality and health and safety systems.

Flinders Ports, the principal party of SGPL has management systems accredited to:

- » ISO14001 (Environmental)
- » ISO9001 (Quality)
- » AS4801 (Safety).

These accredited management systems will extend to cover the BCEF, with this commitment reflected in project management documents, along with requirements to audit these systems annually.

ISCA Level: 1/1

c) Risk and Opportunity Management

The aim of this credit is to reward the assessment of sustainability risks and opportunities for the Project.

Reference Chapters of the EIS: **Chapter 17, Risk and Hazard Management**

For the Project to be awarded Level 1 for this credit, environmental, social and economic risks must be assessed and recorded. Any risk assessment undertaken (commonly compiled in risk registers or similar) must be reviewed and updated annually, and must include the identification of control measures for the treatment or management of each risk.

As part of the EIS process for the Project, a detailed risk register has been generated for the Project which covers social and environmental risks across the Project scope. The risk register includes consideration of the following receptors:

- » Impacts to social, cultural and/or heritage issues
- » Flora and fauna
- » Soil and land
- » Water
- » Air quality.

For each receptor and Project element, threats and the associated mechanism and impact have been assessed along with existing and future precautions to mitigate the risk. Each risk is assigned a risk category between low and extreme, based on a combination of the anticipated likelihood (between almost certain and highly unlikely) and severity (negligible to very high).

For the economic risks associated with the Project, a detailed economic feasibility study was undertaken (Refer to **Chapter 10, Socio-Economic Impact**). This financial analysis included review of the economic risks associated with the operation of the Project along with mitigation actions.

ISCA Level: 1/2

d) Organisational Structure, Roles and Responsibilities

The aim of this credit is to reward the allocation of responsibility for the management of sustainability. This credit requires a member of the senior Project team to have central responsibility for managing sustainability, with preferable certification under the ISCA IS framework.

At the present stage of the Project, there has been no formal identification of a member of the Project senior management team who will have central responsibility for managing sustainability. While some responsibility for the management of social, environmental and economic issues have been allocated in the organisational structure for the design and construct works, no central role for the management of sustainability has been defined.

ISCA Level: 0/3

e) Inspection and Auditing

The aim of this credit is to reward regular inspection of on-site performance and auditing of the project management systems. Although the on-site inspections are only relevant to the construction rating they will be considered here for implementation during the construction phase.

This Project falls under the certification of Flinders Ports' management systems, which cover environmental and social aspects. These systems are accredited to international standards and are therefore externally audited to ensure continued compliance. By auditing environmental, social and economic aspects of the management system, the requirements for undertaking a sustainability audit are satisfied.

Internal audits of the managements systems, specifically the environmental management plan, will be undertaken at least quarterly in line with an audit schedule, which will be developed, maintained and updated over the life of the Project. Audits will be conducted by trained and experienced persons who are independent of the routine performance or management of the work activities. Environmental performance and management on the Project will be audited against the requirements of ISO14001.

The internal site inspections are not required for the design stage of a Project under the ISCA framework but will be included as a requirement as part of the environmental management plan during construction.

ISCA Level: 1/2

f) Reporting and Review

The aim of this credit is to reward the comprehensive review and reporting of sustainability on the Project. The sustainability reporting must be specific to the Project and any action plans developed must show links back to the management review.

The sustainability performance will be assessed through the EIS process, providing a baseline review and report for the project management team along with Government departments, stakeholders and the wider public. This report provides a summary of the sustainability objectives for the Project along with mitigation and improvement measures. These measures will be reflected into construction and operation management plans for environment, sustainability and Project management which shall be reviewed at key Project stages and updated as required.

Reporting on sustainability, in particular environmental, performance of the Project will be undertaken during construction and operation. Reporting requirements will be documented in the construction environmental management plan and project management systems. Reporting will document performance against Project objectives, findings and actions from inspection and auditing and provide information on any significant risks and opportunities.

ISCA Level: 2/3

g) Knowledge Sharing

The aim of this credit is to reward sustainability knowledge sharing initiatives put in place for the Project. The credit assesses the systems and processes put in place for the capture, distillation and sharing of sustainability knowledge internally and/or externally to the Project boundaries.

Currently no formal knowledge sharing process for sustainability has been established for the Project, as the Project and design are still in the early stages of development.

ISCA Level: 0/3

h) Decision-making

The aim of this credit is to reward the integration of sustainability aspects into the decision making process for the Project. Incorporating sustainability elements into this process is critical to achieving sustainability outcomes on infrastructure Projects.

During the initial feasibility phases of the Project, decision making for significant issues has been characterised by consideration of business as usual and proven approaches taken in comparable situations. Primarily concerned with the financial and economic feasibility of options, key decisions have been based on analysis of the economic environment and proven port and bulk commodity facility solutions.

However, sustainability factors have been incorporated into subsequent aspects of the Project development, forming a part of the functional design brief which further recommended the use of an appropriate sustainability assessment tool to support decision making processes.

The EIS undertaken as part of the Project development also represents consideration of broader sustainability aspects in decision making for the Project as do the sustainability and environmental policies and commitments made by Flinders Ports, which extend to cover this Project.

While sustainability aspects have been incorporated into Project processes, no formal decision making guidelines have been developed for the Project to date.

ISCA Level: 0/3

Procurement

a) Commitment to Sustainable Procurement

The aim of this credit is to reward the commitment to sustainable procurement for the supply of goods and services for the Project.

A commitment will be made to adopting sustainability as part of the procurement process during the detailed design and construction phases of the Project.

ISCA Level: 0/3

Climate Change Adaptation

a) Climate Change Risk Assessment

The aim of this credit is to reward the assessment of climate change risks for the Project, based on credible climate change Projections.

To be awarded a score under this credit, ISCA requires the identification and adoption of a suitable climate change Projection for the Project, which is then used to assess the direct and indirect risks to the project infrastructure.

For this EIS the South Australian Research and Development Institute (SARDI) regional Climate Change Projections report for Eyre Peninsula in 2010 has been selected as the primary climate change Projection for the Project (refer to **Chapter 12, Climate Change and Greenhouse Gas Emissions**). This satisfies part of the benchmark for Level 1 of the ISCA framework.

Using this climate change Projection for the region, direct climate change risks to the Project have been identified and assessed. These risks are defined by ISCA in the IS documentation as:

The chance of an impact (attributable to climate change) on an infrastructure system or organisation that causes damage, extra costs, accelerated deterioration or disruption of services provided.

Development of the risk framework for the assessment was informed by AS 31000 (Risk Assessment) and the Australian Greenhouse Office (AGO) Climate Change Impacts and Risk Management – A Guide for Business and Government, 2006.

The direct risks for the Project associated with climate change include:

- » Increased occurrences of extreme temperatures, causing heat stress for personnel, damage and deterioration of buildings and infrastructure
- » Rising sea levels, impacting critical infrastructure and coastal environments
- » Reduced rainfall and availability of water
- » Increased rainfall intensity potentially causing more frequent and severe flooding and erosion events.

ISCA Level: 1/3

b) Adaptation Measures

The aim of this credit is to reward the assessment and implementation of measures for climate change adaptation. To achieve the minimum Level, these measures must at least address the extreme and high priority risks.

As part of the EIS (**Chapter 12, Climate Change and Greenhouse Gas Emissions**), an impact assessment was undertaken identifying key risks to the Project due to climate change. For each of these risks, mitigation measures have been identified to reduce and/or eliminate the impact. The residual impact following implementation of these mitigation measures has also been determined. These mitigation measures will form part of the approval conditions and management plans for the Project.

Mitigation measures have a focus on incorporating climate change projections into detailed designs for Project infrastructure to increase long-term resilience and minimise maintenance costs and requirements. This includes buildings and supporting infrastructure such as roads, site drainage, services and site landscaping.

Adaptation and mitigation options have been identified for all extreme, high and medium priority climate change risks, with no residual extreme risks remaining following implementation of the measures.

ISCA Level: 2/3

Energy and Carbon

a) Energy and Carbon Monitoring and Reduction

The aim of this credit is to reward the monitoring and minimisation of energy use and greenhouse gas emissions across the Project lifespan.

Energy use and greenhouse gas emissions have been modelled for the EIS (refer to **Chapter 12, Climate Change and Greenhouse Gas Emissions**) based on the concept design for the Project. The modelling includes scope 1 and 2 emissions, and has considered the impact over both the construction and operation phases of the Project.

The greenhouse assessment has also drawn on a calculation of the estimated fuel use over the construction and operation phases of the Project.

The modelling and assessment process also identified mitigation actions and initiatives for reducing total Project emissions, during planning, construction and operation. It has been recommended that these actions be embedded into future planning and design phases as well as project management plans to ensure their implementation.

To ensure accuracy of the modelled results, the calculations and subsequent report were subject to an internal review by suitably qualified personnel to provide assurance of the calculations.

As part the detailed design phase of the Project, opportunities for energy reduction will be identified for construction and operation.

ISCA Level: 1/3

b) Energy and Carbon Reduction Opportunities

The aim of this credit is to reward the identification of opportunities to reduce energy use and greenhouse gas emissions.

Opportunities to reduce the overall energy use and greenhouse gas emissions have been identified as part of the greenhouse gas emissions study for the EIS (Refer to **Chapter 12, Climate Change and Greenhouse Gas Emissions**). The mitigation measures have been evaluation based on the emissions hierarchy of *avoid, reduce, switch, offset*. These opportunities address emissions occurring from:

- » Design and operational efficiencies;
- » Energy generation and the use of renewable energy;
- » Fuel usage.

To ensure that these actions will be implemented, management practices should form part of Project Construction Environmental Management Plans (CEMP) and Operating Environmental Management Plans (OEMP).

ISCA Level: 1/3

c) Use of Renewable Energy

The aim of this credit is to reward the investigation of renewable energy. Although the use of renewable energy does not necessarily contribute to a reduction in energy use for the Project, it is nonetheless encouraged as it reduces GHG emissions.

The use of renewable energy has been recommended as part of the greenhouse gas emissions Chapter to reduce the Level of emissions generated over the life of the Project, subject to a detailed feasibility study and commercial viability. No investigations have been undertaken into opportunities for using renewable energy or the feasibility these opportunities to date.

ISCA Level: 0/3

Water

a) Water Use Monitoring and Reduction

The aim of this credit is to reward the monitoring and minimisation of water use across the Project lifecycle as far as practical without impacting service provision.

To achieve Level 1 under this credit in line with the design rating, the water use for the Project across the infrastructure lifecycle must be modelled.

For the EIS, reports were reviewed to understand the baseline conditions for the study area relating to surface water and groundwater. Detailed studies were also undertaken to understand the impacts of the Project on the existing water environment. While these studies provided significant understanding about the impact the Project will have on the water and groundwater environment, it was not considered necessary to conduct modelling given the low water availability on site. Water use will be monitored and recorded during the construction process; the contractor will seek to minimise water usage during construction.

ISCA Level: 0/3

b) Water Saving Opportunities

The aim of this credit is to reward the identification of opportunities to reduce water use.

The primary water uses for this Project include

- » Dust suppression
- » Fire
- » Human consumption.

Dust suppression represents the key opportunity for water reduction during construction and operation of the Project (refer to Chapter 4, Water Resources). Stormwater will be collected and stored on site for use with dust suppression. Furthermore, the storage sheds and conveyors used to store and transport the ore will be fully enclosed and under negative pressure, significantly reducing or eliminating the need for continual dust suppression using spray water during operation of the BCEF.

Stormwater management on-site will primarily be through a collection and disposal system incorporating Water Sensitive Design features. Requirements for the identification and implementation of water saving opportunities during construction will be documented in the Project CEMP. Further opportunities for reducing water use will be investigated during the detailed design phase and may include the provision of water efficient facilities and fixtures for use during construction along with permanent installation of these facilities for use during operation.

ISCA Level: 1/3

c) Replace Potable Water

The aim of this credit is to reward the replacement of potable water where this is feasible in terms of economic and environmental impacts. Potable water can be replaced with non-potable sources such as rainwater, recycled water and stormwater. The quality of the non-potable water supplied should match the quality required, should be locally sourced and should only replace potable sources where the overall impact is reduced compared to potable water.

The primary water uses for this Project include

- » Dust suppression
- » Fire
- » Human consumption.

From these primary uses, only human consumption is required to be potable however a reliable water source is required for fire management. The primary source of potable water for the site will be the 200mm Whyalla to Stony Point pipeline (refer to **Chapter 4, Water Resources**).

As part of the Project concept design development, opportunities for replacing potable sources of water have been identified. Opportunities include harvesting stormwater or groundwater around the site for spray water use along with on-site storage. It should be noted that rainfall at the site and storm water runoff are limited.

ISCA Level: 1/3

Materials

a) Materials Lifecycle Impact Measurement and Reduction

The aim of this credit is to reward the design and practice that reduces the lifecycle environmental impact of materials.

Currently no modelling of the material lifecycle impact has been undertaken as the Project has only progressed to concept design phase. To date, requirements have been specified that the materials suit the environment at the Project site and shall be in line with the high-Level Project objective to reduce environmental impact.

As materials can have a significant impact on the sustainability of a Project, a recommendation will be made to undertake a comprehensive review of the materials used in construction along with the procurement strategy during the detailed design phase. This may or may not be done in line with the ISCA framework.

ISCA Level: 0/3

Discharges to Air, Land and Water

a) Receiving Water Quality

The aim of this credit is to reward the identification and implementation of management practices that reduce the impact on receiving water quality. This includes consideration of the baseline water environment, prediction of impacts and identification of mitigation measures.

Baseline studies have been undertaken of the existing surface and groundwater environment at the Project site (Refer to **Chapter 4, Water Resources**). The condition assessment was conducted as a desk-top investigation drawing on publically-available information including GIS data, previous environmental impact reports, groundwater and surface water monitoring data and climate records for the Whyalla region provided by the Bureau of Meteorology.

Following the baseline assessment, potential impacts due to the Project (during construction and operation) on the surrounding water environment were assessed.

For groundwater, as the Project was unlikely to significantly impact the levels and flows, the potential impacts were primarily concerned with changes to water quality. For construction and operation phases of the Project, impacts and proposed mitigation measures for groundwater quality were determined. This assessment analysed the likelihood and significance of each impact, the appropriate mitigation measure, and the anticipated residual impact following mitigation. These mitigation measures will form part of the Environmental Management Plan.

A similar analysis was undertaken for the surface water quality as part of the EIS assessment on surface water impacts. Mitigation measures from this analysis will also be integrated into the Environmental Management Plan for the Project, to ensure the implementation of the recommended measures. Measures may include water sensitive urban design along with typical stormwater drainage and sediment controls and, following treatment to water quality standards, will be discharged to well-vegetated areas.

ISCA Level: 1/3

b) Noise

The aim of this credit is to reward the management of noise impacts generated from the Project. This includes consideration of the baseline noise environment, prediction of impacts and identification of mitigation measures.

Separate acoustic assessments were undertaken for the terrestrial and underwater acoustic environment (Refer to **Chapter 5, Noise and Vibration and Chapter 15, Underwater Noise**)

A study of the above-ground acoustic environment was conducted for the EIS to understand the existing conditions and assess any likely noise impacts. The assessment was then used to identify noise sensitive receptors from the construction and operation of the Project. Baseline noise monitoring was undertaken at key sites in the region of Project, Point Lowly and False Bay, to identify existing noise sources and details were sourced of relevant acoustic regulations with which noise from the Project is to comply.

Information on the construction and operation methodology for the Project was used to generate an understanding of the predicted Project noise levels over the Project lifespan, with particular focus on noise generated through:

- » Port operations and ship movements
- » Road traffic generated by the BCEF
- » Rail movements
- » Piling operations and other construction activities.

The study identified the impact of noise generated from the Project and recommended specific mitigation measures to, where required, ensure that noise generated by the Project did not exceed the relevant noise criteria. These mitigation measures were determined for activities that caused exceedances at noise sensitive receptors. Generally, these measures include:

- » Conducting works in line with regard to AS 2436:2010
- » Conducting community consultation for scheduling of works
- » Installing enclosures on Project infrastructure to limit noise emissions.

For the above-ground acoustic assessment, modelling predictions indicate that following the implementation of the recommended mitigation measures, no major residual impacts will occur.

The underwater acoustic assessment followed a similar process, assessing the baseline acoustic environment, the predicted noise generated by the Project and the anticipated effects on the marine life in the Project region.

ISCA Level: 2/3

c) Vibration

The aim of this credit is to reward the management of vibration impacts generated from the Project. This includes consideration of the baseline environment, prediction of impacts and identification of mitigation measures.

Detailed vibration studies have been undertaken as part of this EIS (Refer to **Chapter 5, Noise and Vibration**), with predicted vibration resulting from the Project operation and construction modelled. Receptors for vibration effects were identified in the area, along with maximum limits for vibration during the day and night, and through construction and operation phases, based on Australian Standards and NSW EPA guidelines.

The main activities causing vibration impacts will be:

- » Piling
- » Earthworks
- » Civil and rail construction
- » Compactors using vibratory compaction are the highest vibration inducing plant.

For the nearest receptor in the area for vibration effects, the most western coastal home at False Bay, modelling has predicted that there will be no exceedance of the vibration criteria through the Project lifecycle.

In place of Australian standards, BS 5228.2 has been used to guide the assessment, which requires calculation of vibration levels from vibration activities to be taken at less than 110m for results to be valid. As the distance to the nearest receptor is 235m, with other receptors located over 1km away from the Project site, it is predicted that levels of construction vibration will be lower than the maximum criteria, leading to negligible impacts at the receptors.

ISCA Level: 3/3

d) Air Quality

The aim of this credit is to reward the management of air quality impacts generated from the Project. This includes consideration of the baseline air environment, prediction of impacts and identification of mitigation measures.

Baseline studies for the air quality at the Project site were undertaken as part of the EIS (Refer to **Chapter 6, Air Quality**). Although there has been no specific ambient air monitoring at Port Bonython, there is evidence to suggest that the existing air quality is very good. Review of the Project location and proposed operational procedures has suggested that the Project is unlikely to have any significant influence on air quality.

A review of port operation-specific air quality criteria was undertaken, the results of which indicate that the application of the NEPM particulate criteria, as an operationally-contribution (i.e. excluding background sources) is the most common and stringent criteria adopted at similar facilities throughout Australia.

A dust management plan will be developed for the Project.

ISCA Level: 1/3

e) Light Pollution

The aim of this credit is to reward the prevention of light spill generated from the Project.

Low-spill lighting will be installed in accordance with relevant Australian standards and codes to meet Health & Safety lux levels and permanent lighting installed on the jetty will be minimised where possible. A Light Management Plan will be developed for the Project. Shielded lights will be used to ensure minimal spill from buildings and infrastructure.

ISCA Level: 1/1

Land

a) Previous Land Use

The aim of this credit is to reward the reuse of land that has previously been developed. Previously disturbed sites are those that have been used for built development, with this use still evident in the form of buildings or structures, significant cover of made ground, or soil or groundwater pollution from activities conducted on the site.

The existing terrestrial environment at the Project site has been impacted primarily by grazing and pastoral activities, with the site still described as being in good condition. There is also evidence of roads, tracks and services in the area. Under the ISCA framework definition, this land can be classified as being predominantly Greenfield, meaning that the type of land disturbance at Port Bonython does not satisfy the credit requirement for previous land use. For the purposes of this credit, Greenfield sites have been defined as:

Those sites that are essentially covered in vegetation, with no evidence of substantive recent build development remaining (although they could encompass sites of archaeological importance) or where uses have been essentially restricted to agriculture, gardens, parkland or playing fields.

However, the Project has been located and designed to minimise additional disturbance to the land. The site has had some previous disturbance with the layout designed to minimise any earthworks and optimise requirements for cut and fill, with no excavated material to be transported off site.

ISCA Level: 0/3

b) Conservation of On-Site Resources

The aim of this credit is to reward the conservation of soil resources, specifically topsoils, subsoils and on-site mineral resources.

Measures have been identified in the construction environmental management plan to conserve and manage on-site resources, topsoil, subsoils and sediments. Detailed management procedures have been established for construction including:

- » Separate stockpiling of topsoil and subsoils from access tracks and lay down areas to be retained and reused
- » Protection or wet down if exposed areas and stockpiles in accordance with requirements of water conservation measures to minimise dust generation
- » Protection of soil stockpiles with silt fencing or bunds and seeded with sterile grass.

During the detailed design phase, ecological assessments will be used to identify opportunities to minimise land disturbance and vegetation clearance. As stated above, the site has been designed to minimise any earthworks and optimise requirements for cut and fill, with no excavated material to be transported off site.

ISCA Level: 2/3

c) Flooding Design

The aim of this credit is to reward the consideration of flood events in the design of the Project. Any development, whether or not it is situated in a floodplain, should not add to run-off or increase flood risk.

The existing environment has been reviewed in terms of flood risk, to provide a baseline for comparison of Project impacts. Mitigation measures have been identified to control flood risks, resulting in a low residual risk to existing flood and drainage conditions.

The conditions for Level 1 in the ISCA framework have not been explicitly addressed for this credit, however it has been assumed that the detailed study for the EIS based on concept designs for the Project is currently sufficient to demonstrate the likely impacts on flooding from the Project.

ISCA Level: 1/2

Waste

a) Waste Management

The aim of this credit is to reward the adoption of sustainable waste management practices. This may be achieved through a waste management plan, and the waste management hierarchy must be used.

A detailed waste management plan will be developed prior to commencement of works. Waste management will be based on the *Environmental Protection Act 1993*, along with supporting guidelines and policies including the EPA Waste Management Hierarchy. The following will be referred to:

- » State-based waste management guidelines or strategies and State EPA Waste Tracking system to document waste haulage and disposal.
- » State requirements for waste reporting and specified reporting format.

Potential waste streams will be identified and the appropriate number and types of bins onsite for each of the different types of waste will be provided. The site Foreman will conduct daily inspections on all waste collection areas and all waste streams will be disposed of appropriately, with details of disposal and recycling recorded. Waste streams likely to be covered by this plan include (but are not limited to) construction waste, excavated material such as fill and contaminated soil, office waste and hazardous materials.

Similar measures for the monitoring and tracking of waste will be undertaken during operation of the Project, embedded in Project management plans.

An investigation into the value of implementing a *zero waste to landfill* objective for the site during construction will be investigated during the detailed design phase. The value of this objective will depend on the facilities located in the region and the requirements for meeting this target (e.g. transport), balanced against the associated outcomes, for example higher emissions from longer transport distances.

ISCA Level: 1/2

Ecology

a) Ecologically Sensitive Sites

*The aim of this credit is to reward the management of ecologically sensitive sites. This includes land containing threatened ecological communities as defined under the *Environmental Protection and Biodiversity Conservation Act 1999*.*

ISCA Level: 1/1

b) Ecological Value

The aim of this credit is to reward the maintenance and enhancement of the ecological value of the site. Awarding any levels of performance for this credit requires the adequate protection of any ecologically threatened or vulnerable species present.

Although for Greenfield sites under the framework, no threatened or vulnerable species must be present at the site; significant studies have been undertaken as part of this EIS to ensure the protection of the local environment and ecology.

Studies on the terrestrial and marine environment have concluded that, with the implementation of some additional measures, the Project should not have a significant adverse impact on the local environment.

For the terrestrial environment, the following practices for ecological conservation will be implemented:

- » Vegetation clearance will be minimal of threatened and non-threatened species
- » Conservation practices will be implemented along with remediation of the site
- » Weeds will be strictly controlled throughout the Project life.

These practices are reflected in the construction and operation environmental management plans. While some negative impacts on the local environment are anticipated as part of the construction, all long term residual impacts are predicted to be negligible to low.

For the marine environment, similar studies have been undertaken as part of the EIS and EPBC response report.

ISCA Level: 1/3

c) Biodiversity

The aim of this credit is to reward the maintenance or enhancement of biodiversity using offsets and other measures.

An understanding of the existing environment was determined through collation and analysis of existing information from the following sources:

- » Major investigations undertaken for other existing and proposed Projects
- » Government databases and management plans.

In addition, surveys were undertaken to provide additional information with particular reference to relevant legislative requirements including:

- » *Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)*
- » *National Parks and Wildlife Act 1972 (NPW Act)*
- » *Native Vegetation Act 1991 (NV Act)*
- » *National Resource Management Act 2004 (NRM Act 2004).*

This background information has been used to assess the likely changes to the biodiversity of the region, and inform the requirements for management plans and processes. The studies undertaken have indicated that the construction process is unlikely to have any significant adverse effects on the local environment. Offsetting of any cleared vegetation will be undertaken, mitigating any short-term negative impacts due to construction. This will be in conjunction with an approach adopted for construction that minimises any land clearing requirements.

All measures to minimise adverse impacts on the local environment and regional biodiversity will be incorporated into the Project management documents, specifically the construction and operation environmental management plans. These plans will be developed with input from qualified personnel working in the ecological field, and will take advice from relevant professionals to ensure the integrity of the environment is, at a minimum, maintained.

ISCA Level: 1/3

d) Habitat Connectivity

The aim of this credit is to reward the maintenance or enhancement of habitat connectivity. Habitat connectivity refers to the degree to which organisms, primarily fauna but also flora, can move around a landscape due to the presence of suitable habitat.

The Project is not expected to result in habitat fragmentation and will not result in the isolation of any habitat area essential for any fauna species, since the areas of vegetation to be cleared are relatively small in a regional context (Refer to **Chapter 7, Terrestrial Ecology**).

Revegetation of the site will be undertaken along with additional planting or restoration to achieve a Significant Environmental Benefit as part of native vegetation offsets.

ISCA Level: 1/3

Community Health, Wellbeing and Safety

a) Community Health and Wellbeing

The aim of this credit is to reward the contributions made to community health and wellbeing as part of the Project.

The social impact assessment undertaken for the EIS has reviewed and assessed the impact of the Project on the local communities compared to a baseline, by analysing the potential social consequences related to the construction and operation of the Project. The Project is located in an industrial area nearby to existing port facilities, with the closest major permanent community located in Whyalla.

The objectives for assessment included:

- » Identifying potential positive and negative social impacts that may come about as a result of the construction and operation of the Project
- » Identifying potential measures to enhance positive social impacts and avoid, mitigate or offset potential negative social impacts
- » To provide an assessment of the Level of residual social impact (positive or negative) associated with the Project.

The scope of the assessment for social impact considered changes to the following:

- » People's way of life
- » The local culture and community
- » Environment
- » Health and wellbeing
- » Personal and property rights
- » Fears and aspirations.

The social impact assessment involved reviewing existing data from sources including census data and government sources, and undertaking site visits and community consultations to build up a comprehensive picture of the existing socio-economic environment to inform the impact assessment.

Potential impacts associated with the Project were assessed against the existing conditions to provide an evaluation of potential negative and positive social outcomes of Project. Where potential impacts were identified, potential methods to avoid, manage or mitigate these impacts has been identified and documented.

The social impact assessment was conducted in conjunction with the stakeholder engagement plan for the Project, which provides measures for community to provide feedback on the Project as it progresses. This strategy in line with the social impact assessment provides assurance that the impacts on the local community health and wellbeing have been considered and factored into the Project, a process which will continue over the subsequent Project phases.

The social impact assessment is deemed to be sufficient to ensure that all adverse impacts to the community health and wellbeing are minimised, and opportunities to positively enhance the community identified.

ISCA Level: 1/3

b) Community and User Safety

The aim of this credit is to reward the implementation of design and practices that enhance the safety of the community and users.

Health and safety during construction will be ensured by the Health and Safety Management System of each contractor present on site, which will be required to adhere with Australian Standards (i.e. AS 4801 Occupational Health and Safety Management Systems).

There will be hazards and risks for the Project, particularly during the construction phase, which have been assessed through detailed risk assessments as part of this EIS (Refer to **Chapter 17, Hazard and Risk**) and to satisfy contractor requirements for working on site. Potential risk scenarios identified as part of the EIS (e.g. under emergency conditions) included spills, floods, hazardous and explosive materials and fire. These scenarios were assessed with the likely consequences determined, which included as a worst case death/injury to personnel or member of the public. For each risk and hazard, management practices were identified to remove or minimise the risk and consequence.

All health and safety requirements from this study will be incorporated into the final health and safety management plans for the Project. The operation of the Project will also be covered by Flinders Ports accredited management system, which satisfies AS 4801 Occupational Health and Safety Management Systems. All identified health and safety hazards and risks for users and the public will be managed through EMPs, Traffic Management Plans, Construction OH&S Plans, and Emergency Management Plans. There are also legislative requirements for OH&S and for the storage and handling of dangerous goods and hazardous substances, which will be complied with.

Training, audits, inspections will be undertaken throughout the Project and operation, with a schedule to be prepared and maintained prior to the commencement of works. Results from these inspections and audits will be reported to the project management team. Safe work method statements will be prepared for works as necessary and safety in design reviews undertaken to assess the design in terms of risks to health and safety.

ISCA Level: 1/2

Heritage

a) Heritage Assessment and Management

The aim of this credit is to reward the development of baseline assessment of heritage and analysis of predicted impacts against which improvements can be made.

A comprehensive study of indigenous and non-indigenous cultural heritage, is currently being undertaken as part of the EIS process (Refer to **Chapter 11, Cultural Heritage**).

Information for these surveys, undertaken separately due to different legislative requirements, has been drawn from Government departments, council development plans, research undertaken specifically for the Project, tourism information and cultural heritage reports undertaken previously for other Projects. Further analysis of local culture and heritage values has been undertaken as part of the social impact assessment (Refer to **Chapter 10, Socio-Economic Impact**).

ISCA Level: 1/3

Stakeholder Participation

a) Stakeholder Engagement Strategy

The aim of this credit is to reward the development and implementation of comprehensive stakeholder engagement strategy, demonstrating a high Level of commitment to stakeholders.

A comprehensive Stakeholder Engagement Plan was developed for the Project in order to better understand the current social environment and community perception of the Project and determine the predicted social impacts and benefits. **Chapter 10, Socio-Economic Impact** provides an overview of stakeholder engagement undertaken for the Project. This strategy represents a key commitment for the Project development as part of the approval process and is critical to minimising negative impacts on the community and perceptions of the Project in the region.

Community satisfaction for the Project will be measured through responses to the website and at engagement meetings, as well as comments and feedback gathered during the public notification period for the EIS and associated documentation. Following the public notification period, the reporting and assessments, such as the EIS, will be updated to take account of any comments received within the period along with a summary of any comments and how they have been addressed.

ISCA Level: 1/3

b) Level of Engagement

The aim of this credit is to reward an appropriately high Level of engagement, particularly on negotiable issues.

The Stakeholder Engagement Strategy developed for the Project has been guided by the International Association for Public Participation's (IAP2) Core Values and Public Participation Spectrum. It is expected that engagement activities for this Project will fall within the 'inform, consult and involve' levels of the spectrum.

Engagement activities documented in the strategy will be undertaken over four phases across the EIS process and include face-to-face information and workshop sessions, information documentation (such as media releases and letters), establishment of phone and email contact information for use by the public, development of a Project-specific website and development of a stakeholder database to track engagement activities and outcomes. Engagement will also form a critical part of the EIS approval process through the public notification period, which requires the document to be listed publicly along with an invitation to comment. These comments must be reviewed and reflected in updated issues of the report where appropriate, along with a summary of how they have been addressed.

Through these activities, which are documented in detail in the Project stakeholder engagement plan, the Project development process will involve stakeholders to the 'involve' Level on the IAP2 spectrum.

ISCA Level: 2/3

c) Effective Communication

The aim of this credit is to reward clear, timely and relevant communication with the community.

As part of the Project approval process and EIS submission, comprehensive and continued community participation is required. Although no formal community surveys were undertaken, the following measures have been identified and implemented to ensure clear and participatory community involvement:

- » Stakeholder meetings to inform social impact assessment
- » A website has been established containing specific and up-to-date Project information, also allowing for the collection of feedback from individuals and groups with vested interest in the Project
- » Request for public comment on the draft EIS
- » Public forums, meetings and information sessions
- » Letters to key stakeholders
- » Media releases and advertising
- » Contact phone number and email for public comment
- » Stakeholder database to capture all contact with stakeholder and track engagement and issues.

These measures are in line with rigorous guidelines for the EIS and are therefore deemed to satisfy this credit.

ISCA Level: 1/3

d) Addressing Community Concerns

The aim of this credit is to reward proper consideration and addressing of community concerns. If stakeholder concerns and issues are not properly addressed and reflected into the Project development, stakeholder satisfaction will be low, increasing the likelihood of opposition to the Project.

The justification provided for the credit above *Effective Communication* is deemed to apply to this credit.

Community concerns will be taken into account through all stages of the Project development, recognising that for major Projects, community perception can have a significant impact on the process and outcome.

Key actions in place to address this requirement are the Stakeholder Engagement Plan, which establishes contact points for community input into the Project, a stakeholder database captures all contact with stakeholder and tracks engagement and issues and the public notification period required as part of the EIS process.

ISCA Level: 1/3

Innovation

a) Innovation Strategies and Technologies

The aim of this credit is to reward the identification and implementation of innovative initiatives in sustainable design, process or advocacy,

No innovation initiatives as defined by ISCA have currently been identified for the Project.

However, aspects of the design and construction methodology are innovative for the location. Due to the environment and ecology of the Project region, innovative construction techniques that significantly reduce the impact on the surrounding environment have been specified, specifically for the marine infrastructure. In addition, to respond to the sensitivity of the area, the construction programming has been adapted to ensure that lifecycle stages of key species in the area are avoided.

ISCA Level: 1/3

16.4.2. Summary of Current Sustainability Performance of the Project

The scores attributed to each sub-indicator above were entered into the ISCA rating framework to determine the baseline sustainability assessment. The results from this analysis form the basis of the mitigation and improvement measures identified in **Section 16.5**.

Overall, the sustainability assessment shows that the Project rates at the 'good' or 'commended' Level using the ISCA IS rating tool. This Level indicates that the Project is performing above the minimum standard and goes beyond the 'business-as-usual' approach to achieve improved sustainability outcomes. Even though the Project has still only progressed to concept design, the Project development and approval processes along with the existing commitments to sustainability by the Project team have established the framework for implementing plans and processes addressing many of the key environmental and social aspects under the ISCA methodology.

The credit relating to 'discharges to air, land and water' has been identified as a strength for the Project. Construction methods and mitigation measures identified as part of the EIS are predicted to minimise adverse impacts to the surrounding environment, with monitoring and measuring of actual impacts to be undertaken throughout the Project life to ensure continued compliance. Climate change adaption has also been effectively assessed as part of the current studies, resulting in a high rating for this aspect.

Water and materials have been identified as categories in which there is opportunity for improvement. For materials, the lower result is due to the Project not being sufficiently progressed to enable a meaningful material impact assessment to be undertaken. Measures to address this and ensure implementation in the detailed design phase are provided in **Section 16.5**. Modelling of water use was not necessary for EIS purposes as a number of water saving measures have already been identified and incorporated into the Project design, resulting in the low score for this credit at the current stage of the Project.

Using the above assessment as a baseline measure of the sustainability performance of the Project, a number of mitigation and improvement measures have been identified, with an emphasis on the key focus areas as discussed in **Table 16.2a** of **Section 16.2.2**.

16.5. Mitigation and Improvement Measures

Based on the results from the initial assessment, mitigation measures have been identified to address the gaps and requirements found in this analysis. Generally, these measures have been identified for the focus credits as discussed previously in **Table 16.2a** of **Section 16.2.2**.

Table 16.5a provides a summary of the sustainability initiatives proposed for the Project, as assessed in the baseline review, along with additional measures to further improve the sustainability of the Project in key areas. More detailed mitigation measures for specific areas referenced in this table and in the baseline assessment above can be found in the relevant Chapters referred to in the assessment.

Table 16.5a: Mitigation and improvement measures for the key sustainability objective areas

Category	Sustainability Measures/ Initiatives (Baseline Assessment)	Additional Mitigation/ Improvement Measures
Management Systems	<ul style="list-style-type: none"> » A sustainability policy for the Project will be drafted and finalised, covering both construction and operation activities » The ISO accredited management systems of the Project Proponent will be extended to cover the Project » An audit and inspection schedule will be developed for the Project management system and construction site with reference to the sustainability management plans, objectives and targets » A periodic report will be prepared throughout the construction and operation of the Project on the findings of sustainability audits and inspections and document performance against Project objectives, findings and actions and information on any significant risks and opportunities. 	<ul style="list-style-type: none"> » A sustainability officer (or equivalent role) will be appointed as part of the central Project team who will have central responsibility for managing sustainability across the Project » The Project Proponent will establish a knowledge sharing process for sustainability initiatives, findings, opportunities and lessons learnt throughout the Project. This may take the form of team meetings, a part of the existing Project website, or publically released sustainability reporting » In line with the sustainability policy for the Project, sustainability considerations will form part of the analysis of options for significant issues in the detailed design phase » The sustainability targets will be reflected in major Project contracts » The audits and site inspections will cover not only environmental issues but broader sustainability issues
Energy and Carbon	<ul style="list-style-type: none"> » A carbon footprint will be developed for the Project during the detailed design phase » A National Greenhouse and Energy Reporting (NGER) Spreadsheet will be prepared during construction » Mitigation measures to reduce energy use in the Project will be identified and embedded in the Construction and Operating Environmental Management Plans 	<ul style="list-style-type: none"> » During detailed design, a feasibility investigation will be undertaken into potential opportunities for using renewable energy » There will be a commitment during the detailed design and construction phase to investigate and implement all feasible energy reduction measures » Training or awareness campaigns will be conducted (as part of on-site meetings or similar) to raise awareness with personnel on measures that can reduce energy use
Water	<ul style="list-style-type: none"> » Water reduction and reuse opportunities identified as part of this EIS and during the detailed design phase will be embedded in the Construction and Operating Environmental Management Plans » Stormwater and rainwater will be captured and stored on site during construction and operation and reused on site for activities including dust suppression » Storage sheds have been designed to minimise requirements for dust suppression with water 	<ul style="list-style-type: none"> » Further opportunities for reducing on-site water use will be investigated for both construction and operation activities and may be demonstrated through a water balance model » Training or awareness campaigns will be conducted (as part of on-site meetings or similar) to raise awareness with personnel on measures that can reduce water use
Discharges to Air, Land & Water	<ul style="list-style-type: none"> » Water sensitive urban design features will be investigated in the design and may include vegetated swales and buffers » Water will be discharged to well-vegetated areas and will be treated to water quality requirements prior to discharge » Provisions for air quality monitoring (extent of monitoring TBC) will be allowed for in the detailed design phase » A Light Management Plan will be developed for the Project to minimise light pollution 	<ul style="list-style-type: none"> » Monitoring will be undertaken during construction to confirm that noise and air criteria identified for the EIS are not exceeded

Category	Sustainability Measures/ Initiatives (Baseline Assessment)	Additional Mitigation/ Improvement Measures
Materials and Procurement		<ul style="list-style-type: none"> » During the detailed design phase, a detailed investigation will be undertaken into the materials used for the Project with the objective of selecting those materials which maximise responsible sourcing and efficient use of energy and resources » A sustainable procurement policy will be developed for the Project to embed sustainability in the evaluation, selection and final procurement of goods and services for the Project. At a minimum this policy should commit to consider environmental aspects of procurement
Waste	<ul style="list-style-type: none"> » A detailed waste management plan will be developed prior to commencement of works covering the monitoring and tracking of all waste generated » Implementing a zero waste to landfill objective for the site during construction will be investigated during the detailed design phase » The site has been designed to balance cut and fill, with no excavated material to be transported off site 	<ul style="list-style-type: none"> » Waste tracking and management practices will be audited by the Contractor to ensure they are compliant and opportunities to apply the waste management hierarchy have been maximised
Community Health, Wellbeing & Safety and Stakeholder Participation	<ul style="list-style-type: none"> » Development of an Industry Participation Plan to encourage local employment and goods and services » Maintaining property access during construction » Maintaining access to areas of recreation » Relocation of the Cuttlefish viewing platform » Stakeholder engagement throughout the EIS Process 	<ul style="list-style-type: none"> » Continued engagement with the local community during operation of the BCEF

16.6. Residual Sustainability Assessment

Assuming the measures identified in **Section 16.5** are implemented, the sustainability performance has been assessed as shown in **Table 16.6a**. Those categories shown in bold are the key sustainability objective areas identified for the Project.

Following implementation of the mitigation measures identified in **Table 16.5a**, the Project is assessed to be performing at just below the required score for an overall rating of 'excellent' under the ISCA framework, indicating a high Level of performance across most of the categories assessed.

The current assessment indicates that over key environmental, economic and social aspects the Project goes beyond compliance, integrating measures, practices and processes that support sustainability commitments over the life of the Project, from design through construction, operation and disassembly.

The concept design and Project assessment promote the integration of sustainability in subsequent phases of the Project development through the inclusion of key measures

and initiatives such as storm-water harvesting, sustainability management processes, detailed investigations into renewable energy and a commitment to including sustainability issues in the selection of materials and identification of suppliers.

The ISCA IS framework has a focus on the processes established to support achieving sustainable outcomes, with the Project already showing a strong commitment to their establishment, in line with the long established sustainable operating culture of the project management team.

The sustainability measures identified above will be embedded into the project management plans for construction and operation of the Project in subsequent stages. These plans include a dedicated sustainability policy, construction environmental management plan and management documents for the operation of the site. By embedding sustainability across the governing documents for the Project as it develops, sustainability of the Project can be managed and maintained across the life of the site.

Table 16.6a: Results from residual sustainability assessment

Category	Credit	Baseline Level	Final Level
Management Systems	Sustainability leadership and commitment	1/3	2/3
	Management system accreditation	1/1	1/1
	Risk and opportunity management	1/2	1/2
	Organisational structure, roles and responsibilities	0/3	1/3
	Inspection and auditing	1/2	2/2
	Reporting and review	2/3	2/3
	Knowledge sharing	0/3	1/3
	Decision-making	0/3	1/3
Procurement	Commitment to sustainable procurement	0/3	1/3
Energy and Carbon	Energy and carbon monitoring and reduction	1/3	1/3
	Energy and carbon reduction opportunities	1/3	2/3
	Renewable energy	0/3	1/3
Water	Water use monitoring and reduction	0/3	1/3
	Water saving opportunities	1/3	2/3
	Replace potable water	1/3	1/3
Materials	Materials lifecycle impact measurement and reduction	0/3	1/3
Discharges to Air, Land & Water	Receiving water quality	1/3	1/3
	Noise	2/3	3/3
	Vibration	3/3	3/3
	Air quality	1/3	1/3
	Light pollution	1/1	1/1
Waste	Waste management	1/2	2/2
Community Health, Wellbeing & Safety	Community health and well-being	1/3	1/3
	Community and user safety	1/2	1/2
Stakeholder Participation	Stakeholder engagement strategy	1/3	1/3
	Level of engagement	2/3	2/3
	Effective communication	1/3	1/3
	Addressing community concerns	1/3	1/3