

MARDIE SALT AND POTASH PROJECT

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

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1. PURPOSE

The purpose of this Construction Environmental Management Plan (CEMP) is to provide the framework for the management of environmental aspects and impacts during the course of the construction of works for the BCI Minerals Limited (the “Company”) Mardie Salt and Potash Project.

This CEMP is to ensure the Company's environmental obligations, including Licence To Operate, are met at all times and by all parties operating on the premises during construction. It provides an overview environmental controls that will be implemented for all identified environmental impacts and sets out conditions under which the Project will proceed.

2. RESPONSIBILITY

All Project key team members shall ensure that the environmental requirements of the Project are complied with. The responsibilities of the key team members and other key project personnel are summarised in Table 1.

Table 1 Roles and Responsibilities

Role	Responsibility
Construction Manager	<ul style="list-style-type: none"> • Ensure works proceed with all necessary environmental approvals, permits in place and in compliance with all applicable legal requirements. • Ensure all project personnel receive environmental inductions and training. • Ensure that all site personnel and contractors are aware of their responsibilities. • Ensure personnel assigned to perform tasks that may impact the environment are competent to do so or are under the direct control of a competent person.
Supervisor / Package Engineer	<ul style="list-style-type: none"> • Ensure that any changes to the schedule of works or work methodology, in particular changes under an approved GDP, are communicated to the Environmental Advisor in a timely manner. • Report all environmental events to the Environmental Advisor or Construction Manager. • Action an appropriate response in accordance with environmental procedures in the event of an environmental incident. • Assist the Environmental Advisor in promoting environmental awareness.
Manager Environment	<ul style="list-style-type: none"> • Determine CEMP implementation and compliance with Licence to Operate conditions
Environmental Advisor	<ul style="list-style-type: none"> • Assist the BCI Manager Environment in determining CEMP implementation and compliance with Licence to Operate conditions. • Ensure the Contractor requirements to the environmental management of works under contract is understood. • Confirm that all necessary environmental controls are implemented and maintained for the duration of the project. • Provide regular environmental progress reports to the Project Manager or delegated other. • On a periodic basis, monitor environmental compliance and supervise high-risk environmental activities when appropriate.

Role	Responsibility
	<ul style="list-style-type: none"> • Can be contacted when required or if unavailable has delegated authority. • Participate in project meetings if requested. • Promote environmental awareness throughout the course of the Project. • Complete and maintain all necessary environmental documentation for the Project, if appropriate. • Report all environmental incidents in a timely manner and assist in investigations as required. Facilitate corrective action as appropriate. Ensure complaints and near misses are documented and managed appropriately. • Ensure any outstanding environmental issues are resolved prior to project completion.
Contractors Employees and Subcontractors	<ul style="list-style-type: none"> • Adhere to the directives of this CEMP and the BCI's Management System and approved Project Environmental Management Plans and procedures. • Act in an environmentally responsible manner. • Report incidents to their supervisors as soon as practicable. • Satisfactorily perform all environmental works as specified by contractual arrangement or recognised authority. • Participate in subsequent investigations and implementation of preventive and corrective action(s) as required. • Attend all required environmental awareness, induction and training sessions. • Recognise the authority of the on-site environmental representative, particularly in the event of an actual or perceived environmental non-conformance, or when remedial action is indicated.

The organization structure will be outlined in the Project Execution Plan (MAR-0000-PM-PEP-EGM-020-0001).

3. DEFINITIONS

Table 2 Definitions

Term	Definition
CEMP	Construction Environmental Management Plan
Company	BCI Minerals Limited
EC	Electrical conductivity
EP Act	Environmental Protection Act
ERD	Environmental Review Document
ESD	Environmental Scoping Document
ESMS	Environment and Social Management System
GLpa	Gigalitres per annum
Ha	Hectare
KPI	Key Performance Indicator
PMC	The Project Management Consultant for this Project is Engenium Pty Ltd

4. ENVIRONMENTAL POLICY

The Company’s Environment and Community policy demonstrates commitment by leadership to the management and continuous improvement of environmental management including complying with applicable laws. This Environment and Community Policy (BCI-ENV-POL-001) shall be displayed on health and safety noticeboards.

5. ENVIRONMENTAL OBJECTIVES

The objective of this CEMP is to provide a framework to.

- take all practicable steps to prevent environmental and cultural heritage incidents in construction activities;
- ensure compliance with applicable environmental requirements as identified in the LTO Register;
- develop, implement and maintain an effective and efficient environmental management system;
- increase environmental and cultural awareness amongst all personnel; and
- support the continual improvement of environmental performance.

5.1 Key Performance Indicators

Table 3 Key Performance Indicators

Indicator	Monitoring Mechanism	Target
Ground Disturbance Permit Breach	INX Event Reporting	0
Significant ENV events	Significant events INX Event Reporting	0
Segregation, removal and disposal of rubbish to appropriate waste stream Scrap materials, redundant electrical equipment, packaging from equipment and materials.	Waste Management procedure Correct waste stream segregation Records of disposal	100%
Spill Management	INX Event Reporting	No spills > 200 litres
Dust Management	Provide effective control of all dust and windborne material emanating from site works by use of ground and road watering Daily timesheets and record keeping	As necessary
Weed Management	Weed Inspection Report per vehicle	100% Vehicles Inspected
Environmental Audits (annual)	Audits Completed	Minimum 95% completed
Incident Investigations	INX Event Reporting	Closed within 28 days
Corrective Actions	Overdue corrective actions	0
Toolbox meetings	1 per week (Safety & Environmental KPI combined)	100% attendance

6. OVERALL PROJECT ACTIVITY DESCRIPTION

The below table describes the activities proposed for the Mardie Project. This list is not expansive and will be updated as more detail is available. As the proposed extents below are subject to change, the Company will comply with disturbance limits imposed in regulatory approvals.

Table 4 Project Activities

Element
Physical Elements
Ponds Envelope – evaporation and crystalliser ponds, processing plant, desalination plant, administration, accommodation camp, associated works (access roads, laydown, etc.)
Marine Envelope – trestle jetty export facility, seawater intake and pipeline, bitterns pipeline, outfall diffuser and mixing zone
Terrestrial Infrastructure Envelope – access / haul road, quarry, laydown, groundwater source bores, additional infrastructure
Transshipment Corridor Envelope – channel to allow access for transshipment vessels
Operational Elements
Bitterns discharge
Desalination Plant discharge
Groundwater abstraction
Dredge volume

7. RISK MANAGEMENT

Throughout the project, risks are identified, assessed, and controlled using a number of different tools. The identification of environmental activities and the respective potential impact to the environment is determined following a review of the:

- contract and its associated environmental conditions; and
- actual scope of work and consideration of all applicable legislation, standards, and other conditions.

The Project Risk Register details the relevant environmental aspects, their associated impacts, the mitigation control, and a rating of their significance. Refer to the Project Risk Management Procedure (MAR-0000-RM-PRO-EGM-020-0001).

8. TRAINING AND COMPETENCY

To ensure the project team understand their responsibilities and expectations in relation to environmental management, training and awareness will occur continuously throughout the course of the Project (as indicated in Table 5. The training and awareness requirements for this CEMP have been broken down into the following categories:

- induction training,
- task specific training with competency assessment, and

- awareness training.

Table 5 Environmental Training Matrix

Category	Recipients	Frequency	Items
Induction training	All people on the site	Start of work, return from extended leave, or site access	Site specific induction
Task-specific training with competency assessment	Project personnel / Contractors, as required	As required for activity with potential environmental risks or as a result of high risk task, specific incidents (s) trends.	Selected modules
Awareness	Project personnel / Contractors, as required	Periodic	Toolbox meetings / posters / memos

8.1 Induction Training

All project personnel and visitors seeking to attend site will be subject to a Company, Project and Contractors own Site Induction and induction assessment, in accordance with the Site Induction. This induction will include relevant environmental information.

The Company induction will include the following in relation to environmental awareness:

- Overview of the Environment and Social Management System (ESMS);
- Company legal and other obligations;
- Project specific potential environmental impacts and controls including:
 - weed controls and wash down procedures;
 - ground disturbance and topsoil management;
 - fauna management (both native and pest species);
 - incident notification and procedures;
 - waste management, including litter control and recycling;
 - spill response procedures; and
 - aboriginal heritage awareness.

An induction and training register will be used to record and monitor induction attendance by all personnel.

8.2 Task specific Environmental Training with Competency Assessment

Task specific environmental training (e.g. spill response training, fauna handling training) for some group or individual project personnel will be conducted. Training to be undertaken may be in response to an environmental occurrence or incident(s) or as determined by project leadership. All such training will be documented and participants may be assessed in relation to their competency, if applicable.

8.3 Environmental Awareness Training

An environmental awareness program will be implemented during the Project to assist in maintaining effective environmental management. Awareness training may consist of regular toolbox meetings, posters and memos/alerts. This program will be designed to periodically reiterate the environmental objectives and specific environmental controls for the Project. Topics may include:

- new controls or work instructions,
- reinforcement of induction content,
- results of inspections and audits, and
- awareness of environmental events or incidents.

8.4 Environmental Qualifications

All personnel directly involved in environmental management shall be appropriately qualified to undertake the tasks of the position to which they are appointed.

9. COMMUNICATION

Achieving effective communication between all parties is critical to ensure that the requirements of this CEMP are met. Typical methods of communication on site:

- Pre-start meetings,
- Toolbox talks,
- Project inductions,
- Noticeboards, and
- Environment alerts.

Pre-start and toolbox meetings include delivering key environmental messages and audit and inspection results and communicating environmental risks for the scheduled activities. Pre-start meetings are minuted and available for workers/visitors if required.

The HS and ENV Advisors ensure that relevant documentation is filed electronically, and hard copies made available to personnel. Hard copy documentation made available to personnel typically includes:

- Project Health and Safety Management Plan,
- Project Emergency Management Plan,
- Construction Environmental Management Plan (this Plan),
- Company Policies,
- Safe Work Instructions,
- Critical Control Standards,
- JHA,
- Communication Meeting minutes, and
- Copies of relevant legislation and codes of practice where required.

9.1.1 External Communication

Direct communication with the media and general public is not permitted.

All communications to external parties shall be directed through the Company in accordance with the Project communications requirements.

Any requests from the media or general public are referred to the Company who takes action in accordance with the project's Stakeholder & Communication Management Plan.

All direct communication with statutory authorities is approved by the Company.

10. CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLANS

Environmental Management Plans (EMP) have been developed for environmental factors that have common linkages between the construction activities and potential environmental impacts. For each EMP objectives have been developed to define the desired state of the environmental factor to be achieved. To achieve the EMP objectives, the assigned management actions must be implemented throughout the Project construction phase and evaluated for effectiveness on a periodic basis. Each management action includes auditable timelines, clear identification of record keeping and assigns responsibility. The identified environmental factors include:

- Ground Disturbance,
- Erosion and Sediment Control,
- Soils
- Waste,
- Hydrocarbons and Chemicals, and
- Mesquite and other Weeds.

Several environmental factors must be managed in accordance with management plans that are specified in conditions of approvals – known as regulatory management plans. The following regulatory management plans contain obligations that must be met during construction. These are referenced throughout this Construction Environmental Management Plan where relevant:

- Groundwater Monitoring and Management Plan
- Marine Environmental Quality Monitoring and Management Plan
- Benthic Communities and Habitat Monitoring and Management Plan
- Dredge Management Plan
- Marine Pest Procedures / Management Plan
- Long-term Migratory Shorebird Monitoring and Management Plan
- Illumination Plan
- Marine Turtle Monitoring Program
- Heritage Management Plan
- Monitoring and Adaptive Management Plan.

10.1 Ground Disturbance

Land clearing and topsoil disturbance activities associated with the construction of the Project will be managed through a Ground Disturbance Permit (GDP). The GDP allows for the assessment of the disturbance area to ensure that all environmental approval and heritage obligations are complied with. In addition, the GDP enables the collection of data used for corporate reporting, statutory reporting such as annual environmental reporting and closure liability estimates.

Table 6 Environmental Management Strategy for Vegetation Clearing

Ground Disturbance				
Objective	Minimise adverse impacts on the abundance, species diversity, geographic distribution, and productivity of vegetation communities. Minimise disturbance of any protected or listed flora species or ecological communities identified within the Project Area.			
Target	No occurrence of unlawful clearing. No disturbance for outside of the scope of the approved project activities.			
Potential Impacts	<ul style="list-style-type: none"> • Unapproved removal of, or disturbance to, flora, vegetation, and fauna habitat. • Unintentional loss of heritage value. • Soil erosion and sediment loss. • Inadequate materials available for rehabilitation of disturbance areas. • Spread of weeds beyond the Project area and introduction of new weed species to the area. 			
Management Action	Monitoring / Evidence	Timing	Responsibility	Supporting Documents
All vehicles and equipment movement will be restricted to existing tracks, roads and the area proposed for clearing.	Hard barriers Road Signage	Ongoing	Contractor/PMC	Traffic Management Plans

Ground Disturbance				
All areas proposed for clearing will be clearly delineated within an approved clearing area.	GDP	Prior to disturbance activities taking place.	Contractor/PMC	Ground Disturbance Permit. Ground Disturbance and Topsoil Stockpiling Procedure. Ground Disturbance Register
	Ground Disturbance Survey Data	Weekly during clearing activities. Annual aerial image to reconcile disturbance area.	PMC	Ground Disturbance and Topsoil Stockpiling Procedure.
Vegetation will be removed separately from topsoil and placed in stockpiles. Stockpiles will not impede drainage or present a fire hazard.	Topsoil stockpile inspections. Post clearing survey	Weekly during clearing activities. Annual material balance reconciliation.	PMC	Inspections reports
A minimum of 100mm of topsoil where available will be removed and stockpiled. Where possible, topsoil will not be stripped in areas of high mesquite infestation (mapped as Degraded or Poor quality in vegetation mapping) to prevent further spread. Pond floors within the intertidal zone will not be stripped, thus minimising disturbance to aid future rehabilitation. Topsoil stockpiles will be no greater than 2m high.				
Any deviation from approved clearing will be reported as an incident to the Project Registered Manager.	Incident Report	Immediately after an incident being reported.	Contractor	Incident reporting procedure

10.2 Fauna

The project site extends across a variety of fauna habitat including marine, tidal creeks, mudflat islands, spinifex grasslands and riparian creeks/pools. Construction activities can cause direct impacts (e.g. fauna strikes, entrapment in excavations) and indirect impacts from habitat destruction, poor waste management, increased feral fauna.

Management strategies for terrestrial fauna are outlined in Table 7. Refer to the Dredge Management Plan, Marine Turtle Monitoring Program and Underwater Noise Management Procedure for management of marine fauna.

Table 7 Environmental Management Strategy for Fauna

Fauna				
Objective	Minimise adverse impacts on the abundance, species diversity and geographic distribution of fauna. Minimise disturbance of habitat of any protected or listed fauna species identified within the Project Area.			
Target	No occurrence of unlawful clearing. No conservation significant vertebrate fauna mortalities as a result of project activities.			
Potential Impacts	<ul style="list-style-type: none"> • Unapproved removal of, or disturbance to fauna habitat. • Unintentional impacts to fauna of conservation significance. • Fauna injury or mortality through vehicle strike or entrapment in construction areas. 			
Management Action	Monitoring / Evidence	Timing	Responsibility	Supporting Documents
All vehicles and equipment movement will be restricted to existing tracks, roads and the area proposed for clearing.	Hard barriers Road Signage	Ongoing	Contractor/PMC	Traffic Management Plans
Disturbance of habitat for conservation-listed species will be minimised.	GDP assessment to include check of key fauna habitats.	Ongoing	BCI General Manager Landside Projects	Ground disturbance permit procedure. Ground disturbance permits. GIS Spatial data – key fauna habitats.

Fauna				
	Restrict clearing of Northern Quoll foraging habitat associated with the quarry to daytime due to nocturnal activity of the species	During construction	PMC/Contractor	Ground disturbance permit procedure. Ground disturbance permits. GIS Spatial data – key fauna habitats.
Restrict personnel access to Northern Quoll denning/shelter habitat to approved/qualified environmental staff and contractors	Signage on road and generally at habitat boundary	Ongoing	BCI General Manager Landside Projects	N/A?
Fauna handlers to be onsite during clearing of conservation-significant fauna habitat.	Clearing procedure (in preparation)	During construction	PMC/Contractor	Clearing Procedure. Ground Disturbance Procedure.
Any deviation from approved clearing will be reported as an incident to the Project Registered Manager.	Incident Report	Immediately after an incident being reported.	Contractor	Incident reporting procedure
Low speed zone implemented in Northern Quoll foraging habitat on Mardie Road.	Speed zone signs installed.	Complete August 2022	BCI Operations	Environmental incident register (INX InControl)
	Random speed checks.	Ongoing	PMC	Incident records – INX InControl
Trenches/excavations designed and managed to minimise fauna entrainment: <ul style="list-style-type: none"> • Open trenches checked for fauna within 2 hours of dawn. • Fauna egress points /refuge placed regularly along the length of open trenches. 	Work area inspection include dawn and end-of-shift trench checks	During excavations	Contractors	Contractor work area daily inspections.

Fauna				
<p>Introduced fauna monitoring: cats, foxes, rabbits, pigs, and cane toads</p> <p>Control program when required.</p>	<p>Fauna sightings register spatial records.</p> <p>Annual introduced fauna survey results.</p> <p>Fauna control records</p>	Annual	PMC	<p>Mardie Fauna sightings register.</p> <p>GIS spatial data.</p>

10.3 Erosion and Sediment Control

Most of the site is located within the influence of high tides, with embankment construction methodology allowing free movement of tides up until closure of the pond perimeter. Landward Project activities will be conducted in a way that will reduce the duration of soil exposure to erosive forces (wind and water) by developing areas progressively as-needed.

Marine Project activities will be conducted in accordance with the MS 1175 approved documents:

- Dredge Management Plan and
- Marine Environmental Quality Monitoring and Management Plan.

Table 8 Environmental Management Strategy for Erosion and Sediment Control

Surface Water				
Potential Impacts – Construction				
Objective	Minimisation of actual or potential environmental harm to receiving environments associated with soil loss and disturbance resulting from work activities. Protect Benthic Community and Marine Habitats beyond the Project development envelope.			
Target	No measure of sediment loss beyond the project footprint.			
Potential Impacts	<ul style="list-style-type: none"> • Increased sediment load from roads, causeways, and embankments. • Loss of BCH, Mangrove or Marine ecosystem function due to loss of light or smothering. 			
Management Action	Monitoring / Evidence	Timing	Responsibility	Supporting Documents
Roads, causeways, and embankments (>2.45 mAHD) will be constructed in accordance with the Embankment Construction Methodology which include provisions to:	Visual embankment inspections including photographic evidence during construction.	Daily	PMC	Daily construction report

Surface Water				
<ul style="list-style-type: none"> • Construct site access roads to include crossfall drainage and erosion resistant surface • Undertake initial civil works in the drier season months (Jul – Dec), as far as schedule allows • Minimise disturbance to existing vegetation • Promptly stabilise exposed areas once civil works are completed • Protect the soil surface by placement of non-erosive material, protection with geotextile and/or use of soil binder • Apply dust suppression by wetting of exposed surfaces (e.g. water truck) 	<p>Water quality monitoring as per the Marine Environmental Quality Monitoring and Management Plan (MEQMMP).</p>	<p>As per the designated monitoring schedule within the MEQMMP.</p>	<p>PMC</p>	<p>MEQMMP</p>
<p>Roads, causeways, and embankments (<2.45 mAHD) will be constructed in accordance Embankment Construction Methodology which include provisions to:</p> <ul style="list-style-type: none"> • Stage works to suit favourable tidal periods (i.e. when site is not inundated), as far as practical • Schedule works so that activities impacted by tides are completed in the early stages of construction • Remove unsuitable material to outside of the area of tidal influence (e.g. designated protected stockpile area) • Install floating sediment curtain 	<p>Water quality monitoring as per the MEQMMP.</p>	<p>As per the designated monitoring schedule within the MEQMMP.</p>	<p>PMC</p>	<p>MEQMMP</p>

Surface Water				
Whole of site flood management: <ul style="list-style-type: none"> • Erosion • Embankment collapse 	Mardie Pool sampling - TSS, electrical conductivity (EC).	Subject to Part V licensing: EC loggers (subject to Traditional Owner consent) checked quarterly or quarterly grab sample. Fortnightly for 3 months after flood event (subject to access availability), then monthly for 3 months.	PMC	Mardie Project surface water sampling procedure (in preparation).
	Mount Salt Mound Spring visual monitoring.	Subject to Part V licensing: Quarterly EC grab sample.	PMC	Mardie Project surface water sampling procedure (in preparation).
	Embankment stability monitoring	Subject to Part V licensing: Monthly Within 24 hours of 1:20 yr ARI.	PMC	Area inspection checklists.
Chemical and hydrocarbon management storage and handling to be in accordance with Australian Standards.	Inspections of chemical/hydrocarbon storage and transfer areas (see Section 10.6 and Section 14.1).	Monthly	PMC	Area inspection checklists.

10.4 Acid Sulphate Soils

The management strategies within Table 8 9 will ensure that the risk of acid sulphate soils is understood and managed.

Table 9 Environmental Management Strategy for Acid Sulphate Soils

Soils				
Potential Impacts – Construction				
Objective	<ol style="list-style-type: none"> 1. Minimisation of actual or potential environmental harm to receiving environments associated with acid sulphate soils. 2. Protect Benthic Community and Marine Habitats beyond the Project development envelope. 			
Target	No impacts to the environment or geotechnical integrity of infrastructure caused by Acid Sulphate Soils or potentially acid forming material.			
Potential Impacts	<ul style="list-style-type: none"> • Contamination of soils, surface waters and marine environment. • Degradation or corrosion of engineered structures. 			
Management Action	Monitoring / Evidence	Timing	Responsibility	Supporting Documents
Conduct geotechnical investigations of potential borrow areas to determine the risk of ASS.	ASS sampling of construction borrow material.	During geotechnical investigations	BCI	Desktop ASS assessment (in preparation).
	Mapping of ASS/PAF material	Prior to construction	BCI	GIS Spatial database
Excavation and groundwater abstraction will be avoided in areas recorded as posing risk of ASS.	Geotechnical investigations report. GIS spatial mapping.	During construction	Contractors	GIS Spatial database
If required: ASS/PAF material to be managed in accordance with an Acid Sulphate Soils procedure	ASS soil handling records. GIS spatial mapping.	If ASS material is encountered.	Contractors	Acid Sulphate Soil Procedure (if ASS is recorded in the Project) GIS Spatial database

10.5 Waste

The management of hazardous and non-hazardous waste will be standardised during the construction phase to protect human health and the surrounding environment. Waste streams generated during the construction phase will include:

- Wastewater from treatment plants;
- Putrescible waste (food scraps, paper);
- Inert waste (non-hazardous industrial waste);
- Recyclable or reusable materials; and
- Hazardous waste (hydrocarbon/chemical contaminated materials).

The environmental management strategy for waste has been provided in Table 10.

Table 10 Environmental Management Strategy for Waste

Waste				
Objective	Ensure general waste (industrial, inert, recyclable and putrescible waste) is effectively contained and does not interact with the surrounding environment. Apply principles of waste minimisation through careful product selection, reuse and recycling. Waste management practices and procedures meet industry standards and satisfy statutory requirements.			
Target	<ul style="list-style-type: none"> • All waste is either recycled or removed off site by a waste contractor to a licensed waste disposal facility. • No cross contamination of waste 			
Potential Impacts	<ul style="list-style-type: none"> • Dispersal of wastes in project and surrounding areas which result in visual pollution. • Release of hazardous or toxic pollutants into the environment. • Attraction of feral animals because of poor putrescible waste management. 			
Management Action	Monitoring / Evidence	Timing	Responsibility	Supporting Documents
Recyclable/reusable waste will be segregated.	Environmental Inspection	Weekly	PMC	Waste Segregation Register

Waste				
All wastes (putrescible, recyclable, non-reusable) will be sent offsite for disposal.	Environmental Inspection	Weekly	PMC	HSEC Area Inspection Form
Reusable wastes will be catalogued and stored within a designated laydown area.	Environmental Inspection	Weekly	PMC	Waste Segregation Register HSEC Area Inspection Form
All general purpose bins will be lidded and emptied regularly to ensure the lids remain completely shut.	HSEC Area Inspections	Weekly	Contractor	HSEC Area Inspection Form
All hazardous substance will be sent off site for disposal.	Controlled waste tracking forms.	As required.	PMC	Controlled Waste Tracking Procedure

10.6 Hydrocarbons, Chemicals and Brine

Management actions have been assigned for the handling, storage, disposal and clean-up of hydrocarbons and chemicals that will be required during construction phase. These strategies have been summarised in Table 11.

Table 11 Environmental Management Strategy for Hydrocarbons and Chemicals

Hydrocarbons and Chemicals				
Objective	Identify the potential direct and indirect impacts of chemical and hydrocarbons and develop management measures to minimise the potential environmental impacts associated with chemical and hydrocarbon transport, storage, handling and disposal.			
Target	<ul style="list-style-type: none"> All liquid chemicals are stored in accordance with Australian Standard 1940:2004 No spills from bulk storage facilities. All minor spills are remediated effectively. No sites registered under the <i>Contaminated Sites Act 2003</i>. 			
Potential Impacts	<ul style="list-style-type: none"> Contamination of groundwater and surface water due to incorrect storage, handling and spillage of hydrocarbons and chemicals. Dispersal of hydrocarbon wastes within the project and surrounding areas which result in visual pollution. Injury or death to local fauna (uncovered greases/oils etc.). 			
Management Action	Monitoring / Evidence	Timing	Responsibility	Supporting Documents
<p>Hydrocarbons will either be stored in self-bunded containers or within bunded areas.</p> <p>Hydrocarbon bunding will be of sufficient volume for the liquid chemical(s) stored. This required bunding volume will be the greater of, 25% of the total stored capacity or 110% of the capacity of the largest vessel.</p> <p>Liquid chemicals will be stored within a bund compliant with Australian Standards 1940 - 2004.– The storage and handling of flammable and combustible liquids and AS 1692 – Tanks for flammable and combustible liquids.</p>	HSEC area inspections	Weekly	Contractor	HSEC area inspections Form

Hydrocarbons and Chemicals				
All mobile plant/equipment will be inspected for potential mechanical failure, that could lead to leaks or spills, by a suitably qualified trade (e.g. mechanic, fitter) prior to operating on Site.	Mechanical inspection.	Prior to utilising equipment.	PMC	Mechanical Inspection Form Mechanical Inspection Register.
Prestart mechanical and safety inspections are conducted.	Equipment prestart inspections.	Daily	Contractor	Prestart Inspection Form
All mobile equipment will be services within a designated service area equipped with an impermeable floor.	HSEC area inspections	Daily	Contractor	HSEC Area Inspections Form
The refuelling truck will be equipped with drip trays, spill recovery and clean up materials	Daily workplace inspection	Daily	Contractor	Daily Workplace Inspection Form
All spills to ground will be recorded as an incident and reported to the Project Registered Manager.	Incident report forms	As required	All	Incident Report Procedure
Hypersaline pipelines will be bunded and/or double cased to ensure containment of spills.	Commissioning report	During commissioning	Contractor	NA
Pipeline pressure/flow leak detection monitoring will be installed and interlocked with the pump, resulting in a shutdown of pumping if the flow drops below a certain level.	Commissioning report	During commissioning	Contractor	NA
Chemical and hydrocarbon management storage and handling to be in accordance with Australian Standards.	Inspections of chemical/hydrocarbon storage and transfer areas (see also Section 14.1).	Monthly	PMC	Area inspection checklists.

10.7 Weeds – Mesquite

Mesquite is a weed of national significance. At Mardie Project mesquite is a hybrid of *Prosopis glandulosa*, *P. glandulosa x velutina* and *P. pallida*. It is highly invasive and requires integrated management using mechanical, chemical and biological control techniques. Mardie’s objective is to reduce or contain the mesquite infestation within the Project area.

The management strategies within Table 12 have been developed to be consistent with the National Heritage Trust’s [Weed Management Guide – Mesquite – Prosopis species](#) and in consultation with the Pilbara Mesquite Management Committee. Implementation will ensure that mesquite within the Project area is not spread beyond the Project and is controlled within the Project.

Table 12 Environmental Management Strategy for Mesquite.

Weeds				
Objective	To control mesquite within the Project and prevent mesquite from spreading beyond the Project.			
Target	<ul style="list-style-type: none"> Decrease in area within the Development Envelope that is densely infested with Mesquite compared to baseline. No earthmoving equipment enters the Project area containing soil and debris. No mobile equipment leaves site containing weed seeds and/or soil. 			
Potential Impacts	<ul style="list-style-type: none"> Loss or decline in habitat. Reduction in biological diversity. Delayed rehabilitation success. Loss or decline of pastoral productivity. 			
Management Action	Monitoring / Evidence	Timing	Responsibility	Supporting Documents
Establish baseline mapping of mesquite within Optimised Mardie Project area.	Mesquite extent spatial data in GIS.	complete	BCI GIS	ArcGIS spatial layer for Mesquite.

Weeds				
Site inductions and toolbox training to include Mesquite awareness.	Mardie Project Induction. Toolbox topic – Mesquite awareness.	31 August 2022 Prior to clearing in Mesquite infested areas of Optimised Mardie Project Development Envelope.	PMC	Mardie Project Induction Powerpoint presentation.
Develop and implement clearing and soil movement procedure for areas infested with Mesquite.	Clearing monitoring.	Prior to clearing in Mesquite infested areas of Optimised Mardie Project Development Envelope.	BCI	Mesquite hygiene procedure (in preparation in consultation with PMMC).
Where possible, topsoil will not be stripped in areas of high mesquite infestation (mapped as Degraded or Poor quality in vegetation mapping) to prevent further spread.	Topsoil stockpile inspections. Post clearing survey	Weekly during clearing activities. Annual material balance reconciliation.	PMC	Inspections reports
Internal Ground Disturbance Permitting procedure to include Mesquite hygiene requirements.	GDP procedure and GDP form.	31 August 2022	BCI	GDP Register
Conduct Mesquite clearing trials.	Mesquite clearing trial results.	Q3 – Q4 2022	BCI Mardie Project	Mesquite clearing trial proposal in consultation with Pilbara Mesquite Management Committee. Mardie Project Mesquite clearing trial report.
Earthmoving equipment will be free of soil and debris prior to entering the Project area.	Vehicle Weed Inspection Form Vehicle Weed Inspection Register	Prior to earthmoving equipment arriving onsite.	Contractor	Vehicle Weed Inspection and Cleaning Procedure. Vehicle Weed Inspection Vehicle Weed Inspection Register

Weeds				
All vehicles leaving the Project are inspected to ensure they are free of weed seeds and soil.	Vehicle Weed Inspection Form Vehicle Weed Inspection Register	Prior to any vehicle leaving site.	Contractors	Vehicle Weed Inspection and Cleaning Procedure. Vehicle Weed Inspection. Vehicle Weed Inspection Register

10.8 Weeds – General

The management strategies within Table 14 will ensure that new weed species are not introduced to the Project area and that weeds from within the Project area are not spread beyond the Project.

Table 13 Environmental Management Strategy for Weeds.

Weeds				
Objective	To ensure that new weed species are not introduced to the Project area and that weeds from within the Project area are not spread beyond the Project.			
Target	<ul style="list-style-type: none"> • No new weed species identified in the Project area. • No earthmoving equipment enters the Project area containing soil and debris. • No mobile equipment leaves site containing weed seeds and/or soil. 			
Potential Impacts	<ul style="list-style-type: none"> • Loss or decline in habitat. • Reduction in biological diversity. • Delayed rehabilitation success. • Loss or decline of pastoral productivity. 			
Management Action	Monitoring / Evidence	Timing	Responsibility	Supporting Documents
Earthmoving equipment will be free of all soil and debris prior to entering the Project area.	Vehicle Weed Inspection Form Vehicle Weed Inspection Register	Prior to earthmoving equipment arriving onsite.	Contractors	Vehicle Weed Inspection and Cleaning Procedure. Vehicle Weed Inspection Vehicle Weed Inspection Register
All vehicles leaving the Project are inspected to ensure they are free of weed seeds and soil.	Vehicle Weed Inspection Form Vehicle Weed Inspection Register	Prior to any vehicle leaving site.	Contractors	Vehicle Weed Inspection and Cleaning Procedure. Vehicle Weed Inspection. Vehicle Weed Inspection Register

10.9 Heritage

There are several significant heritage sites identified within the Project area. These sites and the relationships with the traditional owners will be managed as per the heritage strategy summarised in Table 14. See also the approved Mardie Project Heritage Management Plan, as per conditions of MS1175.

Table 14 Heritage Management Strategy

Heritage				
Objectives	To identify and manage aboriginal heritage that may be affected by the Project in a manner that complies with Legislation, the Land Access Deeds with the Yaburara Mardudhunera and Kuruma Mardudhunera Native Title claim groups and the commitments made to these groups.			
Targets	<ul style="list-style-type: none"> No unlawful disturbance of heritage areas. No Project activities to be conducted outside of the Land Access Deeds with the YM and KM Native Title claim groups. 			
Potential Impacts	<ul style="list-style-type: none"> The destruction of significant aboriginal sites and objects. Lost relationships with the YM and KM Traditional Owners. 			
Management Action	Monitoring / Evidence	Timing	Responsibility	Supporting Documents
Heritage sites and their buffer zones will be clearly delineated in the field within the Project area. Access to these areas entry will be prohibited.	Hard barricades and signage	Prior to construction	Contractor	Heritage Sites Register Inspection
Clearing activities to be conducted under the GDP process (refer to Section 10.1)	GDP	Prior to disturbance activities taking place.	Contractor	Ground Disturbance Permit. Ground Disturbance and Topsoil Stockpiling Procedure. Ground Disturbance Register

Heritage				
Should the Contractor or employee become aware of a potential heritage site within an area of proposed clearing, all activity will cease immediately in this area and the Contractor will inform the Mardie Construction Supervisor.	Hazard report	As required.	All	Incident and Hazard Reporting Procedure
Any disturbance to heritage sites will be reported as an incident to the Mardie Environmental Advisor immediately.	Incident Report	As required	All	Incident and Hazard Reporting Procedure

11. CONDITIONAL ENVIRONMENTAL MANAGEMENT PLANS

Conditional Environmental Management Plans have been/are being developed to satisfy the obligations of Ministerial Statement No. 1175 and EPBC 2018/8236 approval. These are listed in Section 10.

BCI is responsible for monitoring compliance with Conditional Environmental Management Plans during construction.

12. EMERGENCY MANAGEMENT

The site-specific Emergency Management Plan has been developed and the Company Incident Management Procedure will be followed in the case of an environmental emergency.

Where significant environmental harm has occurred, or is pending, due consideration must be given to the utilisation of professional response management services.

13. INCIDENT REPORTING AND INVESTIGATION

An incident is any unplanned event, that causes (or has the potential to cause) damage to the natural environment, cultural and heritage areas. An incident can be a 'near miss' event.

All property damage, environmental harm and significant near misses will be verbally reported immediately to the Company as soon as practicable after the incident and in any case in writing within 24 hours of the incident occurring.

The Contractor will report incidents to the Company as soon as practicable after the incident. Incidents will be reported, investigated and managed as per the Company Incident Reporting and Management Procedure (BCI-WHS-PR-009).

13.1 Notifiable Incidents

The Company's Safety, Compliance and Services team shall ensure timely notification to the appropriate statutory regulator in accordance with legislation. If a Notifiable Incident occurs in relation to the Work, the Contractor will complete the following:

- Immediately notify the Construction Manager of the Notifiable Incident.
- Investigate the Notifiable Incident.
- Where site preservation is required by the Environmental requirement, ensure, so far as is reasonably practicable, that the part of the Site where the Notifiable Incident occurred is not disturbed until further direction is given to the Contractor by the Company.
- As soon as is practicable, provide the Company with evidence that the hazards or risks giving rise to the Notifiable Incident have been eliminated or reduced, so far as reasonably practicable, including (if required and subject to legal professional privilege) a copy of its incident investigation report.

13.2 Incident Investigation

All incidents will be investigated as to the Company Incident Management Procedure (BCI-WHS-PR-009).

The incident investigation team will comprise members of the Contractor Management Team and the process may involve taking witness statements, photographs and data collection although this list is not exhaustive.

Table 15 Incident Investigation Team

Classification	Lead Investigator	Investigation Team Members	Other Members	Investigation Type
Significant Outcome Events	ICAM trained Lead Investigator	Immediate Line Supervisor of person involved in incident Site Environmental Personnel & Reps	Company Environmental personnel Legal representative	ICAM
Non-Significant	Supervisor Lead	Personnel involved in incident	Technical Specialists	'5 Whys' Analysis

The incident investigation shall include the following basic elements:

- identify the cause of the incident,
- identify the necessary corrective and preventative action(s),
- identify personnel responsible for carrying out corrective and preventative action (s),
- implement or modifying controls necessary to avoid repetition,
- record any changes in written procedures required, and
- notify the Company of all site environmental issues.

13.3 Lessons Learnt

Information gathered from incident investigations will be analysed to identify lessons and monitor trends. The Contractor is responsible for this analysis and reporting of significant lessons or trends to the Project Team for the purpose of improving environmental systems or practices.

The Company will share the lessons or trends findings across the Project Team, with project stakeholders and others if required.

14. MONITORING & CORRECTIVE ACTION

14.1 Audit & Inspection

Audits will be conducted to ensure the ongoing compliance with regulatory requirements, adequacy and effectiveness of the CEMP, and to facilitate continuous improvement. Environmental audits are planned and scheduled with all other project audits, and detail the type of audit, duration, auditors (including the Lead Auditor), and dates.

The findings from internal audits on the implementation of the CEMP for the project are provided to the Project Manager.

Whenever practicable, personnel conducting an audit address the identified deficiencies immediately during the inspection. In all other cases the Action will be added into the INX InControl Event Management Register and a nominated person will be made responsible for ensuring the action is managed in accordance with the set date for completion. The Environmental Advisor monitors and reports on the progress of rectification of any outstanding corrective actions.

14.1.1 Contractor Audits

Contractors are required to undertake audits of their workspace, as communicated to the Contractor through the tender and contract. Compliance with this requirement is a contract deliverable and is defined in the Contractor Data Requirements.

14.2 Environmental Non-Compliance

Non-compliances raised by project audits are registered and controlled in accordance with Incident Reporting and Investigation and using INX InControl.

Possible non-compliances include regulatory non-compliance, non-compliance with the management measures outlined in this CEMP, and mitigation strategies/ management measures outlined in the CEMP sub-plans.

All non-compliances are registered and controlled using INX InControl.

Where detected, any non-compliance or environmental impact exceeding specified limits are investigated by the Environmental Advisor to determine the extent of possible non-compliance. The non-compliance is corrected as soon as possible with necessary action taken to prevent recurrence.

All non-compliances are reported to the Company and clearly identify the corrective/ preventative actions to be taken and the close-out date.

14.3 Environmental Complaints

Third party environmental complaints are managed in accordance with the Company Communication and Consultation processes.

14.4 Environmental Breach

Contractors found to be in breach of this CEMP are managed in accordance with the contract under which they have been engaged.

14.5 Reporting

Environmental performance is reported for the Project in accordance with Project Execution Plan requirements.

Environmental performance is reviewed and documented via minutes of scheduled project meetings utilising inputs from the Environmental Advisor, Construction Manager, and HSE Manager.

15. REFERENCES

Document Number	Description
BCI-ENV-POL-001	Environment and Community Policy
MAR-0000-EV-RRG-BCI-000-0001	ESMS Risk Register
BCI-WHS-PR-1-A	Consultation and Communication procedure
BCI-WHS-PR-009-A	Incident Reporting and Management
BCI-WHS-PR-004-0	Hazard and Task Based Risk Management Procedure
MAR-0000-EV-PRO-BCI-000-003	Ground Disturbance Procedure
BCI-SUS-WI-002	Demarcation and Survey Work Instruction
MAR-0000-EV-PRO-BCI-000-0004	Vehicle Weed Inspection and Cleaning Procedure
BCI-WHS-ST-002-0	Health and Safety Critical Control Standards
BCI-WHS-PRO-022 Previously issued as MAR-0000-HS-PRO-BCI-000-0004	Hazardous Chemical Management
0000-HS-PRO-001 Previously issued as MAR-0000-HS-PRO-EGM-020-0012	Temporary Laydown Procedure
BCI-ENV-PRO-007 Previously issued as MAR-0000-EV-PRO-EGM-020-0005	Spill Response Procedure
BCI-ENV-PRO-005 Previously issued as MAR-0000-EV-PRO-EGM-020-0003	Waste Management Procedure
BCI-ENV-PRO-004 Previously issued as MAR-0000-EV-PRO-EGM-020-0002	Air Quality Management Procedure
BCI-ENV-PRO-003 Previously issued as MAR-0000-EV-PRO-EGM-020-0001	Water Management Procedure
BCI-ENV-PRO-006 Previously issued as MAR-0000-EV-PRO-EGM-020-0004	Fauna Management Procedure
MAR-WHS-PLN-003	Emergency Management Plan Mardie
MAR-0000-LH-PLN-BCI-000-0002	Stakeholder Engagement Management Plan