APPENDIX AA

DRAFT – CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

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1 Introduction

Iron Road proposes to develop the Central Eyre Iron Project (CEIP) on the Eyre Peninsula in South Australia. The CEIP involves the development of a magnetite mining and minerals processing operation near Warramboo, and an infrastructure corridor, port and long term employee village to provide support facilities and connections to the mine. The proposed mine is not within the scope of this document as it is subject to a separate approval process under the *Mining Act 1971*.

The CEIP Infrastructure was declared a 'Major Development' pursuant to Section 46 of the *Development Act 1993*, as the project was considered to be of major environmental, social and/or economic importance to South Australia. The Development Assessment Commission determined that the level of assessment for the CEIP Infrastructure was an Environmental Impact Statement (EIS).

The *Guidelines for the Preparation of an Environmental Impact Statement for the Central Eyre Iron Project* (DAC, 2014) require the EIS to include a draft Environmental Management Plan (EMP) for construction and operational activities for all components of the development.

This draft Construction EMP has been developed in line with the Iron Road Environmental Policy, the environmental assessment and commitments to environmental management made in the EIS, and the Environmental Management System (EMS) being developed by Iron Road. A separate draft Operational EMP is also provided in the EIS.

1.1 Purpose and Scope

This EMP describes how impacts associated with construction of the infrastructure corridor, port and long term employee village will be managed. If project approval is obtained, this plan will be revised to address approval conditions and any other licences or requirements, as well as any further management measures that may be identified during detailed design and construction planning.

The Construction EMP is a working document that will be updated as the project progresses through review and amendment, to ensure that it reflects current best practice environmental management.

1.2 Project Description

1.2.1 Infrastructure Corridor

The proposed infrastructure corridor will connect the mine site with the port site, extending approximately 130 km. This includes a railway line and rail maintenance track which will extend along the entire length of the infrastructure corridor, and a water pipeline and power transmission line joining the corridor north of the Birdseye Highway. The infrastructure corridor therefore ranges in width from approximately 60 m in the south to approximately 110 m in the north depending on which components are present. Additional width will be required in some locations to provide for the two rail sidings, the pump station and for earthwork embankments with a maximum width of approximately 190 m. Where required, the railway line will be fenced on both sides to prevent livestock from crossing the line, however, final fencing details will be negotiated with each landowner.

1.2.2 Port

The proposed port at Cape Hardy has been designed to cater for Panamax and Capesize vessels with a bulk export capacity of up to 70 Mtpa, approximately 30 Mtpa of which may be required by Iron Road.

The northern boundary of the proposed port site is approximately 5 km south of Port Neil and the port site is approximately 1,100 ha in size. The port operating limit also includes 147 ha of marine waters. The port site entrance will be located off North Coast Road to the north of the site. The proposed export and materials handling facilities will be located within an area of approximately 461 ha which will be designated by a security fence. The remainder of the port site would be available for future expansion, subject to necessary approvals.

1.2.3 Long Term Employee Village

The proposed long term employee village will be located to the north west of the township of Wudinna on a 2 ha site. The exact location of the village is being determined in consultation with Wudinna District Council, however it will be located within the investigation zone used for the EIS. It will be operated as a drive in, drive out facility with 250 accommodation units and will also include an administration building, dining and kitchen building, car parking, recreation and other facilities.

1.2.4 Construction Phase

Construction of the CEIP Infrastructure will take approximately 3 years from the commencement of early works to the first shipment of concentrate. During this time the construction workforce is expected to peak at approximately 900 people. Up to 650 construction workers will be housed at the temporary construction camp at the port site, while up to 250 will be housed at the construction camp on the proposed mine site with the mine site construction workforce. The indicative construction program for the CEIP Infrastructure is shown in

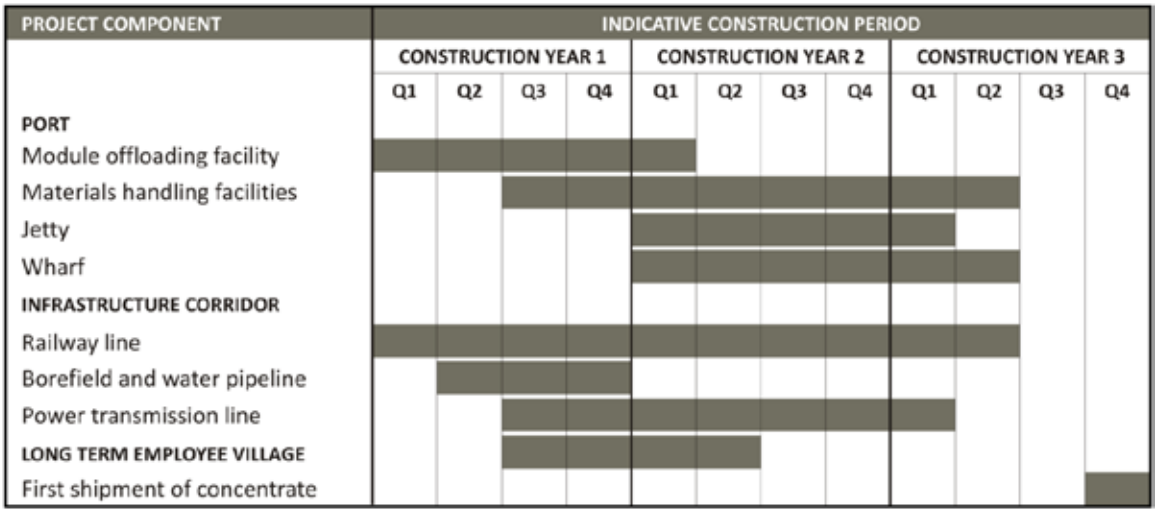

Figure 1-1 below.

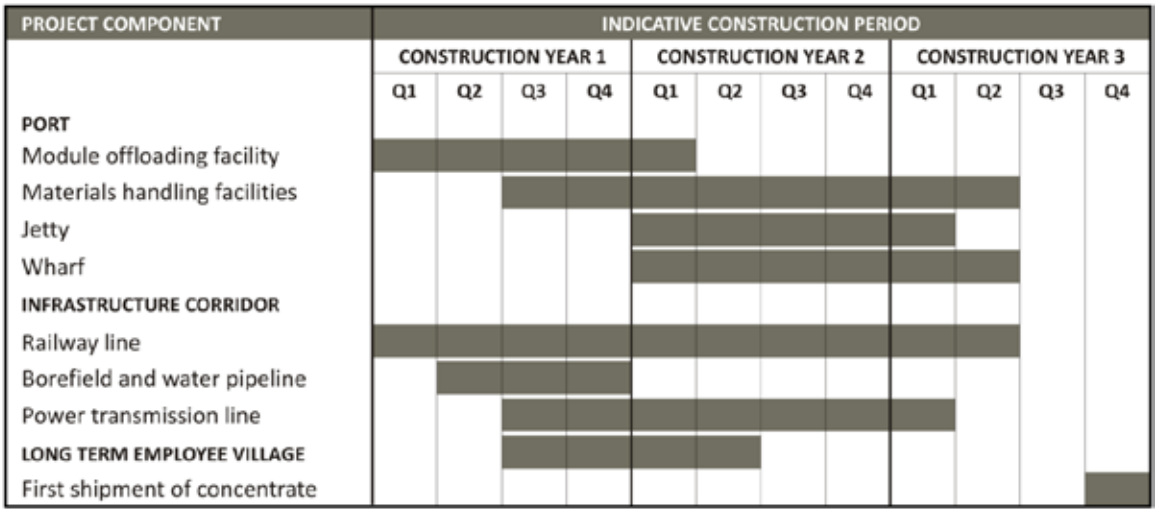

Figure 1-1 Indicative Construction Program

1.3 Environmental Aspects

Iron Road has identified its company wide environmental aspects as part of its EMS, and these have been adopted as the structure for this Construction EMP. These are shown in Table 1-1. Environmental aspects describe the elements of the construction of the CEIP Infrastructure activities, products or services that can interact with the environment.

Most of the company wide environmental aspects apply to both construction and operations, while some aspects are specific to one project phase. This approach has been taken to minimise duplication of information presented in the EMP. Aspects specific to either construction or operations are identified in parentheses in Table 1-1.

Table 1-1 Environmental aspects and objectives

Environmental Aspect	Objectives
Land Disturbance (construction)	
· Soil disturbance and changes to surface water flows · Vegetation clearance · Potential disturbance of heritage sites · Marine disturbance	· Maintain the quality of land and soils so that the ecological and social environment values are protected. · Manage the hydrological regimes of surface water so that existing and potential uses, including ecosystem maintenance, are protected. · Minimise vegetation clearance required for Iron Road's activities and ensure it is offset by long-term actions that deliver a significant environmental benefit. · Maintain representation, diversity, viability and ecological function of flora and fauna at the species, population and community/assemblage level. · Prevent unauthorised disturbance to Aboriginal or Non-Aboriginal heritage. · Maintain the structure, function, diversity, distribution and viability of coastal and marine communities and habitats at local and regional scales.
Interaction with Natural Resources	
· Potential introduction and spread of pest plants and animals · Fauna interactions · Groundwater drawdown and seepage to groundwater · Ship loading and shipping activities (operations)	· Maintain representation, diversity, viability and ecological function of flora and fauna at the species, population and community/assemblage level. · Maintain the quality and hydrological regimes of groundwater so that environmental values, both ecological and social, are protected. · Maintain the structure, function, diversity, distribution and viability of coastal and marine communities and habitats at local and regional scales. · Manage ground, surface and marine water quality so that environmental values, both ecological and social, are protected.
Emissions from Industrial Systems	
· Particulate emissions · Noise and vibration generation (terrestrial and marine) · Greenhouse gas emissions	· Maintain air quality for the protection of the environment and human health and amenity. · Manage noise and vibration generation for the protection of the environment and human health and amenity. · Implement reasonable measures to minimise greenhouse gas emissions during development and operation of Iron Road's projects.
Generation of Industrial Wastes and Discharges	
· Stormwater discharge (operations) · Accidental release from chemical/hydrocarbon storage · Waste generation	· Manage ground, surface and marine water quality so that environmental values, both ecological and social, are protected. · Ensure that human health and safety is not adversely affected. · Maintain the quality of land, soils and surface water so that the environment values, both ecological and social, are protected. · Minimise any adverse environmental impacts from wastes and to implement reasonable measures to minimise their generation, to maximise their reuse and recycling, and to ensure safe and lawful disposal of all waste.

Environmental Aspect	Objectives
Community Interactions	
· Employment and demand for business services · Accommodation of employees/contractors · Changes to land access · Traffic generation · Changes to visual amenity (operational) · Fire risk	· Contribute positively to the social and economic capital of the communities in which Iron Road operates. · Maximise opportunities for local and regional businesses in Iron Road's operations. · Treat other land users with respect, minimise impacts and compensate fairly where impacts are recognised and are unavoidable. · Ensure that human health and safety is not adversely affected. · Ensure that impacts to amenity are reduced to as low as reasonably practicable.

1.4 Implementation

The roles and responsibilities, training and communication mechanisms that underpin implementation of this plan are detailed in the following sections.

1.4.1 Responsibilities

All personnel involved in the project including Iron Road employees, contractors and sub-contractors, are required to work in accordance with this EMP. Iron Road's General Manager is responsible for the effective implementation of the Construction EMP through the Environment Manager.

Key roles for implementing this Construction EMP are shown in Table 1-2.

Table 1-2 Roles and Responsibilities

Role	Responsibilities
General Manager	· Promoting the culture for environment and providing clear expectations and guidelines · Overseeing involvement of all internal and external stakeholders · Supporting the Project Director in organising and resourcing project teams · Reporting to the Iron Road Board · Ensuring resources are provided to implement the EMS
Project Director (Construction)	· Acting as the management representative for the EMS · Promoting the culture for environment · Overseeing environmental management and risk on the project · Overseeing training · Monitoring performance and consolidated reporting of progress against project KPIs during construction
Environment Manager	· Ensuring all systems, standards and processes are aligned through the CEIP · Providing general environmental support · Engaging with stakeholders · Conducting incident investigations · Performing environmental risk assessments · Managing the environmental approval process · Overall implementation of the EMPs for the CEIP · Coordinating management reviews, external and internal audits and reporting progress against environmental targets and objectives
Project Construction Manager	· Overseeing on-site construction activities · Ensuring compliance of construction activities with conditions of relevant project licences, permits and the construction EMP · Ensuring all environmental guidelines and requirements are met

1.4.2 Training

All staff employed by Iron Road and contractors will be required to undertake training prior to any works being carried out. Induction training will address:

- Background to the CEIP Infrastructure project
- Approval conditions, and the role of the EMP
- Legislative requirements of the company and individuals
- Key personnel and roles
- Iron Road EMS
- Environmental issues at the site and relevant management plans and procedures
- Community issues related to the project and relevant management plans and procedures
- Penalties for non-compliance with required plans and procedures
- Hazard and Incident reporting and management procedure
- Emergency response plan.

Job-specific training will also be required. The Project Director is responsible for overseeing training, through the relevant functional (e.g. environment) and area managers.

1.4.3 Communication and Reporting

Iron Road will continue to implement a community engagement plan. Through this plan, Iron Road will report on the implementation of this Construction EMP, and its compliance with the performance indicators. Iron Road will also prepare an annual compliance report for government stakeholders.

In the event of an incident with the potential to result in serious environmental harm or the identification of site contamination, the notification requirements of the Environment Protection Act 1993 (Section 83 and 83a respectively) will be followed.

Exceptional or specific reporting requirements are addressed under the appropriate environmental aspect headings in this EMP.

1.4.4 Emergency Response

Iron Road will develop an Emergency Response Plan to ensure effective control and clean-up following emergency situations. Personnel responsible for implementation of the Emergency Response Plan will be provided with appropriate training and resources, and response representatives will be made known to staff on site during inductions.

1.5 Review

This EMP is a dynamic document that is subject to regular review and continual improvement. Review of the EMP will include a process of adaptive management whereby the effectiveness of environmental controls and procedures is continually assessed to ensure best practice environmental management. Such reviews would occur on an ongoing basis, however a formal review schedule will be developed as the project progresses. The following circumstances may also trigger a review of an EMP:

- Change in the scope and design of the project
- Changes in the EMS objectives
- Changes in regulatory standards
- Following environmental incidents, reported non-compliances or in response to complaints
- Subsequent to environmental audits where outcomes warrant improvement.

The process for approval and review of the construction and operational EMPs is shown in Figure 1-2.

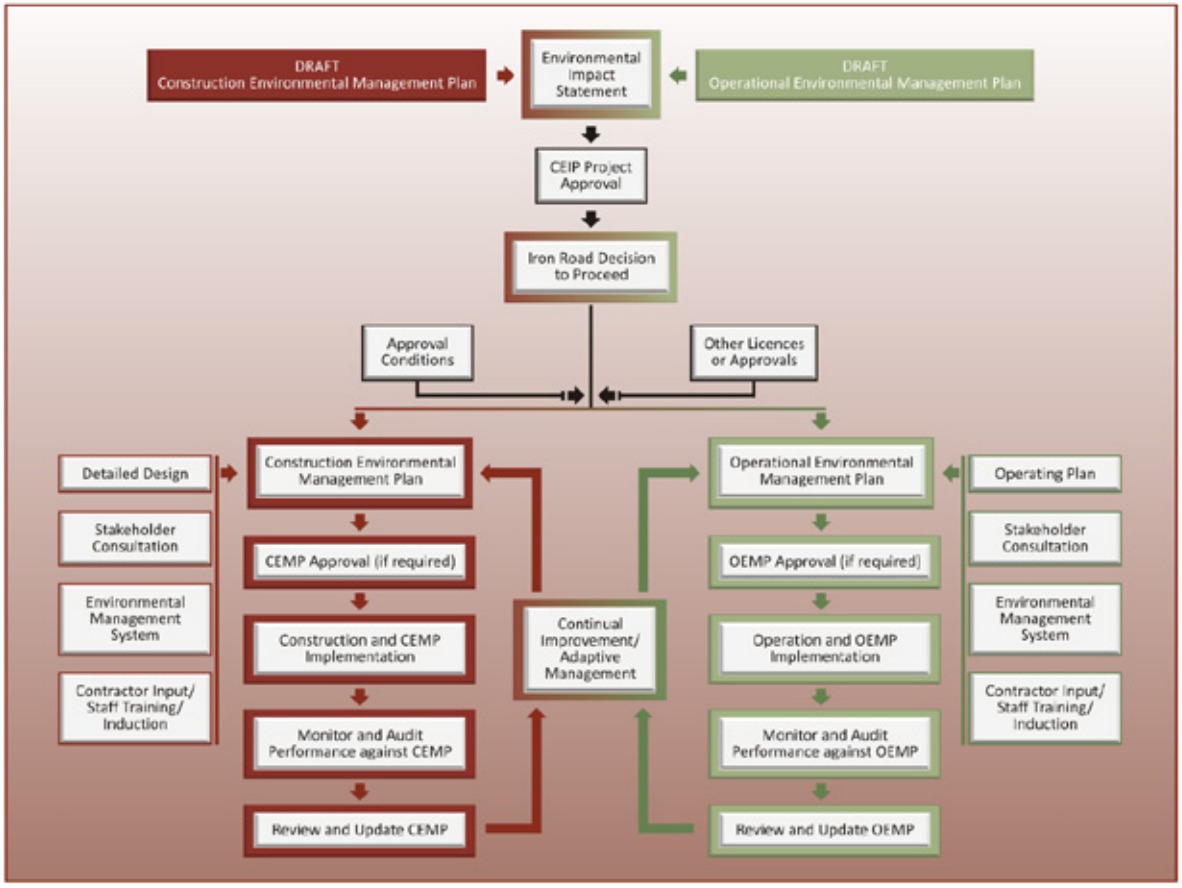

Figure 1-2 Approval and Review of EMPs

2 Land Disturbance

2.1 Soil Disturbance and Changes to Surface Water Flows

The development of the CEIP Infrastructure will require land disturbance during the construction phase, primarily involving reshaping topography, clearance of land and exposure of soils. Potential impacts include:

- Reduction in soil and land quality
- Reduced ability of soils to support ongoing agricultural activity
- Increased soil vulnerability to erosion
- Disturbance of existing site contamination or Acid Sulfate Soils (ASS)
- Altered surface water regimes in existing creeks and drainage lines

2.1.1 Legal and Other Guidance

- National Environment Protection (Assessment of Site Contamination) Measure 1999
- Environment Protection (Water Quality) Policy 2003
- Stormwater Pollution Prevention codes of practice: Building and construction industry (EPA, 1999)
- EPA Guidelines: Site contamination – acid sulfate soil materials (EPA 2007)

2.1.2 Values

The implementation of this EMP aims to protect the following environmental values:

- Agricultural production (grain cropping)
- Creek catchments intersected by the infrastructure corridor (Driver River, Dutton River and unnamed creek – although highly degraded and affected by human disturbance)

2.1.3 Objectives

- Maintain the quality of land and soils so that the ecological and social environment values are protected.
- Manage the hydrological regimes of surface water so that existing and potential uses, including ecosystem maintenance, are protected.

2.1.4 Control and Management Actions / Environmental Management Measures

Table 2-1 Management Measures - Soil Disturbance and Changes to Surface Water Flows

Control and Management Strategies	Identifier
Ground disturbance footprints will be minimised by utilising existing tracks and designated tracks established for the project	SD_C1
Sediment and erosion management using industry standard practices such as hay baling, temporary sediment traps, dust generation management and bunding of stockpiles. Detailed and site specific erosion and drainage control strategies will be developed in accordance with the Stormwater Pollution Prevention Code of Practice for the Building and Construction Industry (EPA 1999).	SD_C2
Disturbed areas will be revegetated as soon as practicable to support erosion control.	SD_C3
Dust from the internal unsealed roads will be suppressed using water trucks. Roadside swales will be maintained to collect any surface water run-off.	SD_C4

Control and Management Strategies	Identifier
Locating stockpiles away from surface water flows and trafficked areas.	SD_C5
Restriction of vegetation clearance to the project footprint and undertaking progressive rehabilitation where practicable to minimise erosion.	SD_C6
Soil management procedures will be implemented to manage soil compaction and loss of soil quantity, including: · Vehicle movements limited to predetermined haul routes and light vehicle roads to minimise vehicle compaction of soil. · Deep ripping of soils beneath compacted areas during site rehabilitation to facilitate nutrient cycling and biological processes to support agriculture or revegetation. · Minimising off-road driving and access to non-designated areas. · Stripping topsoil prior to disturbance and stockpiling outside the area of disturbance at a height of no greater than 2 m to minimise compaction and ensure the soil does not have to be repeatedly moved throughout the life of the project. · Developing and maintaining a topsoil inventory, detailing: o Original location of the topsoil o Likely seedbank properties within stockpiles o The volume of topsoil stockpiled o Stockpile location · Topsoil progressively distributed on rehabilitated surfaces where practical.	SD_C7
As Acid Sulfate Soil (ASS) has been identified as potentially occurring within the infrastructure corridor, ASS management will be undertaken using a risk based approach based on the principles of avoidance, minimisation of disturbance and treatment: · **Avoidance** - potential areas of ASS will be avoided where practicable when finalising the construction methodology and location of temporary construction areas at the CEIP Infrastructure site. · **Minimisation of disturbance** - when disturbance of potential ASS cannot be avoided, alterations to the design and construction methodology will be investigated to limit the extent of disturbance of potential ASS material. · **Treatment** – where required, application of alkaline materials (e.g. lime dosing) will be undertaken to mitigate impacts should the presence of ASS material be confirmed. Soils identified to require treatment will be immediately neutralised and managed at the excavation site, or segregated and isolated from uncontaminated soil and treated at a separate facility.	SD_C8
Detailed and site specific measures to minimise soil loss from stockpiles due to wind and water will be developed with reference to the Guideline for stockpile management: Waste and waste derived products for recycling and reuse (EPA 2010a).	SD_C9
Develop and implement dune management procedures to dune stability and blowouts, including the following (or similar): · Establishment of sand trapping fences to minimise erosion and support in the restoration of dunes through the accumulation of sand. · Revegetation of dune surfaces through the application of hydro mulch with seedbank to stabilise exposed surfaces. · Battering of slopes with materials more stable than sand (such as a mixture of sand and clay, or rock mulch).	SD_C10

2.1.5 Performance Indicators and Monitoring

Table 2-2 Performance Indicators and Monitoring - Soil Disturbance and Changes to Surface Water Flows

Performance Indicator	Monitoring
· No surface water discharged from the CEIP Infrastructure construction site to surrounding land/waters. · No impact to land quality due to the ASS (release of acid to the environment) generated from construction activities.	· Visual inspection of soils and field screening (where actual or potential ASS anticipated or suspect soils) during excavation activities to determine need for treatment. · Regular audit/inspection to review effectiveness of sediment and erosion controls and compliance with ASS protocols (pre-construction, post construction and during construction) and to confirm no off-site discharges are occurring.

2.1.6 Reporting

The *Environment Protection Act 1993* contains notification requirements under section 83 and 83a for serious and environmental harm or site contamination, respectively. It would be beneficial to include these requirements in the draft Construction EMP and Operational EMP.

Environmental monitoring results (surface water, identification of ASS and key audit/inspection outcomes) will be reported on a regular basis to the Environmental Manager.

Compliance reporting will also be undertaken if required by a permit to undertake water affecting activities under the *Natural Resources Management Act 2004*.

Identified non-conformances and corrective actions will be recorded as part of the EMS.

2.1.7 Non-Conformance

Non-conformances reported immediately to the Environmental Manager and appropriate corrective action shall be undertaken in a prompt manner in conjunction with supervisors.

2.2 Vegetation Clearance

The development of the CEIP Infrastructure will require clearance of land and removal of vegetation during the construction phase. Potential impacts from vegetation clearance include:

- Habitat fragmentation and reduction in habitat size and quality
- Loss of native vegetation

2.2.1 Legal and Other Guidance

- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*
- *Native Vegetation Act 1991*
- *National Parks and Wildlife Act, 1972 (Schedules 7, 8 and 9 of the Act) (NPW Act)*
- *Natural Resource Management Act, 2004*

2.2.2 Values

The implementation of this EMP aims to protect the following environmental values:

- Flora and fauna species with National conservation significance, as listed under the EPBC Act
- Flora and fauna species with State conservation significance, as listed under the NPW Act
- Native vegetation communities and habitat value
- Common native fauna and flora

2.2.3 Objectives

- Minimise vegetation clearance required for Iron Road's activities and ensure it is offset by long-term actions that deliver a significant environmental benefit.
- Maintain representation, diversity, viability and ecological function of flora and fauna at the species, population and community/assemblage level.

2.2.4 Control and Management Actions / Environmental Management Measures

Table 2-3 Management Measures - Vegetation Clearance

Control and Management Strategies	Identifier
All clearance of native vegetation to have approval from the Native Vegetation Council (as required under the *Native Vegetation Act*) prior to commencement.	VC_C1
Native vegetation clearance to be offset via implementation of an appropriate (commensurate) Significant Environmental Benefit (SEB), as approved by the Native Vegetation Council (NVC). The required SEB Offset plan will be developed in collaboration with Native Vegetation Management Unit officers (DEWNR) and regional stakeholders. The final offset will be approved by the Native Vegetation Council prior to any clearance occurring. Current proposals are being considered from the EP NRM Board and the Nature Foundation for potential offset projects which align with regional conservation objectives. Other options include payment into the Native Vegetation Fund.	VC_C2
Vegetation to be retained on site wherever practicable, and progressive rehabilitation of vegetation to occur as soon as practicable. Rehabilitation strategies will include use of locally indigenous plant species, use of existing seedbank from stockpiled material where practicable, and align with regional NRM objectives where possible.	VC_C3
Supervision of clearance contractors and / or auditing of vegetation clearance to ensure no unauthorised vegetation clearance occurs.	VC_C4
Ground disturbance footprints will be minimised by utilising existing tracks and designated tracks established for the project	VC_C5
Location of soil stockpiles will avoid vegetated areas unless appropriate approvals are in place.	VC_C6
Where required, seed will be collected from conservation significant plants which will be cleared (e.g. several NPW listed Hop-Bush Wattle in degraded sites at the port) to be used in site revegetation. If EPBC listed plants that have potential to occur in the area are identified in patches to be cleared (e.g. Jumping-jack Wattle, Resin Wattle), seed can also be collected for revegetation projects.	VC_C7
Impacts to native vegetation due to dust deposition during construction will be managed through the particulate emissions management measures discussed in Section 4.1.	VC_C8
Impacts to topsoil and vegetation will be managed through the soil disturbance and changes to surface water measures discussed in Section 2.1.	VC_C9

2.2.5 Performance Indicators and Monitoring

Table 2-4 Performance Indicators and Monitoring - Vegetation Clearance

Performance Indicator	Monitoring
· All native vegetation clearance approved under the Native Vegetation Act 1991	· Post clearance audit of cleared areas versus approved clearance areas.

2.2.6 Reporting

Any suspected breaches of authorised clearance areas to be reported to DEWNR, with SEB offsets to be revised where required.

2.2.7 Non-Conformance

Land will be rehabilitated as soon as practicable following any unplanned disturbance or clearance.

Any unplanned disturbance or clearance that is beyond the extent described in the EIS would result in an increase area under the SEB.

2.3 Potential Disturbance of Heritage Sites

Disturbance to heritage values is not planned as part of the CEIP Infrastructure. Places exhibiting non-Aboriginal heritage significance in proximity to the CEIP Infrastructure are predominantly related to the early primary production industries, including sites which were established as support services. These places are outside of the proposed construction area for the CEIP Infrastructure and do not require specific management.

The majority of the proposed CEIP Infrastructure is located across terrain and on sites that have been disturbed by farming practices and other development for over 100 years. However, cultural heritage values have been identified at the proposed port site, along the coastal dunes and at a spring fed creek 2 km from the coast, and are considered key environmental values.

This EMP addresses the risk of unplanned disturbance to non-Aboriginal heritage places, Aboriginal artefacts and Aboriginal burial sites within the construction footprint. It defines measures to identify, record, manage and protect sites and cultural places of significance to Aboriginal people.

2.3.1 Legal and Other Guidance

- *Environment Protection and Biodiversity Conservation Act 1999*
- *Heritage Places Act 1993*
- *Heritage Places Regulations 2005*
- *Development Act 1993*
- *Historic Shipwrecks Act 1981*

2.3.2 Values

The implementation of this EMP aims to protect the following environmental values:

- Cultural places of significance to Aboriginal people including along the coastal dunes and at a spring fed creek 2 km from the coast
- Aboriginal artefacts
- Aboriginal burial sites
- Places of non-Aboriginal heritage significance

2.3.3 Objectives

Prevent unauthorised disturbance to Aboriginal or Non-Aboriginal heritage.

2.3.4 Control and Management Actions / Environmental Management Measures

As there are no known places of non-Aboriginal heritage significance expected to be impacted by the proposed CEIP Infrastructure, no specific management strategies are proposed to protect non-Aboriginal heritage values.

Table 2-5 Management Measures - Potential Disturbance of Heritage Sites

Control and Management Strategies	Identifier
Develop and implement an Aboriginal heritage management protocol in accordance with the ILUA, including procedures to be followed in the event that Aboriginal heritage sites are uncovered during project construction, operation or closure. Procedures will comply with the relevant legislation and will include stop work and appropriate notification and assessment procedures.	HD_C1
Site inductions and training to include: · Obligation for machine operators to conduct surface earthworks and surface excavations with due care. · Obligations in the event that an Indigenous item / site of significance are discovered. · Notification to the Barngarla. · Iron Road to avoid areas so as to not damage, disturb or interfere with that item / site unless it is not possible to avoid it. Should avoidance not be possible, the Barngarla will support an application by Iron Road to the Minister for Aboriginal Affairs, pursuant to either Section 21 or Section 23 of the Aboriginal Heritage Act.	HD_C2

2.3.5 Performance Indicators and Monitoring

Table 2-6 Performance Indicators and Monitoring - Potential Disturbance of Heritage Sites

Performance Indicator	Monitoring
· No unauthorised disturbance to Aboriginal or non-Aboriginal heritage. · No clearance activities outside approved areas which have been surveyed for cultural heritage values.	· Completion of inductions prior to working on site will be regularly monitored. · Regular inspection/audit to verify activities are occurring within defined construction zones and approved clearance areas. · Should Aboriginal sites of significance be identified, the process followed would be monitored (against the developed procedure).

2.3.6 Reporting

Should any heritage items or sites be discovered, findings will be reported and recorded as detailed in the Heritage Management Procedure.

2.3.7 Non-Conformance

Should any heritage items or sites be discovered, relevant work activities would be reduced or ceased to stop the impacts in accordance with the Heritage Management Procedure.

Non-conformance with the Heritage Management Procedure to be reported immediately to the Environmental Manager and appropriate corrective action shall be undertaken in a prompt manner (e.g. additional training).

2.4 Marine Disturbance

Construction of the port will result in disturbance to the marine environment. Potential impacts to the marine environment include:

- Reduced marine water quality (increased turbidity and suspended soils, hydrocarbons)
- Altered benthic composition due to increased turbidity
- Loss of habitat from direct clearance to support new infrastructure, altered hydrodynamics and increased turbidity
- Impacts to marine fauna from collision with construction vessels

Underwater noise from construction activities also has the potential to impact on marine fauna behaviour. Underwater noise is addressed in Section 4.2.

The EMP management strategies for Marine Disturbance and Underwater Noise specifically address requirements for the protection of marine fauna which are protected under the EPBC Act.

2.4.1 Legal and Other Guidance

- Environment Protection (Water Quality) Policy 2003
- ANZECC Guidelines for Fresh and Marine Water Quality 2000
- National Assessment Guidelines for Dredging 2009
- Australian Ballast Water Management Requirements 2011
- Underwater Piling Noise Guidelines (DPTI 2012)
- National Plan for Maritime Environmental Emergencies
- National Marine Oil Spill Contingency Plan 2011

2.4.2 Values

The implementation of this EMP aims to protect the following environmental values:

- Benthic flora
- Infaunal diversity and abundance
- Protected megafauna species
- Protected fish species under the Fisheries Act and EPBC Act

2.4.3 Objectives

Maintain the structure, function, diversity, distribution and viability of coastal and marine communities and habitats at local and regional scales.

2.4.4 Control and Management Actions / Environmental Management Measures

Table 2-7 Management Measures - Marine Disturbance

Control and Management Strategies	Identifier
All clearance of native vegetation to have approval from the Native Vegetation Council (as required under the Native Vegetation Act) prior to commencement.	VC_C1
Native vegetation clearance to be offset via implementation of an appropriate (commensurate) Significant Environmental Benefit (SEB), as approved by the Native Vegetation Council (NVC). The required SEB Offset plan will be developed in collaboration with Native Vegetation Management Unit officers (DEWNR) and regional stakeholders. The final offset will be approved by the Native Vegetation Council prior to any clearance occurring. Current proposals are being considered from the EP NRM Board and the Nature Foundation for potential offset projects which align with regional conservation objectives. Other options include payment into the Native Vegetation Fund.	VC_C2
Develop and implement piling management procedures as detailed in the Noise and Vibration Generation EMP requirements (Section 4.2)., including: · Observation of the marine study area for marine mammals over 30 minutes prior to the commencement of piling. · Gradually increasing piling intensity over a 30 minute period. · Establishment of a 1.5 km observation zone and 0.5 km shut down zone for marine mammals during piling activities.	NV_C7 NV_C8

Control and Management Strategies	Identifier
Develop and implement whale management procedures, incorporating: · A description of all threats to the megafauna species expected in the area. · A monitoring plan for megafauna habitat use and behaviour, using appropriate survey techniques for mapping of potential threats to marine megafauna. · Identification and indication of noise sources and strategies to manage/mitigate noise impacts.	MD_C1
Restrict access to coastal areas for vehicles or temporary construction areas (e.g. laydown areas).	MD_C2
Restrict vessel movements to designated manoeuvring areas, including avoiding marine parks where practicable. All large vessels will be manoeuvred into place by tugs within the port site.	MD_C3
Develop and implement a Marine Mammal Notice to Mariners, incorporating: · An overview of when marine mammals are expected to be present within the study area and key shipping routes. · Mandated reductions of speed in shipping lanes during periods of peak marine mammal movements (e.g. whale season, May to November). · Mandatory reporting of marine mammals sightings to the appropriate authorities. · Encouragement for appropriate caution in ship movements around marine mammals. · Response procedures to be implemented should an entangled marine mammal be sighted, or a collision occur.	MD_C4
No discharge of high-risk ballast water as defined by the Australian Ballast Water Management Requirements (DAFF 2011).	MD_C5
Develop and implement procedures to minimise the spillage of oil, including: · Ship movements will remain in existing shipping channels and will be restricted from shallow waters or reefed areas · Where practical, activities with a risk of oil spill will be bunded (offshore and landside) · Spill response materials and procedures will be established (offshore and landside)	MD_C6
During the pouring of concrete into hollow piles for the construction of the jetty and wharf, removable bunding and a concrete injection system will be utilised to minimise risk of overflow and spillage.	MD_C7
Emergency response measures for fuel, oil or chemical spill will be consistent with the National Marine Oil Spill Contingency Management Plan 2011.	MD_C8
All vessels will comply with relevant speed restrictions and exclusion zones at all times.	MD_C9
Before undertaking piling or construction of the MOF, a marine fauna observer or trained crew member must visually monitor, using binoculars, a zone of 1000 m around the site of the activities (the monitoring zone) for cetaceans, pinipeds, penguins (and turtles). Piling works will only be undertaken during the day to allow for observation activities to be undertaken.	MD_C10
If any cetacean species are sighted in the monitoring zone, the activities must not commence until the animal is observed to leave the monitoring zone, or until 20 minutes after the last sighting within the monitoring zone.	MD_C11
Cease piling or dumping of rock wall, if any of these animals are observed within 500m of the activities being undertaken.	MD_C12
Should any injured or dead cetaceans, pinipeds and penguins (or turtles) be discovered attributable to construction related activities, complete shut-down of all activity must immediately occur and remain in effect until a review of procedures is undertaken and alternative and/or additional management measures have been approved by regulators.	MD_C13
A record will be kept of all sightings of protected marine species. All observations of cetaceans, pinipeds and turtles within the monitoring zone will be reported fortnightly to the appropriate authorities.	MD_C14

Control and Management Strategies	Identifier
If a cetacean, piniped or marine turtle is killed or injured the following reporting procedure must be followed: 1. The construction contractor must immediately report the incident to the environmental site manager. 2. The death or injury of the animal must be verbally reported within 24 hours to the appropriate state and Commonwealth authorities. 3. A written incident report detailing the species injured, location where the incident occurred or the animal was found, nature of the injuries, and circumstances surrounding the incident will be provided to the appropriate authorities within five working days. In the event of a boat strike, the report to DoE will be submitted through the Australian Marine Mammal Centre: https://data.marinemammals.gov.au/report/shipstrike.	MD_C15
Baseline, marine surveys to be undertaken in the marine study area for species present, providing robust baseline detailing presence of existing species. Follow up monitoring would be undertaken for the detection of new marine species (including pests), allowing for an early response to the introduction of invasive marine species (IMS), if required.	MD_C16
Light spill to the marine environment minimised through: · Limiting construction within the marine environment to day time only, reducing lighting requirements. · Orienting lights appropriately and utilising shielding to minimise spillage, particularly on the jetty. · Use of the minimum amount of lighting required for safety and security purposes.	MD_C17
Piling works will only be undertaken during the day to allow for observation activities to be undertaken.	MD_C18

2.4.5 Performance Indicators and Monitoring

Table 2-8 Performance Indicators and Monitoring - Marine Disturbance

Performance Indicator	Monitoring
· No significant impact to marine fauna · No introduction of marine pests as a result of construction of the CEIP. · Maintain existing marine water quality (turbidity, total suspended solids, hydrocarbons)	· The marine study area will be monitored for the presence of marine mammals for at least 30 minutes prior to the commencement of construction. Monitoring will be focused on the safety zones from an appropriate vantage point. · Sightings of marine mammals within the observation zone and shutdown zone to be recorded daily during construction. The register will identify whether piling activities were occurring at the time of the observation. · Regular marine water quality monitoring (turbidity, total suspended solids, hydrocarbons) · Baseline, marine surveys to be undertaken in the marine study area for species present, providing robust baseline detailing presence of existing species. Follow up monitoring would be undertaken for the detection of new marine species (including pests), allowing for an early response to the introduction of IMS (if required).

2.4.6 Reporting

Reporting of marine mammal sightings within observation and shutdown zones.

Whale strikes and/or the presence of marine pests to be reported to Environmental Manager, Site Manager and relevant authorities.

Water quality results reported to Environmental Manager and summarised in Annual Compliance Report.

2.4.7 Non-Conformance

Any observed impacts to marine mammals to be reported to the Site Manager/Environmental Manager. Should marine fauna deaths be attributed to activity associated with construction of the project, work to cease immediately and Site Manager/Environmental Officer to be notified.

In the event of a boat strike, a review of the circumstances will be conducted using the Incident Reporting and Investigation Procedure to determine any other mitigation measures that could be implemented to prevent future occurrences.

Appropriate corrective action to be undertaken in conjunction with guidance from the authorities.

3 Interaction with Natural Resources

3.1 Potential Introduction and Spread of Pest Plants and Animals

Construction of the CEIP Infrastructure has the potential to result in increase or spread of pest plants, animals and pathogens. Potential impacts include:

- Increase in existing weeds in the project area
- Establishment of new weeds
- Increase in pests

3.1.1 Legal and Other Guidance

- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*
- *Native Vegetation Act 1991*
- *National Parks and Wildlife Act, 1972 (Schedules 7, 8 and 9 of the Act) (NPW Act)*
- *Natural Resource Management Act, 2004*

3.1.2 Values

The implementation of this EMP aims to protect the following environmental values:

- Flora and fauna species with National conservation significance, as listed under the EPBC Act
- Flora and fauna species with State conservation significance, as listed under the NPW Act
- Native vegetation communities and habitat value
- Common native fauna and flora

3.1.3 Objectives

Maintain representation, diversity, viability and ecological function of flora and fauna at the species, population and community/assemblage level.

3.1.4 Control and Management Actions / Environmental Management Measures

Table 3-1 Management Measures - Potential Introduction and Spread of Pest Plants and Animals

Control and Management Strategies	Identifier
Implementation of weed management strategies, including the following: · Develop control strategies with the EP NRMB and local landholders · Identify existing presence of regional significant weeds at the port site and along the infrastructure corridor, particularly the rail, and periodically monitor extent of spread · Weed hygiene practices will be followed such as cleaning of plant, equipment and vehicles before construction and after access to known areas infested with Declared weeds · Maintain and monitor tracks for weed outbreaks, in particular for Declared weed of regional concern – Buffel Grass. · Periodic monitoring along areas adjacent or in close proximity to high value vegetation (e.g. Hambidge WPA). · Adaptive management and control measures to be applied as required.	PPA_C1
Periodic monitoring of pest species populations at the site during construction. Adaptive management and control measures to be applied as required.	PPA_C2
Implementation of incident reporting process for regular weed control and weed outbreak as part of broader environmental site management checks.	PPA_C3
Incident reporting of weed outbreaks and feral animal sightings to facilitate adaptive management measures and control strategies.	PPA_C4

3.1.5 Performance Indicators and Monitoring

Table 3-2 Performance Indicators and Monitoring - Potential Introduction and Spread of Pest Plants and Animals

Performance Indicator	Monitoring
· No evidence of increased pest animals in the areas managed by Iron Road · No introductions of new environmental or declared weed species to the Project site · No spread of existing weed species on the Project site.	· Follow up surveys and regular monitoring to determine level of pest control required. · Follow up surveys and periodic monitoring of weed species distributions to determine weed control effort required (e.g. annually or after trigger events – seasonal rainfall events, bushfire). Adaptive management and control measures to be applied as required.

3.1.6 Reporting

Results of survey programs to be documented. Any observed increases in weeds or pests to be reported to Site Manager and/or Environmental Manager.

3.1.7 Non-Conformance

If a new species of weed or increase in abundance of existing weeds are identified on site, commence immediate control actions.

Control of pest animals will be undertaken where monitoring suggests that they are becoming established and threatening the environmental value of the area.

3.2 Fauna Interactions

CEIP construction activities will result in interactions with fauna that may result in altered fauna behaviours, injury or death. Direct fauna interactions addressed by this section of the EMP are:

- Injury or direct mortality through strike with vehicles or machinery or barriers to movement (e.g., pipeline trenches)
- Impacts to breeding regimes as a result of increased disturbance, changes in noise levels and changes in light levels. Some species are particularly prone to disturbance (e.g. White-bellied Sea-eagle, Osprey and Little Penguin). Noise measures are addressed in 4.2.

Vegetation clearance and the introduction/spread of weeds or predatory animal pests may indirectly affect fauna values. Management of these aspects is addressed in Sections 2.2 and 3.1 respectively.

3.2.1 Legal and Other Guidance

- *Environment Protection and Biodiversity Conservation Act, 1999*
- *National Parks and Wildlife Act, 1972*
- *Natural Resource Management Act, 2004*

3.2.2 Values

The implementation of this EMP aims to protect the following environmental values:

- Fauna species with National conservation significance, as listed under the EPBC
- Fauna species with State conservation significance, as listed under the NPW Act
- Common fauna

3.2.3 Objectives

Maintain representation, diversity, viability and ecological function of fauna at the species, population and community level.

3.2.4 Control and Management Actions / Environmental Management Measures

Table 3-3 Management Measures - Fauna Interactions

Control and Management Strategies	Identifier
Prior to disturbance, areas known to contain listed threatened flora or fauna in close proximity to proposed disturbance areas will be marked as 'no go' areas on construction design drawings and in the field with flagging tape and/or hazard fencing.	FI_C1
Speed limits on site to reduce any fauna strike.	FI_C2
Temporary fencing of trenches and excavations which are left open for more than a week during construction to limit impacts to native fauna.	FI_C3
Provision of ramps and refuges within all open trenches during construction to minimise stress on any trapped fauna.	FI_C4
Regular monitoring of fencing and long-term trenches for trapped fauna in accordance with regular site safety checks during construction.	FI_C5
Qualified fauna handling expert be present on site during construction to remove any trapped animals from trenches and to manage displaced fauna during vegetation clearance. Species details to be recorded (to enhance survey information). Humane disposal of feral animals captured following Wildlife Ethics Committee protocols.	FI_C6
Education about conservation significant fauna that may occur within the project site for all staff, their families and contractors via awareness training (e.g. during site inductions, notice board fact sheets and newsletters). In particular, Hooded Plover pair near Port Site.	FI_C7

3.2.5 Performance Indicators and Monitoring

Table 3-4 Performance Indicators and Monitoring - Fauna Interactions

Performance Indicator	Monitoring
· No preventable death or serious injury to native fauna during clearing or construction works	· Visual site inspections of open trenches and excavations · Review of incident reporting and implementation of adaptive management measures where required

3.2.6 Reporting

Fauna encountered during pre-clearance checks to be reported to Environment Manager.

Any fauna deaths that appear to be the direct result of the CEIP to be reported to the Environment Manager immediately.

Identified non-conformances and corrective actions will be recorded as part of the EMS.

3.2.7 Non-Conformance

Unusual fauna injury/deaths to be investigated and appropriate corrective action undertaken.

In the event that any native fauna are identified prior to, or during the course of, vegetation removal works, the contractor will contact a local Wildlife Group to arrange removal and translocation as appropriate. Non-native species (e.g. birds nest) can be either relocated to closest adjoining areas unaffected by works or taken to a local vet.

3.3 Groundwater Drawdown and Seepage to Groundwater

Aquifer drawdown will result from the abstraction of groundwater from wells required for construction water supply. The only receptor expected to be affected by drawdown from CEIP Infrastructure construction activities is the Driver River. Although a change in groundwater-surface water interaction may occur, the impact is considered negligible as current saline water inflow to the Driver River is reported to be detrimental to the ecosystem it supports (EPA 2010b).

Permanent drainage at the base and perimeter of the excavation to accommodate the rail unloading facility would also result in a radius of influence that would reduce current groundwater level.

3.3.1 Legal and Other Guidance

- *Natural Resources Management Act 2004*
- *Environment Protection Act 1993*
- *Environment Protection (Water Quality) Policy 2003*

3.3.2 Values

The implementation of this EMP aims to protect the following environmental values:

- The potential users of the groundwater (primarily stock wells)
- Groundwater Dependent Ecosystems reliant on surface expression of groundwater (Playa lakes and ephemeral creek lines)
- Existing mining operations

3.3.3 Objectives

Maintain the quality and hydrological regimes of groundwater so that environmental values, both ecological and social, are protected.

Manage ground, surface and marine water quality so that environmental values, both ecological and social, are protected.

3.3.4 Control and Management Actions / Environmental Management Measures

Table 3-5 Management Measures - Groundwater Drawdown and Seepage to Groundwater

Control and Management Strategies	Identifier
Appropriate permits obtained for the construction of the two saline water construction supply wells	GD_C1
Controlled and recorded abstraction of water in accordance with defined water requirements and approved abstraction volumes for the saline construction wells	GD_C2
Appropriate permits obtained for the construction of the Keilpa borefield	GD_C3
Construction camp at the port will maintain a licenced waste water treatment plant during its operation, which will be removed upon completion of construction works	GD_C4
All hazardous materials (oils, fuels and chemicals) will be managed in accordance with relevant regulations and guidelines, including appropriate storage and bunding, material safety data sheets, spill response etc. as detailed in Section 5.1.	GD_C5
Groundwater monitoring at designated locations to assess whether groundwater drawdown is consistent with numerical model predictions throughout the operation of the borefield and the requirement for further investigation where differences are observed.	GD_C6

3.3.5 Performance Indicators and Monitoring

Table 3-6 Performance Indicators and Monitoring - Groundwater Drawdown and Seepage to Groundwater

Performance Indicator	Monitoring
· No long term change to the potential yield of groundwater resources as a result of construction groundwater use · Abstraction of water in accordance with defined water requirements and approved abstraction volumes for the saline construction wells	· Monitoring of compliance with abstraction permits. Where differences are observed, investigations will be undertaken to reassess the impacts.

3.3.6 Reporting

Any non-conformances and corrective action undertaken will be documented in a monthly report

3.3.7 Non-Conformance

Non-conformances reported immediately to the Environment Manager and appropriate corrective action undertaken.

4 Emissions from Industrial Systems

4.1 Particulate Emissions

The development of the CEIP Infrastructure would require land disturbance, potentially resulting in dust emissions. Potential impacts include:

- Health impacts to sensitive receivers from dust emissions
- Reduction in amenity values from dust deposition

4.1.1 Legal and Other Guidance

- *Environment Protection Act 1993*
- The National Environment Protection (Ambient Air Quality) Measure (NEPM) (National Environment Protection Council (NEPC) 2003)

4.1.2 Values

The implementation of this EMP aims to protect:

- The good air quality experienced by the sensitive receivers and local communities within the vicinity of the CEIP Infrastructure prior to the development
- Community health and safety (e.g. visibility)

4.1.3 Objectives

Maintain air quality for the protection of the environment and human health and amenity.

4.1.4 Control and Management Actions / Environmental Management Measures

Table 4-1 Management Measures - Particulate Emissions

Control and Management Strategies	Identifier
Regular use of water sprays or suitable chemical wetting agent on susceptible earthen material loads, active earthern stockpiles, particularly during dry or windy conditions (otherwise use covers where appropriate).	PE_C1
Earthern stockpiles to be located as far from sensitive receivers as practicable.	PE_C2
Vegetation to be retained on site where possible, and establishment of additional native vegetation to occur as soon as practicable.	PE_C3
Temporary haul roads to be constructed of compacted gravel or similar and kept in good condition.	PE_C4
Use of water trucks or chemical wettings agents where appropriate on unpaved roads or other exposed areas.	PE_C5
Windbreaks, silt fences and water sprays to be used where appropriate on exposed work areas to reduce wind-generated dust, especially during windy conditions of dry summer months.	PE_C6
Use of a truck-wheel wash grid for trucks leaving the site (for those having trafficked any unsealed roads) where appropriate.	PE_C7
Vehicle speed limits will be managed in accordance with construction traffic management plans and site conditions to mitigate wheel-generated dust.	PE_C8
Maintenance of the complaints and ideas hotline.	PE_C9
Should visible air quality impacts be clearly observed (e.g. visible dust plumes being emitted off-site), relevant work activities will be reduced or ceased to stop the impacts and alternative work methods implemented.	PE_C10

4.1.5 Performance Indicators and Monitoring

Table 4-2 Performance Indicators and Monitoring - Particulate Emissions

Performance Indicator	Monitoring
· Respond proactively to dust issues raised by the community. · Investigation of air quality complaints indicates no exceedance of project air quality criteria due to CEIP infrastructure activities.	· Daily visual monitoring and observation of dust and implementation of adaptive management strategies · Review of adherence to processes and timeframes in Complaints Management Procedure

4.1.6 Reporting

Record and respond to complaints in accordance with the Complaints Management Procedure

Summary of monitoring results and any complaints received to be included in monthly report and annual environmental report

4.1.7 Non-Conformance

Should an exceedance of nominated criteria occur (identified through monitoring or investigation of a complaint) alteration of site practices should occur which may include but is not limited to ceasing work in windy conditions, increased operational controls (e.g. additional watering, reducing level of exposed areas) or more rigorous monitoring/observation.

4.2 Noise and Vibration Generation (Terrestrial and Marine)

Construction of the CEIP infrastructure will generate noise and vibration from blasting of rock, increased traffic, piling activities, shipping movements, and operation of construction equipment and machinery. Noise emissions have the potential to disturb the amenity of surrounding residents and affect the behaviour of fauna. Potential impacts from noise and vibration include:

- Impacts to sensitive receivers from noise generated during construction
- Impacts to sensitive receivers from vibration caused by equipment used during construction
- Impacts to sensitive receivers from ground vibration and airblast generated by blasting during construction
- Changes in the behaviour of terrestrial and marine fauna, including breeding behaviour and social interactions
- Hearing damage to marine fauna

The EMP management strategies for Marine Disturbance and Underwater Noise specifically address requirements for protection of marine fauna which are protected under the EPBC Act.

4.2.1 Legal and Other Guidance

- *Environmental Protection Act 1993*
- Environmental Protection (Noise) Policy 2007
- Management of Noise and Vibration: Construction and Maintenance Activities, Operational Instruction 21.7 (DPTI 2014)
- Australian Standard AS 2187.2 - 2006 Explosives – Storage and use Part 2: Use of explosives (AS 2187.2 – 2006)
- Management of Noise and Vibration: Construction and Maintenance activities, Operational Instruction 21.7 (DPTI 2014)
- Underwater Piling Noise Guidelines (DPTI 2012)

4.2.2 Values

The implementation of this EMP aims to protect the existing high level of amenity in the vicinity of the CEIP Infrastructure as a result of a quiet, rural environment with no identified significant sources of noise or vibration. The EMP also aims to protect marine mammals from noise impacts.

4.2.3 Objectives

Manage noise and vibration generation for the protection of the environment and human health and amenity.

4.2.4 Control and Management Actions / Environmental Management Measures

Table 4-3 Management Measures - Noise and Vibration

Control and Management Strategies	Identifier
Terrestrial Noise and Vibration	
All reasonable and practicable measures will be taken to minimise noise resulting from construction activity having an adverse impact on amenity of sensitive receivers at all times. Construction activity resulting in noise potentially having an adverse impact on amenity (e.g. above a continuous noise level of 45 dB(A) or maximum noise level of 60 dB(A)) will not occur on a Sunday or Public Holiday or at night-time without approval.	NV_C1
Noisy equipment or processes are to be located in strategic locations so that their impact on nearby sensitive receivers will be minimised (e.g. work or processes will be performed at locations further away from residential buildings or behind barriers such as buildings etc.).	NV_C2
Equipment will be shut off or throttled down whenever it is not in actual use.	NV_C3
Noise reduction devices such as mufflers will be fitted and will operate effectively.	NV_C4
Equipment will be serviced regularly and equipment in need of repair will not be used.	NV_C5
Equipment will be operated and materials handled in a way as to minimise the impact of noise and vibration.	NV_C6
Marine Noise	
A safety zone surrounding piling activity will be established to monitor the movement of marine mammals in waters impacted by construction noise. The safety zone is separated into the following two areas: · Observation Zone – piling/drilling activities will be placed on standby should a mammal be sighted within the 1.5 km observation zone. · Shutdown Zone – all piling/drilling activities will cease should a mammal be sighted within the 0.5 km shutdown zone.	NV_C7
The standard procedures that will be implemented during piling/activities are outlined below. These operational procedures will be implemented prior to the commencement of daily construction activity or following a break of more than 30 minutes. 1. Pre-start-up visual observations: Visual observations for whales, dolphins and marine turtles will be undertaken to the extent of the marine piling/drilling observation zone by a suitably trained crew member for at least 30 minutes prior to the commencement of marine piling/drilling. If a whale, dolphin or marine turtle is observed within the marine piling/drilling observation zone, then piling/drilling will not commence until all whales, dolphins and marine turtles are observed to move outside the observation zone or 30 minutes have passed since the last sighting. 2. Soft start: Commence (or recommence) piling works with a soft-start procedure which will alert animals in the wider area of an acoustic disturbance and allow them to move away before impact piling starts. Piling/drilling impact will be gradually increased over a 30 minute period. Monitoring of the safety zones for the presence of marine mammals will continue during the soft start process.	NV_C8

Control and Management Strategies	Identifier
3. Construction procedures: While marine piling/drilling is undertaken, the following procedures will be implemented: a. The marine piling/drilling observation zone will be maintained continuously to identify whether there are any whales, dolphins or marine turtles present. b. Exclusion zones will be implemented to ensure whales and dolphins are not exposed to Sound Exposure Levels (SEL) of greater than or equal to 150 dB(M) re 1µ Pa2.s. Exclusion zones will be a 500 metre horizontal radius for whales and dolphins (unless a lesser exclusion has been determined from noise monitoring of piling and drilling and has a SEL less than 150 dB(M) re 1µ Pa2.s), and no less than a 100 metre horizontal distance for marine turtles. c. If a whale, dolphin or marine turtle is sighted within the relevant exclusion zone, action will be taken to cease all marine piling/drilling as soon as safely possible. d. Marine piling/drilling will not recommence until all whales, dolphins and marine turtles are observed to move outside the marine piling/drilling observation zone or 30 minutes have passed since the last sighting. e. Piling/drilling commenced prior to period of low visibility will continue only if there have been no more than three shutdowns in the preceding 24 hours. f. Marine piling/drilling commenced prior to sunset can continue after sunset, unless marine piling is suspended for more than 15 minutes and provided there have been no more than three shutdowns in the preceding 24 hours. g. Marine piling/drilling will be commenced or recommenced at the soft start level.	

4.2.5 Performance Indicators and Monitoring

Table 4-4 Performance Indicators and Monitoring - Noise and Vibration

Performance Indicator	Monitoring
· No significant impact to marine mammals from underwater construction noise · Respond proactively to construction noise issues raised by the community · Investigation of noise and vibration complaints indicates no exceedance of project noise and vibration criteria due to CEIP infrastructure construction activities	· Audit and review of adherence to mammal observation and piling start up procedures · Monitor the movement of marine mammals in waters impacted by construction noise

4.2.6 Reporting

Mandatory reporting of marine mammal sightings.

Identified non-conformances and corrective actions will be recorded as part of the EMS.

4.2.7 Non-Conformance

Should an exceedance of nominated criteria occur (identified through monitoring or investigation of a complaint) appropriate corrective action will be taken. This may include training, additional monitoring and review or altered site practices.

4.3 Greenhouse Gas Emissions

Greenhouse gas emissions will be generated by construction of the CEIP Infrastructure through the burning of fossil fuels for transport of materials, equipment and persons and purchase of electricity. Land clearance will cause changes in the carbon stocks of land, while the use of construction materials such as concrete and steel also has embodied greenhouse gas emissions. The impact of these activities will be an increase in greenhouse gas emissions into the atmosphere resulting in further contribution to global climate change. This section of the EMP provides a framework for minimising greenhouse gas emissions associated with the CEIP Infrastructure.

4.3.1 Legal and Other Guidance

- *National Greenhouse and Energy Reporting (NGER) Act 2007*
- *Climate Change and Greenhouse Emissions Reduction Act 2007*
- The World Business Council for Sustainable Development Greenhouse Gas Protocol (World Business Council for Sustainable Development 2004)
- Climate Change Sector Agreements

4.3.2 Values

The implementation of this EMP aims to protect the global environment by minimising greenhouse gas emissions.

4.3.3 Objectives

Implement reasonable measures to minimise greenhouse gas emissions during development and operation of Iron Road's projects.

4.3.4 Control and Management Actions / Environmental Management Measures

Table 4-5 Management Measures - Greenhouse Gas

Control and Management Strategies	Identifier
Vehicle speed limits will be managed in accordance with construction traffic management plans and site conditions to mitigate wheel generated dust	GHG_C1
Innovative material sourcing, including: · Sourcing of materials that have minimal embodied energy and environmental impact · Reducing emissions through the sourcing of local materials where practicable · Sourcing construction rock for the Modular Offloading Facility from reclaimed rock excavated from the site during construction of foundations · Balancing cut and fill requirements along the infrastructure corridor where practicable during construction to avoid requirement for transportation of additional fill material or waste	GHG_C2
Land clearance measures including: · Avoiding higher quality native vegetation where practicable.	GHG_C3
Management and monitoring requirements, including: · Maintenance, inspection and verification requirements for all mobile fleet to enhance efficiency and emissions reduction · Monitoring program to detect whether CEIP construction and operations are exceeding required emissions levels for the project · Energy and water audits to be conducted annually once operations have commenced to ensure project efficiencies	GHG_C4
Energy efficiency measures and use of renewable energy, including: · Energy efficient design elements will be incorporated within the accommodation, administration and workshop facilities to reduce electricity demands (including the use of energy-efficient fixtures, fittings and appliances, and the use of passive solar design elements within the plant and accommodation facilities) · The use of solar hot water systems and solar PV systems for powering the site administration, accommodation and workshop facilities, where practicable	GHG_C5

Innovative practices regarding offsets, topsoil use, land clearance, including: · Determination of offsets to compensate for residual impacts from the project associated with clearance of vegetation · Stockpiling of topsoils during operations for subsequent use in rehabilitation activities · Compensation for vegetation clearance by purchasing regional land for conservation purposes or payment into the Native Vegetation Fund (as part of Significant Environment Benefit offset, as per requirements of the Native Vegetation Act) · Liaison with local and regional stakeholders to ensure sustainable and viable offsets are selected (e.g. for vegetation projects use of local species that are known to survive under harsh seasonal conditions)	GHG_C6

4.3.5 Performance Indicators and Monitoring

Table 4-6 Performance Indicators and Monitoring - Greenhouse Gas

Performance Indicator	Monitoring
· Identify opportunities and implement associated actions to reduce greenhouse gases generated during development of the CEIP Infrastructure.	· Develop a monitoring program to enable adequate accounting and reporting of greenhouse gas emissions to NGER requirements and to help identify opportunities to reduce greenhouse gases generated during development of the CEIP Infrastructure. · Annual greenhouse gas emissions will be estimated and reported to the relevant regulatory authority, as required, to assist with the ongoing management of energy efficiency programs. · Review of monthly reporting shows that greenhouse gas efficiency measures are being identified and considered.

4.3.6 Reporting

Identified greenhouse gas reduction opportunities to be documented in the monthly report.

Reporting in accordance with any conditions of approval and NGER requirements.

4.3.7 Non-Conformance

Research into additional opportunities and implementation of actions to further reduce greenhouse gas emissions where greenhouse gas emissions are significantly greater than originally expected.

5 Generation of Industrial Wastes and Discharges

5.1 Accidental Release from Chemical / Hydrocarbon Storage

Construction of the CEIP Infrastructure will require chemicals and hydrocarbons to be stored and used on site. The accidental discharge of chemicals and hydrocarbons may result in contamination of soil or water resources. This section of the EMP addresses the storage and handling of chemicals and hydrocarbons landside. Offshore risks are addressed in Section 2.4 (Marine Disturbance).

5.1.1 Legal and Other Guidance

- *Environment Protection Act 1993*
- *Natural Resources Management Act 2004*
- Environment Protection (Water Quality) Policy 2003
- National Environment Protection (Assessment of Site Contamination) Measure 1999
- Bunding and spill management guideline (EPA 2012)
- AS 1940-2004: The storage and handling of flammable and combustible liquids

5.1.2 Values

The implementation of this EMP aims to protect and maintain the condition of soil and water resources in the vicinity of the construction footprint.

5.1.3 Objectives

To ensure that human health and safety is not adversely affected.

To maintain the quality of land, soils and surface water so that the environment values, both ecological and social, are protected.

5.1.4 Control and Management Actions / Environmental Management Measures

Table 5-1 Management Measures - Chemical / Hydrocarbon Storage

Control and Management Strategies	Identifier
Keep the quantity of chemicals stored on site to a minimum.	CHS_C1
All hazardous materials (oils, fuels and chemicals) which are required to be located at the site to be stored on a bunded impervious base. The capacity of all bunds will accord with that required by the EPA guidelines.	CHS_C2
Safety Data Sheets will be readily available for all materials on site.	CHS_C3
Bins provided for disposal of industrial wastes. Waste disposal undertaken by licensed waste contractor.	CHS_C4
Designated equipment lay down areas will be established.	CHS_C5
All vehicle re-fuelling will be undertaken in a designated hardstand re-fuelling area which and bunded to contain refuelling nozzle leakages.	CHS_C6
Regular inspection of vehicles and machinery to identify and address leaks.	CHS_C7
Chemical and fuel storage, handling and emergency response procedures will be developed in accordance with AS 1940-2004.	CHS_C8
Contamination booms, spill kits and absorption materials (as appropriate) will be maintained on site to contain and recover any inadvertent spillage of fuels or chemicals.	CHS_C9
Construction camp at the port will maintain a licenced waste water treatment plant during its operation, which will be removed upon completion of construction works.	CHS_C10

5.1.5 Performance Indicators and Monitoring

Table 5-2 Performance Indicators and Monitoring - Chemical / Hydrocarbon Storage

Performance Indicator	Monitoring
· Spills/accidental releases of chemicals/hydrocarbons are contained. · No long term reduction in soil and water quality attributed to accidental releases of chemicals/hydrocarbons.	· Iron Road will develop and implement a regular inspection program to audit and monitor fuel and chemical storage areas to ensure integrity, housekeeping and correct use. · Containment and clean-up of accidental spills will be monitored (against developed procedure)

5.1.6 Reporting

Results of inspection program to be documented. Identified non-conformances and corrective actions will be recorded as part of the EMS.

5.1.7 Non-conformance

Non-conformances reported immediately to the Environmental Manager and appropriate corrective action shall be undertaken in a prompt manner.

5.2 Waste Generation

The construction of the CEIP Infrastructure will generate a significant amount of waste. Inappropriate management of waste may result in contamination of soil and water resources, reduced amenity or the attraction of pest animal species.

Effective waste management for the CEIP Infrastructure is also important to minimise the project's contribution to landfill.

5.2.1 Legal and Other Guidance

· *Environment Protection Act 1993*

5.2.2 Values

The implementation of this EMP aims to protect the following environmental values:

· Existing condition of soil and water resources
· Human health and safety
· Existing amenity and cleanliness of the project area
· Flora and fauna species (which may be through the attraction of pest species)
· Capacity of local landfill facilities

5.2.3 Objectives

Minimise any adverse environmental impacts from wastes and to implement reasonable measures to minimise their generation, to maximise their reuse and recycling, and to ensure safe and lawful disposal of all waste.

5.2.4 Control and Management Actions / Environmental Management Measures

Table 5-3 Management Measures - Waste Generation

Control and Management Strategies	Identifier
Develop and implement waste management measures in accordance with South Australia's Waste Strategy to identify, separate and provide adequate waste disposal for all waste streams. Waste management arrangements will be in accordance with the principles of waste minimisation, containment, segregation and appropriate re-use, recycling, treatment and disposal.	WG_C1
Site inductions will inform all site personnel of their responsibility to reduce waste where possible - all personnel will receive instruction on what waste materials can be recycled and the location of the appropriate bins.	WG_C2
A procurement policy will be developed to encourage purchase and use of materials with recycled content, minimal packaging and materials that can be recycled at their end of life, or returned to the provider for recycling/re-use.	WG_C3
Identification, separation and provision of adequate waste disposal for all waste streams including kitchen wastes, soil (from foundations and clearance), hazardous items (e.g. sewage) and hydrocarbons. Construction waste will be separated into different streams to facilitate recycling. All waste will be sorted and stored within controlled contained areas until it can be removed from site by a suitable waste disposal company.	WG_C4
Liquid waste (including hydrocarbons, paints and solvents) will be stored in sealed drums or containers in a bunded area before removal from the site by an EPA licensed contractor for recycling, where possible, or disposal to a licensed facility.	WG_C5
Bunding will be used to prevent leaching of soluble waste, or stormwater run-off carrying pollutants, into drains or groundwater and ultimately the marine environment.	WG_C6
Secure lids will be fitted to bins that store food waste to prevent scavenging by birds and animals.	WG_C7
Temporary ablution facilities will be serviced by pump-out tanker trucks, with off-site disposal by a licensed contractor.	WG_C8
Iron Road will liaise with the Wudinna and Tumby Bay Councils to develop or upgrade transfer facilities for recyclable waste that can be shared with the community.	WG_C9
All marine construction vessels to have sewage containment or treatment facilities.	WG_C10
Waste material that could present an entanglement risk to marine birds and mammals will be avoided at the port where practicable or, if not, appropriate arrangements implemented to ensure its safe disposal/recycling.	WG_C11

5.2.5 Performance Indicators and Monitoring

Table 5-4 Performance Indicators and Monitoring - Waste Generation

Performance Indicator	Monitoring
· All waste material to be appropriately classified and segregated for reuse, recycling or offsite disposal · Waste to be disposed of lawfully · No complaints received in relation to waste management practices.	· Iron Road will develop and implement a regular inspection program to monitor storage, handling and disposal of wastes on site and to ensure management is in accordance with this plan.

5.2.6 Reporting

All waste disposed of (whether it be for recycling/reuse or landfill disposal) will be recorded on forms which will be part of the project record.

Record and respond to complaints in accordance with the Complaints Management Procedure.

Results of inspection program to be documented. Identified non-conformances and corrective actions will be recorded as part of the EMS.

5.2.7 Non-Conformance

Non-conformances (identified through monitoring or investigation of a complaint) to be reported immediately to the Environmental Manager and appropriate corrective action shall be undertaken in a prompt manner.

6 Community Interaction

6.1 Employment and Demand for Business Services

The CEIP Infrastructure will provide increased opportunity for local and regional employment and business development. An associated social risk is that the CEIP has the potential to increase competition for workers, attracting them from other sectors of the economy, including agriculture and fishing. Experiences in other rural areas suggests the mining industry can compete with other industries for employees and drive up wages that other industries may find difficult to match. Another potential impact includes skills shortages at a local level as a result of growth in employment opportunities related to CEIP.

The CEIP Infrastructure also has the potential to provide direct and indirect supplier opportunities at the local, regional and state level. This has the potential to result in increased competition for local and regional suppliers.

6.1.1 Legal and Other Guidance

- *Development Act 1993*

6.1.2 Values

The implementation of this EMP aims to promote the following values:

- Enhanced opportunities for local and regional suppliers, employment and business development
- Economic diversity in the region

6.1.3 Objectives

Positively contribute to the social and economic capital of local and regional communities.

Maximise opportunities for local and regional businesses.

6.1.4 Control and Management Actions / Environmental Management Measures

Table 6-1 Management Measures - Employment and Demand for Business Services

Control and Management Strategies	Identifier
Develop an Australian Industry Participation Plan (AIP) that sets out Iron Road's strategy and intent for providing full, fair and reasonable opportunity to local, South Australian and Australian suppliers, manufacturers and contractors.	EBS_C1
Work collaboratively with government, education and training providers, and other relevant organisations to train and up skill local and regional people to work on the project and to enhance business capacity among local and regional suppliers · Consult with Wudinna TAFE about vocational and pre- vocational training programs to enhance local skills and support local entry to the mining workforce · Consider supporting vocational education and training programs at Port Lincoln and Wudinna to address skills requirements of relevance to the project · Implement a trainee and apprenticeship program as part of the project · Take part in programs targeting skills development and job placement for local Aboriginal people (as per the Indigenous Land Use Agreement).	EBS_C2
Work with business groups to identify local business opportunities; provide information on CEIP business opportunities, tendering and procurement processes and standards to facilitate the pre-qualification of local and regional businesses.	EBS_C3
Maintain the existing register of businesses with an interest in supplying goods and services to the project.	EBS_C4

Control and Management Strategies	Identifier
Identify contract packages that could potentially be let locally or regionally	EBS_C5
Actively work with local and regional employment services and businesses to enhance opportunities and give preference to suitably qualified local and regional workers.	EBS_C6
Work with the Industry Capability Network (ICN) South Australia, RDAWEP and other regional development organisations to promote the participation of local, regional and South Australian businesses in the project.	EBS_C7
Work with other members of the Eyre Peninsula Mining Alliance to create long term business benefits to Eyre Peninsula communities.	EBS_C8
Develop flexible work practices where possible (e.g. job sharing, part-time) to accommodate farm work, including peak agricultural periods such as harvesting, and other seasonal business activities.	EBS_C9
Maintain the existing online data base/register of prospective employees.	EBS_C10
Collaborate with the Eyre Peninsula Mining Alliance, the SA Chamber of Mines and Energy and other mining companies to provide information on careers in the Eyre Peninsula mining industry.	EBS_C11
Work with local and regional industry and associations to plan regional supply and employment requirements and identify opportunities to collaborate to minimise potential for supply and skills shortages.	EBS_C12

6.1.5 Performance Indicators and Monitoring

Table 6-2 Performance Indicators and Monitoring - Employment and Demand for Business Services

Performance Indicator	Monitoring
· Participation of local and regional workforce, businesses and suppliers · Collaboration with local and regional bodies to address potential for supply and skills shortages	· Participation of local and regional workforce, businesses and suppliers · Regular monitoring of stakeholder feedback, including feedback regarding demand for services, particularly through regional supply planning sessions.

6.1.6 Reporting

Regular reporting of progress against socio-economic commitments developed in conjunction with stakeholders.

6.1.7 Non-Conformance

Should objectives and targets not be met, alternative measures to meet them shall be explored in consultation with stakeholders.

6.2 Accommodation of Employees and Contractors

As the construction workforce will be housed in the construction camps provided by Iron Road, impacts on local housing prices arising from the construction workforce will be negligible. The potential influx of the construction workforce into the region has the potential to disrupt existing community interactions and values. This EMP provides a framework for managing the integration of the construction workforce with the existing community.

6.2.1 Legal and Other Guidance

· *Development Act 1993*

6.2.2 Values

The implementation of this EMP aims to maintain and enhance social cohesion and social interactions within the community.

6.2.3 Objectives

Positively contribute to the social and economic capital of the communities in which Iron Road operates.

6.2.4 Control and Management Actions / Environmental Management Measures

Table 6-3 Management Measures - Accommodation of Employees and Contractors

Control and Management Strategies	Identifier
Develop and implement visitor management policies and procedures at construction camps.	AEC_C1
Undertake regular drug and alcohol testing of all workers to monitor alcohol and drugs and ensure workplace safety during construction.	AEC_C2
Require construction workers (including contractors) to sign a 'Code of Conduct', linked to their employment contract, outlining behavioural expectations applicable to accommodation villages and in local towns.	AEC_C3
Implement construction workforce inductions to communicate safety and security expectations	AEC_C4
Develop induction procedures and information that includes an orientation into the values and expectations of the local community.	AEC_C5
Continue to provide support to local community groups and community-based activities, including volunteer programs and sponsorships.	AEC_C6
Liaise with police and provide regular updates of construction workforce schedules to ensure adequate police resources would be available.	AEC_C7
Work with police, local councils, residents and other stakeholders to develop and implement community-based safety awareness programs and strategies to reduce the potential for crime and fear of crime.	AEC_C8

6.2.5 Performance Indicators and Monitoring

Table 6-4 Performance Indicators and Monitoring - Accommodation of Employees and Contractors

Performance Indicator	Monitoring
· No adverse impact on existing residents during construction or operations · Collaboration with police, local councils, residents and other stakeholders to address potential workforce and accommodation integration issues	· Regular monitoring of stakeholder feedback

6.2.6 Reporting

Regular reporting of progress against socio-economic commitments developed in conjunction with stakeholders.

6.2.7 Non-Conformance

Should objectives and targets not be met, alternative measures to meet them shall be explored in consultation with stakeholders.

6.3 Changes to Land Access

Construction of the CEIP Infrastructure will result in changes to land access from development of linear infrastructure across the agricultural landscape. This EMP provides a framework for minimising potential impacts resulting from these land access changes.

6.3.1 Legal and Other Guidance

- *Development Act 1993*
- *Local Government Act 1999*
- *Road Traffic Act 1961*
- *Roads (Opening and Closing) Act 1991*

6.3.2 Values

The implementation of this EMP aims to maintain and protect:

- The road linkages between towns and regional cities on Eyre Peninsula serve local and regional communities, freight and commercial vehicles (used to transport grain, mineral resources, freight, food product and other commodities), tourists and other road users.
- The capacity of agricultural landholders to use the land for crop production

6.3.3 Objectives

Treat other land users with respect, minimise impacts and compensate fairly where impacts are recognised and are unavoidable.

6.3.4 Control and Management Actions / Environmental Management Measures

Table 6-5 Management Measures - Changes to Land Access

Control and Management Strategies	Identifier
Continue the program of active engagement and consultation with the local community · Provide regular and timely information to local residents and the community about the project and planned works to assist in reducing disruptions and complaints. · Continue to operate a toll free phone hotline and complaints and ideas management system with targets for the time taken to respond to / take action on complaints and ideas.	LA_C1
Liaise with local schools to discuss any impacts to bus routes due to road closures or traffic movements during construction.	LA_C2
Avoid wherever possible the movement of over-dimensional loads during peak traffic or agricultural periods, e.g. harvesting during daytime.	LA_C3
Work with councils and the community on planning for road upgrades, and undertake road works in a manner that minimises disruption to local traffic movements.	LA_C4
Maintain effective, regular and transparent communication with affected landholders and provide accurate and comprehensive information about the project and its potential impact on their property.	LA_C5
Always engage with landholders with respect and in accordance with the law.	LA_C6
Negotiate agreements and provide fair compensation with directly affected landholders for the loss of land.	LA_C7
Continue discussions with directly affected landholders in relation to construction and operational activities, including land access, crossing points, fencing and strategies for dealing with potential impacts and opportunities during construction and operation phases.	LA_C8
In consultation with landowners, install appropriate access/crossing points, culverts and internal roads to enable continuity of land use on either side of the railway line and water supply	LA_C9

Control and Management Strategies	Identifier
pipeline.	
Provide support by means of voluntary and confidential professional counselling to directly affected landholders.	LA_C10

6.3.5 Performance Indicators and Monitoring

Table 6-6 Performance Indicators and Monitoring - Changes to Land Access

Performance Indicator	Monitoring
· Direct land access impacts to agricultural landholders are identified and agreements lawfully negotiated · Collaboration with local councils, residents and other stakeholders to address potential land access issues	· Regular monitoring of stakeholder feedback

6.3.6 Reporting

Regular reporting of progress against socio-economic commitments developed in conjunction with stakeholders.

6.3.7 Non-Conformance

Should objectives and targets not be met, alternative measures to meet them shall be explored in consultation with stakeholders.

6.4 Traffic Generation

Potential impacts on traffic values as a result of construction of the CEIP Infrastructure include:

- Reduction in road capacity (level of service) due to construction traffic
- Changes to school bus routes due to construction road closures
- Delays to school bus routes due to construction traffic
- Deterioration of pavement due to vehicle movements generated by project
- A reduction in capacity of intersections to function efficiently due to construction traffic
- Disruption to operation of the existing Cummins-Buckleboo Railway during construction of the proposed railway line

6.4.1 Legal and Other Guidance

- Austroads Guide to Traffic Management
- Australian Standard AS1742 Manual of uniform traffic control devices, Part 7 – Railway crossings
- Operational Instruction OI 7.9 Railway Level Crossing Treatments for Restricted Access Vehicles by the Department of Planning, Transport and Infrastructure (DPTI)

6.4.2 Values

The implementation of this EMP aims to maintain and protect the following values:

- The low traffic volumes on the local road network and rural highways which are well below capacity thresholds
- Community safety
- Capacity to move freight effectively by road and rail
- Existing road pavement condition.

6.4.3 Objectives

Treat other land users with respect, minimise impacts and compensate fairly where impacts are recognised and are unavoidable.

6.4.4 Control and Management Actions / Environmental Management Measures

Table 6-7 Management Measures - Traffic Generation

Control and Management Strategies	Identifier
The proposed road closures and alignments will be reviewed and confirmed in consultation with the District Council of Tumby Bay, District Council of Cleve and Wudinna District Council as detailed design progresses.	TG_C1
Slow moving heavy equipment deliveries would be scheduled to arrive outside peak traffic periods and avoid potential conflict times identified during harvest season.	TG_C2
Management of the construction programme to reduce peak traffic generation and/or avoid peak traffic periods to minimise traffic delay to the public, if required.	TG_C3
Liaison with local schools to discuss any impacts to bus routes due to road closures or traffic movements. Where possible construction traffic will be timed to avoid school bus services.	TG_C4
Use of accredited traffic controllers to manage intersection priority during heavy materials and equipment deliveries.	TG_C5
Signage warning motorists to expect slow moving heavy vehicles and delays would be erected at the Lincoln Highway between Port Neill and Tumby Bay and Brayfield Road between Lincoln Highway and the port site	TG_C6
Use of pilot vehicles and temporary speed restrictions for the segments of road with high crash rates (Warramboo to Kyancutta on the Tod Highway; Cleve to Cowell on the Birdseye Highway; and Iron Knob to Lincoln Highway intersection on the Eyre Highway).	TG_C7
Development of pavement monitoring, management and rehabilitation plan in consultation with DPTI. This will identify different types of possible road and pavement damage, inspection frequencies, intervention levels and required treatments. As part of the management plan, Iron Road will undertake pavement deflection (strength) testing on haul route pavements before and after the construction period to determine whether any remedial pavement rehabilitation treatment is required as the result of the mine construction. Inspections should identify the following: · Rutting · Corrugations · Significant cracking · Potholing	TG_C8
Implementation of incident reporting system for the management of and implementation of traffic improvement measures	TG_C9

6.4.5 Performance Indicators and Monitoring

Table 6-8 Performance Indicators and Monitoring - Traffic Generation

Performance Indicator	Monitoring
· Minor traffic delays as a result of construction activities (no change to existing level of service) · No accidents during construction of the CEIP which are attributed to negligence of construction contractors/workers · Road pavements along major haul routes are rehabilitated (where required) post-construction	· Visual surveillance by site staff to review implementation of control measures and verify performance indicators. · Regular monitoring of stakeholder feedback · Pavement condition monitoring and verification remedial works to pavements in conjunction with DPTI

6.4.6 Reporting

Traffic infringements associated with or as a result of the project to be reported to the Project Construction Manager.

Record and respond to traffic and transport related complaints in accordance with the Complaints Management Procedure.

Results of visual surveillance program to be documented. Identified non-conformances and corrective actions will be recorded as part of the EMS.

6.4.7 Non-Conformance

In the event that monitoring or investigation of complaints identifies practices inconsistent with the Construction EMP and conditions of approval with regard to traffic, the Project Construction Manager will seek alternative solutions, and may stop work while issues are rectified.

6.5 Changes to Visual Amenity

Activities undertaken during construction and operation of the CEIP Infrastructure will result in impacts to the existing environmental values and visual amenity of the area. The construction of the CEIP Infrastructure will impact the landscape and visual amenity of the immediate locality as a result of:

- Removal of vegetation
- Soil disturbance and stockpiling
- Dust emissions
- Development of buildings and infrastructure in areas where they do not currently exist
- Lighting to allow 24 hour construction
- Increase in the number of people, vehicles and machinery.

6.5.1 Legal and Other Guidance

- *Development Act 1993*
- AS 4282: Control of the obtrusive effects of outdoor lighting
- Principles of Good Design (Office for Design and Architecture 2014)
- Local Council Development Plans

6.5.2 Values

The implementation of this EMP aims to protect the existing scenic and aesthetic values of the project area which is characterised by dryland farming, with isolated patches of vegetation scattered throughout the landscape. Major roads, conservation areas, local townships (Darke Peak, Rudall, Verran, Port Neill and Cleve) and coastal areas surrounding the port are considered the receptors most sensitive to visual change.

6.5.3 Objectives

Ensure that impacts to amenity are reduced as low as reasonably practicable.

6.5.4 Control and Management Actions / Environmental Management Measures

Table 6-9 Management Measures - Changes to Visual Amenity

Control and Management Strategies	Identifier
The impacts to visual amenity as a result of vegetation clearance will be managed through the implementation of the Vegetation Clearance Construction EMP requirements (Section 2.2).	VA_C1
The impacts to visual amenity as a result of earthworks and land clearance that could result in scarring of the landscape will be managed through implementation of the Land Disturbance Construction EMP requirements (Sections 2.1 and 2.2).	VA_C2
The impacts to visual amenity as a result of visible dust will be managed through implementation of the Particulate Emissions Construction EMP requirements (Section 4.1).	VA_C3
Demobilisation of construction equipment from site as soon as practicable to minimise affect to visual amenity.	VA_C4

6.5.5 Performance Indicators and Monitoring

Table 6-10 Performance Indicators and Monitoring - Changes to Visual Amenity

Performance Indicator	Monitoring
· Respond proactively to visual amenity issues raised by the community. · Investigation of visual amenity complaints indicates impacts are consistent with EIA visual amenity assessment.	· Regular site inspection and visual monitoring of activities likely to cause amenity issues including rubbish and site tidiness, and visible dust. · Review of adherence to processes and timeframes in Complaints Management Procedure

6.5.6 Reporting

Record and respond to complaints in accordance with the Complaints Management Procedure.

Summary of monitoring results and any complaints received to be included in monthly report.

6.5.7 Corrective Action

Should unanticipated visual amenity impacts associated with the CEIP Infrastructure be clearly observed and complaints received, Iron Road will consider implementation of visual screening, additional site clean-up, equipment storage, and other corrective actions on a case-by-case basis.

6.6 Fire Risk

Bushfires are a natural occurrence, however increased incidence of bushfires may occur as a result of human activity. Increased incidence of bushfire poses a risk to life and property and can have ongoing impacts on the ecology of an area, particularly where the habitat is already fragmented through adjacent land use practices such as farming.

Bushfire is considered a project risk, as it is not expected as part of the normal construction of the CEIP Infrastructure. Bushfires can result from:

- Failure of management controls
- External weather conditions, lightning strike, recreational activities
- System failure
- Inadequate emergency response
- Proximity of vegetation near transmission line towers and wires, if unmanaged
- Use of equipment that produces sparks
- Welding and other hot works activities
- Use of petrol vehicles close to pasture stubble, native or exotic grasses

6.6.1 Legal and Other Guidance

- *Fire and Emergency Services Act 2005*
- *National Parks and Wildlife Act 1972 (Schedules 7, 8 and 9 of the Act)*
- *Natural Resource Management Act 2004*
- *Native Vegetation Act 1991*

6.6.2 Values

The implementation of this EMP aims to protect:

- Community health, safety and amenity
- Flora and fauna species of National and State conservation significance
- Common native flora and fauna species
- Public infrastructure and services

6.6.3 Objectives

Ensure that human health and safety is not adversely affected.

6.6.4 Control and Management Actions / Environmental Management Measures

Table 6-11 Management Measures - Fire Prevention

Control and Management Strategies	Identifier
Implementation of best practice bushfire management strategies, including incorporation of the following: · Develop control strategies with EP NRM Board, DEWNR and CFS · Education of workforce about local bushfire risk (during site inductions) · Maintain awareness of local seasonal restrictions, particularly regarding hot works during fire ban season · Pipeline welding activities to be undertaken in accordance with Australian safety standards and the safety management plan for the activities · Programme of regular inspection of assets · Maintenance of vegetation clearance buffers, particularly along the transmission line · Emergency response protocols and equipment in place and regularly checked · Regular maintenance and clearance of vegetation along railway line and around transmission lines as per voltage and design requirements · Restriction of high risk fire activities during fire periods	BF_C1
Development of extreme heat procedures to minimise occurrence of heat stress amongst the workforce, balancing productivity with health and wellbeing of the workforce.	BF_C2

Table 6-12 Performance Indicators and Monitoring - Fire Prevention

Performance Indicator	Monitoring
· Bushfire management planning activities are implemented. · No fires attributed to construction of the project	· Safety audits to review implementation of fire reduction measures. · Review of independent bushfire investigation findings.

6.6.5 Reporting

Any person (Iron Road or Contractor staff) who causes or becomes aware of a fire incident that has occurred on or within the CEIP Infrastructure must report it immediately to the Project Manager, with response procedures followed as described in the Emergency Response Plan.

Incident information will be recorded, documented, investigated and assessed as described in the Emergency Response Plan. Bushfire management strategies will be reviewed in light of any fire incidents and annually reviewed to ensure practices are up to date.

6.6.6 Non-Conformance

Corrective action to re-establish compliance should be taken as soon as possible.

6.7 Glossary

Acronym/Abbreviation/Term	Definition
ASS	Acid Sulfate Soils
AIP	Australian Industry Participation
CEIP	Central Eyre Iron Project
CFS	Country Fire Service
DEWNR	Department of Environment, Water and Natural Resources (SA)
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EMS	Environmental Management System
Environmental Aspect	Describes the elements of the operation of the CEIP Infrastructure activities, products or services that can interact with the environment.
EPA	Environment Protection Authority (SA)
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)
EP NRM Board	Eyre Peninsula Natural Resources Management Board
Exclusion zone	A radius from the piling/drilling activities for whales, dolphins (500m) and marine turtles (100m).
ICN	Industry Capability Network South Australia
IMS	Invasive marine species
Marine drilling	The installation of sockets into which the main piles will fit.
Marine piling	Driving (hammering) structural supports into the ground below the waterline.
NGER	National Greenhouse and Energy Reporting
NPW Act	National Parks and Wildlife Act 1972
NRM Act	Natural Resource Management Act 2004
Observation zone	A radius from the piling/drilling activities for whales and dolphins (1500m) and marine turtles (300m).
RDAWEP	Regional Development Australia Whyalla and Eyre Peninsula
SEL	Sound Exposure Level
Shut down zone	A radius from the piling/drilling activities of 500 m for marine mammals.
Soft start procedures	The procedures initiated at commencement of all piling activities by piling at low energy levels and then building up to full impact force over a period of at least 30 minutes, to encourage whales, dolphins and marine turtles to move away from the area. The first five impacts from the pile hammer must be less than 50% of full impact energy.
WPA	Wilderness Protection Area

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