MARDIE SALT AND POTASH PROJECT

WESTERN AUSTRALIA

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

EPBC 2022/9169

Declaration of accuracy

In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed:

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Position: Head of Approvals and Government Relations

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Date:

2c	Jun 2024	Revised to address comments on Optimised Project	K Frehill	S Van Straaten	S Meredith
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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 (the 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 of environmental controls that will be implemented for all identified environmental impacts and sets out conditions under which the Project will proceed.

The management measures described in this CEMP address those environmental aspects that are in addition to the "regulatory management plans" that are relevant to construction activities, including the:

- Benthic Communities and Habitat Monitoring and Management Plan
- Dredging Management Plan
- Groundwater Monitoring and Management Plan
- Heritage Management Plan
- Illumination Plan
- Marine Environmental Quality Monitoring and Management Plan
- Marine Turtle Monitoring Program

1.1 Overall Project Description

BCI Minerals are developing a greenfield high-quality salt and sulphate of potash (SOP) project and associated export facility at Mardie, approximately 80 kilometres south-west of Karratha, in the Pilbara region of Western Australia.

BCI Minerals referred the original Mardie Salt project to the State Environmental Protection Authority (EPA) and Commonwealth Department of Climate Change, Energy, environment and Water (DCCEEW) in 2018. The Project was assessed under an accredited process. The Project was granted approval under:

- State Ministerial Statement MS1175, in November 2021 and
- Commonwealth EPBC 2018/8236 in January 2022.

In 2022, Mardie Minerals Pty Ltd submitted a referral for the Optimised Maride Project (OMP), which was considered to be a 'significant change' to the original Mardie Salt project approved under MS1175 and EPBC2018/8236. The OMP was also assessed under an accredited process. The OMP was granted approvals under:

- State Ministerial Statement MS1211 in October 2023 and
- Commonwealth EPBC 2022/9169 is anticipated in June 2024.

The Project is a solar evaporative salt project that uses seawater, a series of concentrator solar ponds, crystallisation ponds and processing plants to produce up to 5.35 Mtpa of salt and up to 140 ktpa of SOP.

The salt and SOP production process commences with seawater being abstracted from an adjacent tidal creek via a screened intake and pumped into a series of concentrator ponds, where it progressively evaporates to form a saline brine. The brine from the final concentrator pond is pumped into the primary and secondary salt crystalliser ponds, where halite (NaCl) salts are crystalised and harvested once the remaining brine has been decanted and pumped into the KTMS (kainite type mixed salt) crystalliser ponds where potassium rich salts are recovered. Mechanically harvested halite salts from the primary and secondary crystallisation ponds are transported to a salt washing plant, where impurities (mainly gypsum and ambient dust) are washed out of the salt using seawater, to produce a high purity final product. Potassium-rich salts produced in the KTMS crystallisers are stockpiled and processed within the SOP processing plant to produce SOP fertiliser. SOP is then transported to the stockyards alongside the halite salt ready for export.

The SOP fertiliser product is then transported to the stockyards alongside the halite salt ready for export through the jetty. Remaining brines that cannot be reprocessed are sent to the waste bitterns storage pond, from where the bitterns are diluted with seawater and discharged out to sea through a multi-port diffuser.

Unlike typical mining/resource operations, the Project does not rely on a finite resource and therefore will not close due to resource depletion. As a result, the life of the Project is expected to be at least 60 years.

A quarry will be located approximately 1.7 km north-west of the intersection of Mardie Road and North-west Coastal Highway. The quarry will be mined to supply rock, rip rap, concrete aggregate and road base required for construction of the Project.

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 1 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
Transhipment Corridor Envelope – channel to allow access for transhipment vessels
Operational Elements
Bitterns discharge
Groundwater abstraction
Dredge volume

Figure 1 shows the indicative location of the physical elements of the original Mardie Project, and Figure 2 shows the changes to the physical elements as per the Optimised Mardie Project.

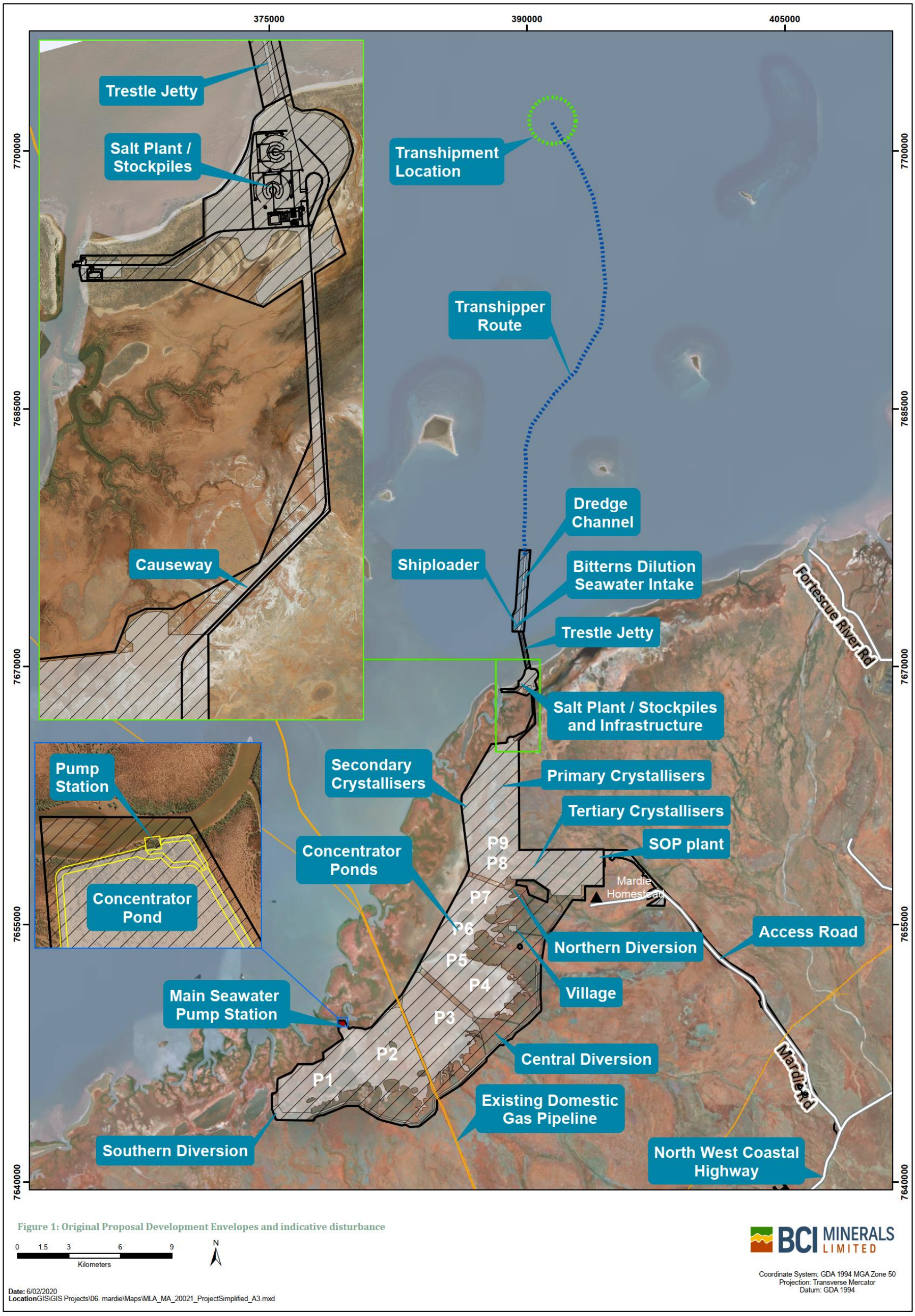

Figure 1 Original Mardie Project – Project Elements

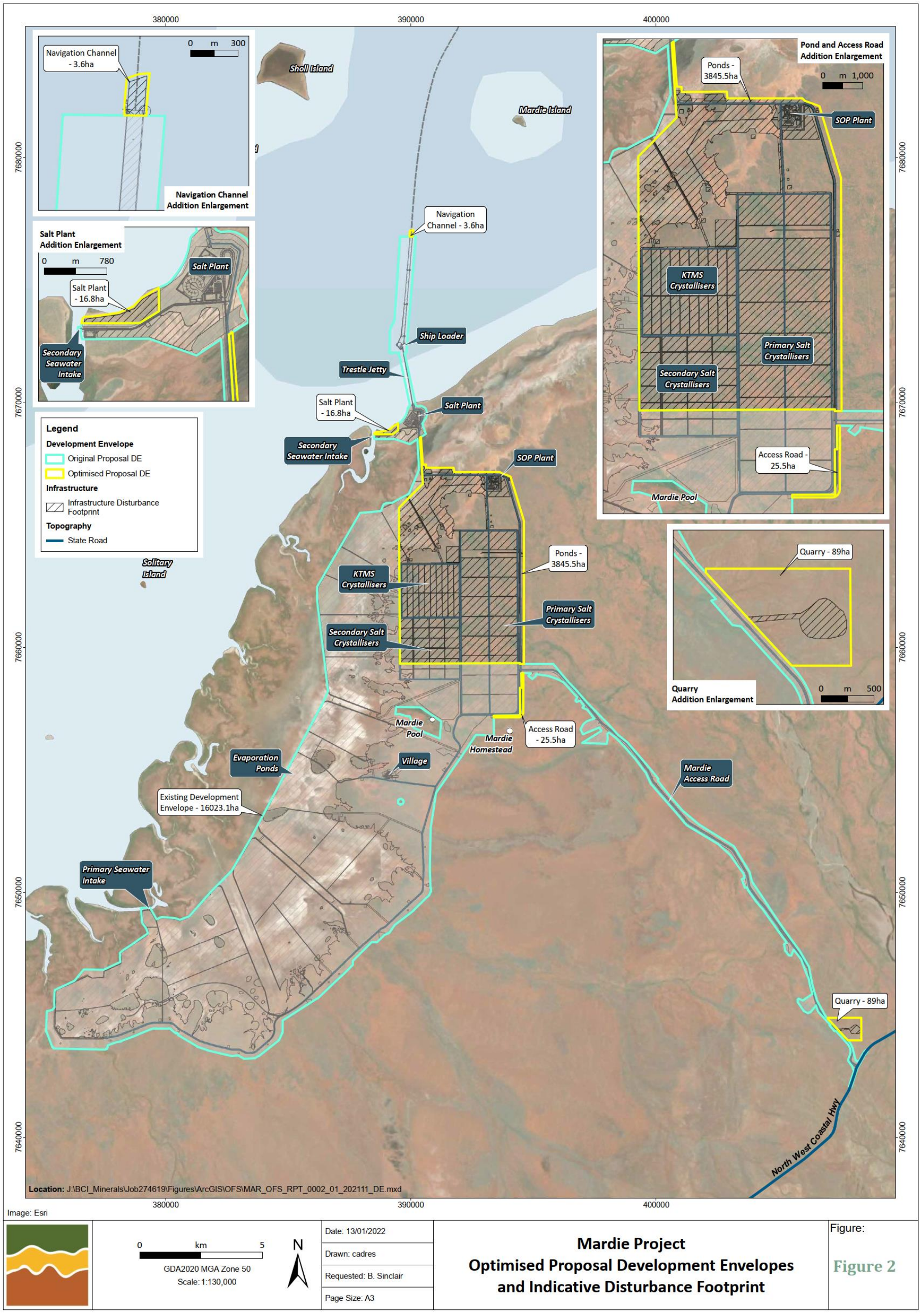

Figure 2 Optimised Mardie Project – Project elements

1.2 Conditions of Approval

The table below references the EPBC 2018/8236 conditions of approval for the original Mardie Salt Project, relevant for the context of this CEMP.

Table 2 Conditions of Approval

(this will be updated further as per the Conditions of Approval from DCCEEW for the OMP).

Condition Number	Condition Requirement	Plan Reference	Demonstration of how the plan addresses condition requirements and commitments made in the plan to address condition requirements
1.	To minimise impacts to protected matters, the approval holder must not clear or impact within the development envelope more than: 2,562 hectares of Triodia grassland habitat. 6 hectares of open riparian woodlands vegetation. 64.5 hectares of low rocky hill habitat. 0.12 hectares of marine turtle nesting beach. 17 hectares of mangrove. 79 hectares of subtidal Benthic Communities and Habitat. 72 hectares of tidal channel and ocean habitat. 296 hectares of coastal samphire. 880 hectares of algal mat.	Section 99.1	Land clearing and topsoil disturbance activities associated with the construction of the Project will be managed through an internal Ground Disturbance Permit (GDP). The GDP allows for the assessment of the disturbance areas 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.
2.	To minimise impacts to protected matters, the approval holder must not clear outside the development envelope.	Section 99.1	Land clearing and topsoil disturbance activities associated with the construction of the Project will be managed through an internal Ground Disturbance Permit (GDP). The GDP allows for the assessment of the disturbance areas to ensure that all environmental approval and heritage obligations are complied with. In addition, the GDP enables the collection

Condition Number	Condition Requirement	Plan Reference	Demonstration of how the plan addresses condition requirements and commitments made in the plan to address condition requirements
			of data used for corporate reporting, statutory reporting such as annual environmental reporting and closure liability estimates.
15.	The approval holder must implement the following measures for the life of the project: Implement the Construction Environmental Management Plan. The approval holder may submit a revised Construction Environmental Management Plan at any time to the Minister for approval. The Minister approved plan and any other subsequently approved plan must be implemented. Ensure that the number of cats, foxes, rabbits, pigs, and cane toads within the development envelope is lower than the number for each species prior to the commencement of the action that starts with the baselines as outlined in the Mardie Project Environmental Review. A reference site at Mardie Station will be used to provide evidence of these numbers against yearly natural fluctuations of cats, foxes, rabbits, pigs, and cane toads. Each year undertake monitoring according to best survey practices to determine the number of cats, foxes, rabbits, pigs, and cane toads within the development envelope and provide the findings of the surveys for each year in the compliance report that immediately follows that year. Ensure that the approval holder will not bring domestic animals into the development envelope. Ensure that no fishing occurs from the trestle jetty or the Mardie Pool, as defined in Attachment 4, or within the development envelope. Adequately induct all personnel associated with the action and/or entering the development envelope prior to them entering the development envelope, so that no person or low-flying craft (including drones) enters any area of habitat of migratory shorebirds as outlined in the green polygon in Attachment 3 within the development envelope for any purpose other than scientific survey or study approved by the Minister or Western Australian Government. Securely contain all waste that is present in the development envelope and ensure that all waste is removed from the development envelope at least once each month and disposed of at the appropriate waste disposal facilities approved by the Western Australian Government.	Section 9	This CEMP has been developed to provide the framework for the management of environmental aspects and impacts during the course of the construction of works for the Company for the Mardie Salt and Potash Project. The Company is committed to undertaking: Annual feral fauna survey and control Induction and training for all staff, and contractors who will be working on the Project, which will include details relating to: No domestic animals on site No fishing/hunting will be permitted Commitments to avoid impact to all conservation significant fauna Appropriate disposal of waste and Maintaining records of all inductions and training

Condition Number	Condition Requirement	Plan Reference	Demonstration of how the plan addresses condition requirements and commitments made in the plan to address condition requirements
	Ensure that no waste from the development envelope reaches migratory shorebirds habitat as outlined in the green polygon at Attachment 3 or marine fauna habitat as outlined in the dark blue polygon at Attachment 3. Install fauna egress mechanisms at all evaporative ponds to ensure that they are fully effective to enable any wildlife escape for the life of the project.		

2. ENVIRONMENTAL OBJECTIVES

- The objective of this CEMP is to provide a framework for the overall environmental management of the Project, through specific management measures, and to support the Company and its contractors 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.

2.1 Key Performance Indicators

The key performance indicators for this CEMP are listed in Table 3.

Table 3 Key Performance Indicators

Indicator	Monitoring Mechanism	Target
Ground Disturbance Permit Breach	INX Event Reporting	0
Notifiable Environmental 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	100% of all spills >20L captured in INX Event Reporting
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

3. ROLES AND 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 4.

Table 4 Roles and Responsibilities

Role	Responsibility
Construction Manager	• 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	• Ensure that any changes to the schedule of works or work methodology, in particular changes under an approved Ground Disturbance Permit (GDP), are communicated to the Environmental Advisor in a timely manner. • Report all environmental events to the Environmental Advisor or Project Manager. • Lead and actively manage environmental incidents and non-compliances. • Action an appropriate response in accordance with environmental procedures in the event of an environmental incident. • Assist the Environmental Advisor in promoting environmental awareness.
Environmental Advisor	• Assist 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. • Can be contacted when required or if unavailable has delegated authority. • Participate in project meetings if requested. • Provide environmental training, awareness and guidance for all personnel onsite • Complete and maintain all necessary environmental documentation for the Project, if appropriate. • Support the package engineers with Environmental Incidents and non-compliances • 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.

Role	Responsibility
Manager Environmental Approvals and Compliance	• Ensure implementation and governance of the CEMP. • Responsible for all reporting to statutory bodies around environmental incidents and compliance. • Review audit reports and monitor completion of required corrective actions. • Ensure all environmental obligations are kept current.
Health and Safety Manager and Advisors	• Provide assistance and/or advice regarding implementation of the CEMP and any other environmental management concern. • Liaise with government agencies regarding health and safety issues. • Assess health and safety incidents to determine regulatory reporting requirements.
Contractors Employees and Subcontractors	• 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.

4. REPORTING

An environmental management plan will usually require reporting arrangements for two purposes. Reporting arrangements assist with effective implementation and with external reporting. External reports may include reports on environmental incidences to the regulator, reports to stakeholders, reports to inform reviews of the plan and reports to meet the reporting requirements of the conditions of approval. The description of reporting requirements should include:

- a list of required reports including where appropriate monitoring, environmental incidents, non-compliance, corrective action and auditing
- a description of the standard report content
- the schedule or triggers for preparing a report
- who the report is provided to
- document control procedures.

As required under Condition D2-1 of State Ministerial Statement 1211 an Annual Compliance Report will be submitted to the regulators.

Additionally, as per Condition D1-1 of State Ministerial Statement 1211, in the event of a potential non-compliance, BCI will:

1. submit a report within seven days,
2. implement contingency measures,
3. investigate the cause,
4. investigate the environmental impacts,
5. advise rectification measures to be implemented,
6. advise of any other measures to be implemented to ensure no further impact, and
7. provide a report to the regulators within 21 days of being aware of the potential non-compliance, detailing the measures required in Condition D1-1(1) to D1-1(6).

In accordance with Condition 37a of EPBC 2018/8236, the Company must prepare a compliance report for each 12 month period following the date of commencement of the action, or otherwise in accordance with an annual date that has been agreed to in writing by the Minister. The Company will submit this compliance report to DCCEEW in accordance with the conditions in EPBC 2018/8236 / 2022/9169.

5. 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 . 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

5.1 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;
    - speed limits and hazards of dawn/dusk driving;
    - waste management, including litter control and recycling;
    - spill response procedures; and
    - Aboriginal cultural heritage awareness.

- * Fauna and flora training in the inductions will address the requirements of the Fauna Management Procedure, including how to identify conservation significant species in the field and the prohibition on feeding/distributing/taking such species.

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

5.2 Task specific Environmental Training with Competency Assessment

Task specific environmental training (e.g. spill response training, fauna handling training, fauna spotter training, GDP training and site clearing permit/procedure 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.

5.3 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.

5.4 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.

6. 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,
- Site notices,
- Environment alerts,
- Environmental Weekly and Monthly reports to management,
- Scheduled Audits, and
- Environmental Incident reports and banners.

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:

- Emergency Response Manual,
- Construction Environmental Management Plan (this Plan),
- Company Policies,
- Safe Work Instructions,
- Environmental Management Plans and Procedures
- JHA,
- Communication Meeting minutes, and
- Copies of relevant legislation and codes of practice where required.

6.1 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.

7. 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, safety, environment noticeboards.

8. 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;
- actual scope of work and consideration of all applicable legislation, standards, and other conditions; and
- Geographical Information System (GIS) which maps and tracks disturbance limits and constraints.

The Project Risk Register details the relevant environmental aspects, their associated impacts, the mitigation control, and a rating of their significance. Refer to the BCI Risk Management Procedure BCI-RMG-PRO-001.

8.1 Scope

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 BCI Risk Management Procedure (BCI-RMG-PRO-001).

The risk assessment provided in Table 8 is a subset of the Mardie Project Environmental Risk Register which is maintained and regularly updated as part of the BCI Environmental Management System.

The scope of the risk assessment is for all construction related activities as defined for the Project Activities defined in Section 2.

8.2 Risk assessment criteria

To ensure that the assessment of likelihood and consequence levels across the identified risks was consistent, semi-quantitative matrices were developed for the Project, based on industry examples.

Tables 6 and 7 provide a description for the likelihood of an impact occurring and the potential consequence that could arise as a result. Table 8 is a risk matrix derived from the like risk definitions and is used to assign a risk score to the key risks identified within the Project Risk Assessment (Table 9).

Table 6 Risk criteria matrix: Consequence of impact occurring

Factor	Consequence of Risk Outcome				
	1. Insignificant	**2. Minor**	**3. Moderate**	**4. Major**	**5. Severe**
Biodiversity/ Flora/Fauna/ Ecosystem	None or insignificant impact to ecosystem component (physical, chemical or biological) expected with no effect on ecosystem function.	Moderate to minor impact to ecosystem component (physical, chemical or biological). Minor off-site impacts at a local scale.	Minor and short-term impact to high value or sensitive ecosystem expected Off-site impacts at a local scale.	Long-term impact to significant high value or sensitive ecosystem expected Long-term impact on a wide scale Adverse impact to a listed species expected.	Irreversible impact to significant high value or sensitive ecosystem expected Irreversible and significant impact on a wide scale Total loss of a threatened species expected
Water Resources	Low impact to isolated area without affecting any use of the water.	Contained low impact with negligible effect on the use of the water.	Uncontained impact that will materially affect the use of the water, but able to be rectified in short-term.	Extensive hazardous impact requiring long-term rectification.	Extensive hazardous impact requiring long-term rectification.
Land Degradation	Negligible impact to isolated area.	Contained low impact, not impacting on any environmental value	Uncontained impact, able to be rectified in short-term without causing pollution or contamination.	Extensive hazardous impact requiring long-term rectification.	Uncontained hazardous impact with residual effect.
Air Quality	No detectable impact.	Contained low impact not impacting on any environmental value.	Uncontained impact that will materially affect an environmental value, but able to be rectified in short-term	Extensive hazardous impact on an environmental value requiring long-term rectification.	Uncontained hazardous impact with residual effect.

Table 7 Risk criteria matrix: Risk levels

		Consequences				
		1. Insignificant	**2. Minor**	**3. Moderate**	**4. Major**	**5. Severe**
Likelihood	**E. Rare**	25 (Low)	23 (Low)	20 (Low)	16 (Moderate)	11 (Moderate)
	D. Unlikely	24 (Low)	21 (Low)	17 (Moderate)	12 (Moderate)	7 (High)
	C. Possible	22 (Low)	18 (Moderate)	13 (Moderate)	8 (High)	4 (High)
	B. Likely	19 (Low)	14 (Moderate)	9 (High)	5 (Extreme)	2 (Extreme)
	A. Almost Certain	15 (Low)	10 (High)	6 (High)	3 (Extreme)	1 (Extreme)

A risk score is assigned to inherent and treated risk pathways identified with the project activities. The risk score is assigned busing the risk matrix provided in Table 8. In general, risk scores can be reduced by implementing a treatment that will reduce the likelihood of the impact from occurring. If a risk is eliminated or substituted, then the consequence can be reduced reducing the risk score.

8.3 Environmental Risk Pathways

The risk assessment relies on the comprehensive description of project activities, so the associated risks and potential impacts can be identified (refer to Section 5).

Without exception, all these hazards are common across the mining and civil industries, and established risk treatment are widely available.

Table 8 Optimised Mardie Project CEMP Risk Assessment

Factor	Project Phase	Environmental Risk Pathway	Impact	Likelihood	Consequence	Raw Score	Treatment/Schedule of Works	Likelihood	Consequence	Treated Score	Outcome*
1.0 Biodiversity											
1.1	Construction/Operation	Project operations (noise, light, vibration) indirectly alter migratory bird behaviours.	Reduction in utilisation of adjacent habitats by migratory birds.	C	4	H	Implement the Migratory Shorebird Monitoring and Management Program and report on performance annually, as regulated within MS 1121 and EPBC 2018/8236 / 2022/9169.	D	4	M	NR
1.2	Construction/Operation	Clearing activities directly or indirectly alter SRE populations.	Reduction in species richness, density, and population size of SRE.	C	4	H	Conduct pre-clearance SRE surveys and ensure minimum 50% retention of SRE habitat as regulated within MS 1121 and EPBC 2018/8236 / 2022/9169.	D	4	M	NR
1.3	Construction/Operation	Direct or indirect impacts to BCH (including algal mats/samphire) results from the Project operations.	Loss or decline in BCH habitat.	C	4	H	Implement the BCH Monitoring and Management Plan and report on performance annually, as regulated within MS 1121 and EPBC 2018/8236 / 2022/9169.	D	4	M	NR
1.4	Construction/Operation	Direct or indirect impacts to significant flora (*Minuria tridens* or *Tecticornia* taxa) results from the Project operations.	Loss or decline in PEC or significant flora species.	C	4	H	Protection of significant flora regulated within MS 1121 / EPBC 2018/8236 / 2022/9169.	D	4	M	NR
1.5	Construction/Operation	Introduction or spread of invasive weed species.	Loss or decline in habitat Reduction in biological diversity Delayed rehabilitation success Loss or decline in pastoral productivity.	C	2	M	Activities to be conducted in accordance with the Mardie Weed Management Plan which include: • Weed mapping • Vehicle weed hygiene procedure and checklist for cleaning vehicles • Washdown Bay at the entrance to the project area • Defined operational boundaries • Ground disturbance procedures • Training for those operating earth moving equipment	D	2	L	Y
1.6	Construction/Operation	Dust generation from earthmoving and haulage equipment causes dust deposition on vegetation.	Decline in vegetation condition along haulage roads.	D	2	L	• Dust suppression to be incorporated into construction, mining, and haulage programs. • Minimise disturbance area.	E	2	L	NR
1.7	Construction/Operation	Erosion from embankments enters the environment	Loss or decline in BCH	C	4	H	• Erosion control measures to be incorporated in embankment design in accordance with engineering design and	D	4	M	Y

Factor	Project Phase	Environmental Risk Pathway	Impact	Likelihood	Consequence	Raw Score	Treatment/Schedule of Works	Likelihood	Consequence	Treated Score	Outcome*
							ANCOLD Guidelines. For example, use of geofabric and rock armouring. • Implement the BCH Monitoring and Management Plan and report on performance annually, as regulated within MS 1121 and EPBC 2018/8236 / 2022/9169.				
1.8	Construction/Operation	Illumination and light spill emissions influence (nesting and mis-orientation or disorientation) marine turtles.	Decline in marine turtle population.	C	4	H	Implement the Illumination Management Plan as regulated within MS 1121 and EPBC 2018/8236 / 2022/9169.	D	4	M	NR
1.9	Construction/ Operation	Introduction/ spread of feral animal species	Increase in occurrence of feral animal species which can compromise rehabilitation efforts through grazing or threaten native fauna in the area through predation and competition.	C	2	M	• Cattle are present within the Mardie Project area as Mardie Station run stocking operations on the pastoral lease. This can impact on rehabilitation efforts. A stock fence is to be erected to exclude cattle from the Mardie Project, if significant impacts to rehabilitation are noted, access to the mine site by cattle will need to be reviewed. Cattle movements are currently managed through water source management. • Within the pastoral station, trapping and baiting feral species is the responsibility of Mardie Station under Biosecurity and Agriculture Management Act 2007. In addition, EPBC 2018/8236 conditions of approval require Mardie Project to manage introduced fauna. BCI understands that this condition will be applied to the Optimised Mardie Project, should it be approved.	D	2	L	Y
2.0 Land and Soil											
2.1	Construction/Operation	Excavation greater than 1m depth exposes ASS.	Groundwater/surface water contamination. Loss or decline in vegetation or habitat value.	D	3	M	• PAF investigation found low to negligible risk of ASS occurring (SWC 2019a; Section 7.3.3) • Any PAF material encountered will be immediately buried below the water table.	E	3	L	Y
2.2	Construction/Operation	Hydrocarbon storage system or equipment failure causing hydrocarbon spills to ground.	Contamination of land and soils.	C	3	M	• Store all liquid chemicals in accordance with AS1940:2017. • Maintain design capacity of hydrocarbon and liquid chemical bunding.	E	3	L	Y

Factor	Project Phase	Environmental Risk Pathway	Impact	Likelihood	Consequence	Raw Score	Treatment/Schedule of Works	Likelihood	Consequence	Treated Score	Outcome*
							• Incorporate temporary bunding into field servicing. • All spills to ground are remediated. • Training and awareness				
2.3	Construction	Unapproved/excessive land disturbance.	Loss or destruction of environmental value beyond the approved footprint.	B	3	H	• All clearing activities to adherence to the Site Clearing Procedure and Ground Disturbance Permit system. • Compliance with new Ministerial Statement when Part IV EP Act assessment is complete.	D	3	M	Y
3.0 Water Resources											
3.1	Construction/Operation	Seepage from concentrator or crystalliser ponds causes, decline groundwater quality threatening the environmental and heritage value of Mardie Pool adjacent to the crystallisers or the Mangroves west of the concentrator ponds.	Loss or reduction in mangrove communities or water quality in Mardie Pool.	C	4	H	Implement the Groundwater Monitoring and Management Plan as regulated within MS 1121 and EPBC 2018/8236 / 2022/9169 (expected to be applied to Optimised Project once Part IV EP Act assessment is complete).	D	4	M	NR
3.2	Construction/Operation	Fuel storage system or equipment failure causing hydrocarbon spills to intertidal environment.	Hydrocarbon contamination of marine waters.	C	2	M	• Store all liquid chemicals in accordance with AS1940:2017. • Maintain design capacity hydrocarbon and liquid chemical bunding. • Incorporate temporary bunding into field servicing. • All spills to ground remediated. • All spills to the marine environment are responded to in accordance with the Department of Transport WA Marine Environmental Emergency Response (MEER). • Marine spill kit available at fuel storage locations and on fuel delivery vehicles.	D	2	L	Y
3.3	Operational	Inefficiency of oil water separators leads to discharge of hydrocarbon contaminated water.	Decline in soil or groundwater quality leads to contaminated site.	C	2	M	• Discharge of wash water to be regulated under Part V of the Environmental Protection Act. • Contamination regulated under Part V of the Environmental Protection Act and the Contaminated Sites Act if not remediated	D	2	L	NR

Factor	Project Phase	Environmental Risk Pathway	Impact	Likelihood	Consequence	Raw Score	Treatment/Schedule of Works	Likelihood	Consequence	Treated Score	Outcome*
3.4	Operations	Loss of chemical from SOP bulk storage and process tanks.	Decline in groundwater quality leads to contaminated site.	C	3	M	Construction and operation of the SOP plant, including bulk chemical storage managed under Part V of the Environmental Protection Act.	D	3	M	NR
4.0 Heritage											
4.1	Construction/ Operation/ Closure	Direct or indirect loss of heritage value resulting from the Project.	Social, cultural, heritage and archaeological values are compromised. Loss of visual amenity impacting cultural places and activities. Restricted access to traditional lands.	C	4	H	• Whole site has been Surveyed for heritage sites • Site have been avoided where possible • Salvage and Section 18 Approval sought were not possible • Activities to be conducted in accordance with the Heritage Plan as regulated within MS 1121.	D	4	M	NR
5.0 Mine Closure											
5.1	Construction/Operational/ Closure	Insufficient suitable topsoil available for progressive rehabilitation activities such as construction laydown areas.	Unable to meet completion criteria as outlined within the MCP.	C	3	M	• Land clearing and disturbance procedures will include: ○ Recovery of 200mm topsoil. ○ Topsoil to be stored in stockpiles no higher than 2m and kept free of invasive weeds such as mesquite.	D	3	M	Y
5.2	Construction/Operational	Failure to conduct progressive rehabilitation activities when resources are available (topsoil, machinery, employees)	Lost rehabilitation opportunity. Unable to record long term data used for final closure.	B	3	H	• Rehabilitate redundant areas within 12 months of becoming inactive. • Follow progressive rehabilitation requirements as prescribed in the MCP.	D	3	M	Y

9. 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,
- Fauna Management,
- Erosion and Sediment Control,
- Waste,
- Hydrocarbons and Chemicals,
- Weeds, and
- Heritage.

9.1 Ground Disturbance

Land clearing and topsoil disturbance activities associated with the construction of the Project will be managed through an internal Ground Disturbance Permit (GDP). The GDP allows for the assessment of the disturbance areas 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.

A *Minuria tridens* research strategy has been approved by the EPA WA in accordance with MS1121 condition B7-2. In addition, BCI is collaborating with DBCA to identify opportunities for translocation of M. tridens plants that cannot be avoided during construction.

A limited number of M. tridens can be disturbed for developing the Project, whilst others must be avoided and monitored for the life of the Project. Monitoring of *M. tridens* is to be conducted in accordance with the Monitoring and Adaptive Management Plan. Targeted regional surveys are being commission by BCI to try to find additional populations outside the Mardie Development Envelope

Targeted regional surveys are being commissioned by BCI to try to find additional populations outside the Project Development Envelope. The Company will not undertake works that result in direct impacts on M. *tridens* until an acceptable offset strategy is approved.

The Company has revised the Project design to avoid direct impacts from to the Robe River Delta Mangrove Management Area.

Table 9 Environmental Management Strategy for Vegetation Clearing

Ground Disturbance				
Objective	• Minimise ground disturbance to the extent possible. • Manage ground disturbance activities in compliance with all relevant legislative and legal obligations and to be within approved boundaries. • Identify all known cultural and environmentally sensitive areas to prevent unauthorised disturbance. • Identify all available topsoil for recovery and stockpiling for later use in rehabilitation works. • Ensure all completed ground disturbance is surveyed, recorded, and reported. • Ensure there is authorisation to build the proposed facilities on previously disturbed ground.			
Target	No occurrence or unlawful clearing. No disturbance outside of the scope of the approved project activities.			
Potential Impacts	• 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**
Vegetation clearing conducted in accordance with an internal permit procedure to facilitate progressive development	Ground Disturbance Permits	Prior to commencing each clearing package	BCI	Ground Disturbance Permits .
All vehicles and equipment movement will be restricted to existing tracks, roads and the area proposed for clearing.	Hard barriers Road Signage	Ongoing	All	Traffic Management Plans

Ground Disturbance				
All areas proposed for clearing will be clearly delineated within an approved clearing area and undertaken according to relevant legislative and legal obligations	GDP	Prior to disturbance activities taking place.	All	Ground Disturbance Permits Ground Disturbance and Topsoil Stockpiling Procedure Ground Disturbance Register .
	Ground Disturbance Survey Data	Weekly during clearing activities Annual aerial image to reconcile disturbance area	BCI	Ground Disturbance Permits Ground Disturbance and Topsoil Stockpiling Procedure Ground Disturbance Register
Spatial records of conservation-significant flora and fauna will be used to assess ground disturbance permit applications.	GIS GDP	Ongoing	BCI	Ground Disturbance Permit.
***Minuria tridens* exclusion areas will be shown on plans and clearly demarcated in the field.**	GIS Field demarcation	Ongoing	BCI	Ground Disturbance Procedure. *Minuria tridens* Research Strategy / EPBC 2018/8236 Offset Strategy.
Annual monitoring of *M. tridens* within the Development Envelope to be conducted in accordance with the Monitoring and Adaptive Management Plan.	Annual monitoring data	Annually	BCI	Monitoring and Adaptive Management Plan.

Ground Disturbance				
Management Action	**Monitoring / Evidence**	**Timing**	**Responsibility**	**Supporting Documents**
The Company will not undertake works that may have direct impacts on M. tridens until an acceptable offset strategy is approved by DCCEEW	GDP	Ongoing	BCI	Ground Disturbance Permit. Ground Disturbance and Topsoil Stockpiling Procedure.
Vegetation and topsoil will be placed in stockpiles. Stockpiles will not impede drainage or present a fire hazard.	Topsoil stockpile inspections.	Weekly during clearing activities Annual aerial image to reconcile disturbance area Annual material balance reconciliation.	All	Ground Disturbance and Topsoil Stockpiling Procedure.
A minimum of 100mm of topsoil will be removed and stockpiled where available. Topsoil stockpiles will be no greater than 2m high.	Topsoil stockpile inspections.	Weekly during clearing activities Annual material balance reconciliation.	BCI	Ground Disturbance and Topsoil Stockpiling Procedure. Inspection Reports
Any deviation from approved clearing will be reported as an incident to the Senior Site Executive (SSE)	Incident Report	Immediately after an incident being reported.	All	Incident reporting procedure
Training to be provided to all inspectors and individuals who are to submit a Ground Disturbance Request Form.	Awareness/Training Register	Ongoing	BCI	"Awareness"/Training Materials

9.2 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. Vehicle and heavy equipment movements associated with the construction will be managed to reduce the risk of injury or death to fauna. Marine vessels that will be used during construction are slow-moving construction vessels and therefore operate at speed below those likely to injure marine fauna.

Migratory shorebirds habitats of algal mat, samphire and mangroves are in the intertidal areas adjacent to the Project.

Vehicular traffic poses a risk of fauna strike particularly in key fauna habitats for Northern Quoll and Pilbara Leaf-nosed Bat. Traffic management controls are in place for Mardie Pool and the rocky outcrop near Mardie Road.

General Management strategies for fauna are outlined in Table 11. Refer also to the:

- Long-term Migratory Shorebirds Monitoring Program for management of shorebirds,
- Dredge Management Plan,
- Marine Turtle Monitoring Program and
- Underwater Noise Management Procedure for management of marine fauna.

Table 10 Environmental Management Strategy for Fauna

Fauna				
Potential Impacts – Construction				
Objective	Minimisation of actual or potential impacts to conservation significant fauna resulting from work activities.			
Target	No impacts to native fauna from Project-related vehicle and equipment movements.			
Potential Impacts	• Vehicle/vessel strikes affect local populations of Pilbara Olive Python, Northern Quoll, Pilbara Leaf-nosed Bat, Northern Coastal Free-tailed Bat, and marine fauna. • Unapproved removal of, or disturbance to fauna habitat. • Unintentional impacts to fauna of conservation significance (e.g. Deliberate killing Pilbara Olive Python due to mistaken identity and increases to feral fauna). • Entrapment fatalities in excavations/trenches. • Impacts from waste materials.			
Management Action	**Monitoring / Evidence**	**Timing**	**Responsibility**	**Supporting Documents**
Inductions will explain: • **conservation significant species potentially in the Project area** • **that native fauna are protected and are not to be interfered with.** • **Elevated risks of fauna strike during dawn and dusk.** • **Ban on having pets/domesticated animals.** • **Ban on recreational fishing or access to fauna habitats beyond the approved disturbance footprint.**	Inductions and training records	Daily	BCI	Training records. Fauna Management Procedure.

Fauna				
Management Action	**Monitoring / Evidence**	**Timing**	**Responsibility**	**Supporting Documents**
Disturbance of habitat for conservation listed species will be minimised	Internal GDP assessment to include check of key fauna habitats	During construction	BCI	Ground disturbance procedure Ground disturbance permits GIS spatial data of cleared areas – key fauna habitats
Vehicle speed limited to 40 kmph near key fauna habitat areas (refer to Figures 3 and at dusk and dawn, when the species are most likely to be active: • **5km radius of Northern Quoll habitat.** • **2km radius of Mardie Pool.**	Random speed observations.	During construction	BCI	Speed check records.
Excavations will be fitted with fauna egress and will be inspected for trapped fauna at the beginning of each shift	Daily pre-start inspection.	Daily within 2 hours of sunrise	Contractor	Daily inspection checklist
Pipeline trenches (e.g. fibre optic and natural gas) will be developed progressively.	Daily inspection	During construction	Contractor	Daily inspection checklist
Road and tracks to be signposted with speed limits and warnings of conservation significant fauna risks.	Signposts installed	During construction	BCI	Fauna Management Procedure Traffic Management Plan
Exclusion zone around Mardie Pool minimises potential impacts to Pilbara Leaf-nosed Bat and Pilbara Olive Python from construction (and operations)	Field demarcation of exclusion zone. Designed footprint	Not applicable	BCI	Fauna Management Procedure

Fauna				
Management Action	**Monitoring / Evidence**	**Timing**	**Responsibility**	**Supporting Documents**
Schedule high-risk marine construction activities outside of known migration periods for conservation significant marine fauna	Schedule	During construction	BCI	Project Construction Schedule Marine Fauna baseline survey results (whales, Sawfish and turtles)
Construction vessels >20 m speed limited to 8 knots at all times. **Smaller vessels will reduce speed to 8 knots if whales or turtles are sighted within 500 m.**	Random speed checks	During construction	BCI	Dredge Management Plan
Annual feral fauna survey and control	Feral fauna survey and control records	Annual	BCI	Annual monitoring report
Fauna injury or fatalities will be reported as incidents	Incident management systems	As required	BCI	Refer to Section 12

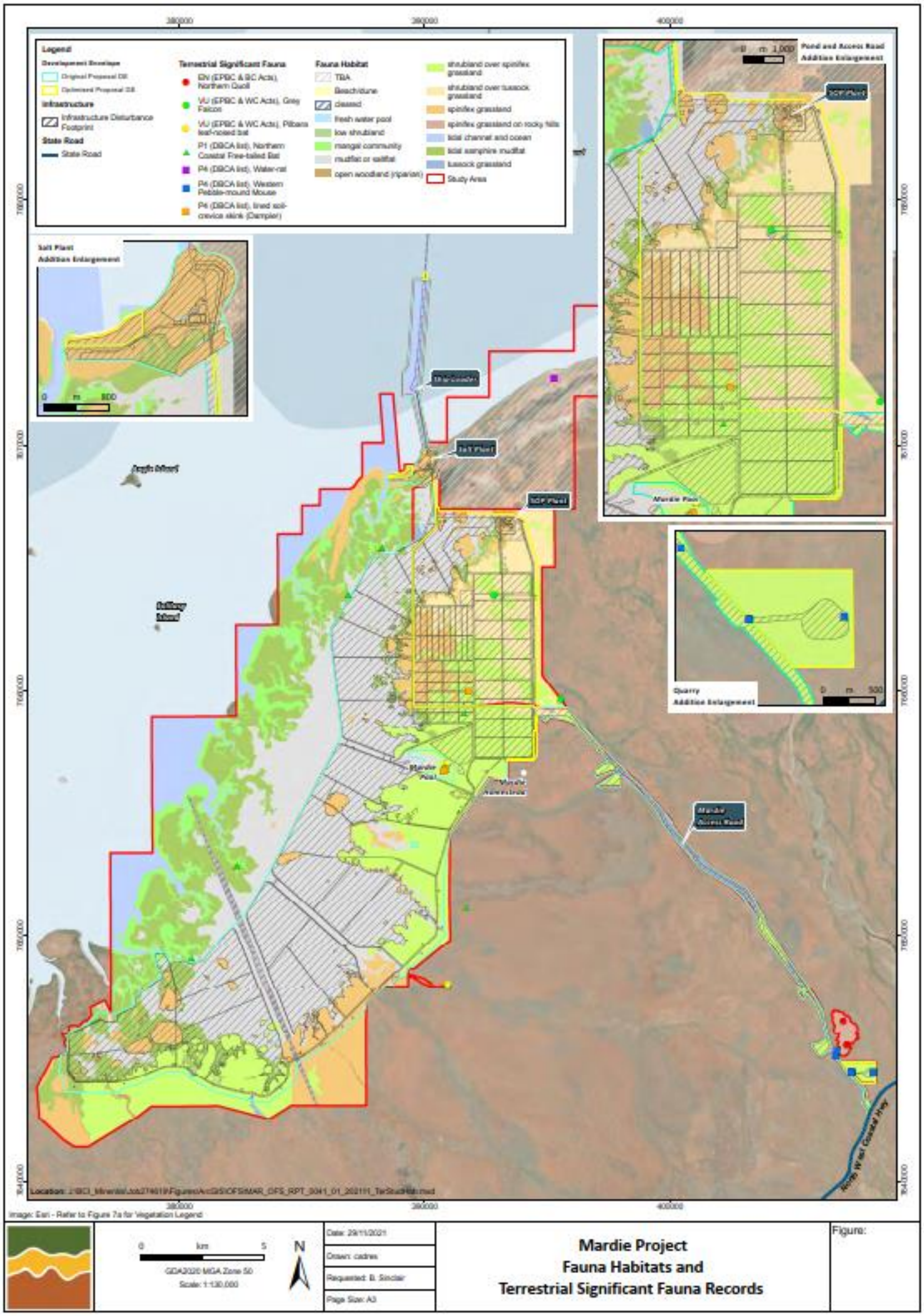

Figure 3 Fauna Habitats and significant fauna records (excluding Migratory bird species)

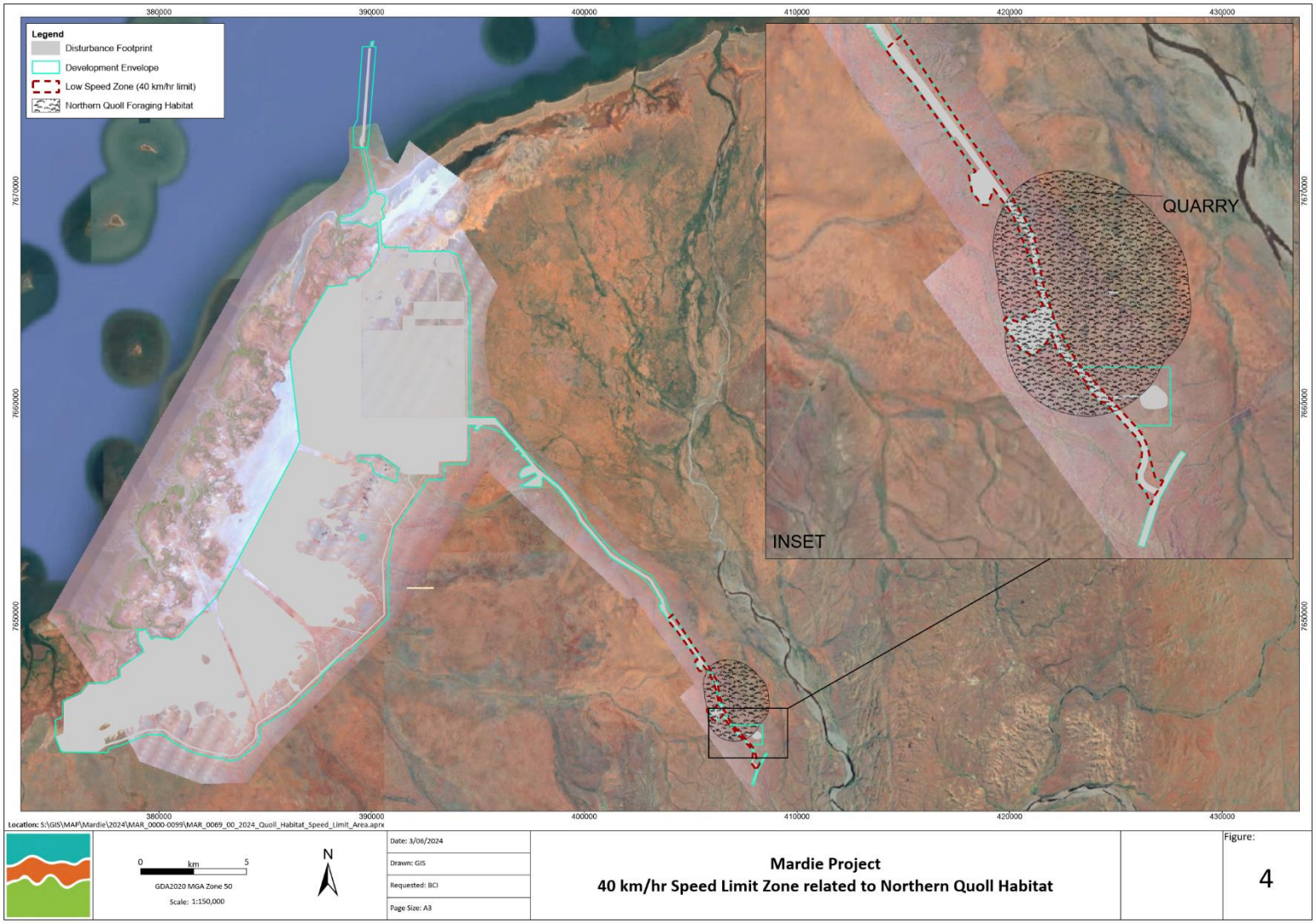

Figure 4 Low Speed Zone related to Northern Quoll Habitat

9.3 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. Project activities will be conducted in a way that will reduce the duration of soil exposure to erosive forces (wind and water), either by holding the soil in place or by protective covers.

Table 11 provides the environmental management strategies for erosion and sediment control.

Table 11 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	• 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: • **Apply dust suppression by wetting of exposed surfaces (e.g. water truck)** • **Protect the soil surface by placement of non-erosive material, protection with geotextile and/or use of soil binder** • **Promptly stabilise exposed areas as soon as practicable** • **Minimise disturbance to existing vegetation** • **Undertake initial civil works in the drier season months (Jul – Dec), as far as schedule allows** • **Construct site access roads to include crossfall drainage and erosion resistant surface**	Visual embankment inspections including photographic evidence during constructions.	Daily	BCI	Daily construction report
	Water quality monitoring as per the Marine Environmental Quality Monitoring and Management Plan (MEQMMP). Visual dust monitoring	As per the designated monitoring schedule within the MEQMMP. Continuous during construction	BCI BCI	Marine Environmental Quality Monitoring and Management Plan (MAR-0000-EV-PLN-BCI-000-0008) Erosion and Sediment Control Plan HSEC area inspection Forms

Surface Water				
Management Action	**Monitoring / Evidence**	**Timing**	**Responsibility**	**Supporting Documents**
Roads, causeways, and embankments (<2.45 mAHD) will be constructed in accordance with Embankment Construction Methodology which include provisions to: • **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)**	Water quality monitoring.	As per the designated monitoring schedule within the MEQMMP.	BCI	Marine Environmental Quality Monitoring and Management Plan (MAR-0000-EV-PLN-BCI-000-0008)
Prepare and implement a Flood Management Plan to reduce indirect impacts due to flood risks (e.g., erosion, evaporative pond wall breakages) to sensitive environmental factors, including but not limited to Mardie Pool and Mt Salt Mound Spring.	Visual inspections including photographs of flooding or erosion	Plan to be prepared at completion of detailed design. Plan to be implemented continuously during operations	BCI	Groundwater Monitoring and Management Plan (000-EV-PLN-0005)

9.4 Acid Sulphate Soils

The management strategies within Table 12 will ensure that the risk of acid sulphate soils is understood and managed.

Table 12 Environmental Management Strategy for Acid Sulphate Soils

Soils				
Potential Impacts – Construction				
Objective	**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	• 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 (completed for Original Mardie Project)
	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

9.5 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 13.

Table 13 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	• All waste is either recycled or removed off site to an appropriate West Australian government waste disposal facility. • No cross contamination of waste. • No waste to reach environmentally sensitive areas within or surrounding the project.
Potential Impacts	• 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.

Waste				
Management Action	**Monitoring / Evidence**	**Timing**	**Responsibility**	**Supporting Documents**
All waste will be segregated.	Inspections	As required	BCI	Waste Register
All wastes (putrescible, recyclable, non-reusable) will be securely contained and sent for disposal at a Western Australian Government licensed waste disposal facility. The putrescible landfill on site will be used.	Inspections	As required	BCI	
Reusable wastes will be catalogued and stored within a designated laydown area.	Inspections	As required	BCI	Waste Register
All general-purpose bins will be lidded and emptied regularly to ensure the lids remain completely shut.	Inspections	As required	Contractor	Inspection Form
Vessels and equipment involved in coastal and marine construction works will carry secure waste storage containers.	Inspections	As required	Contractor	Inspection Form
All hazardous substance will be sent off site for disposal.	Controlled waste tracking forms	As required.	BCI	Controlled Waste Tracking Procedure

9.6 Hydrocarbons and Chemicals

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 14.

Table 14 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	• 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 *Contaminated Sites Act 2003*.			
Potential Impacts	• 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**
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. **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.**	Inspections	As required	All	Inspection Form

Hydrocarbons and Chemicals				
Management Action	**Monitoring / Evidence**	**Timing**	**Responsibility**	**Supporting Documents**
Safety data sheets to be available for all potentially hazardous chemicals.	Safety Data Sheet	Prior to handling chemicals	All	Safety Data Sheet Register
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 inspections	Prior to utilising equipment.	BCI	Mechanical Inspection Form Mechanical Inspection Register.
Prestart mechanical and safety inspections are conducted.	Prestart Equipment inspections	As required	All	Prestart Inspection Form
All mobile equipment will be serviced within a designated service area.	Inspections	As required	All	Inspection Form
The refuelling/service truck will be equipped with drip trays, spill recovery and clean up materials	Daily workplace inspection	As required	All	Daily Workplace Inspection Form
All spills to ground will be removed as soon as practicable, recorded as an incident and reported to the Construction 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

9.7 Weeds

Weeds can be spread from existing infestations and can be introduced to the Project area through vehicles and earth moving equipment. Weeds have potential to reduce habitat quality for conservation significant species.

Mesquote is a weed that is prevalent in the northern part of the Project area and requires special management in accordance with the BCI Weed Management Plan, which includes key aspects of the Pilbara Mesquite Management Committee (PMMC) Mesquite Management Strategy.

The management strategies within Table 15 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 15 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	• 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. • Decrease in area within the Development Envelope that is densely infested with Mesquite compared to baseline.			
Potential Impacts	• 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**

Weeds				
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 entering the Project area	BCI	Vehicle Weed Inspection and Clearing Procedure Vehicle Weed Inspection Form Vehicle Weed Inspection Register
Implement the approved Mesquite Management Plan.	Vehicle Weed Inspection Form Vehicle Weed Inspection Register	Prior to earthmoving equipment arriving and leaving the Project area.	BCI	Mesquite Management Plan
Establish baseline mapping of mesquite within Optimised Mardie Project area.	Mesquite extent spatial data in GIS.	Complete	BCI GIS	ArcGIS spatial layer for Mesquite.
Site inductions and toolbox training to include Mesquite awareness.	Mardie Project Induction. Toolbox topic – Mesquite awareness.	Complete 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

Weeds				
Internal Ground Disturbance Permitting procedure to include Mesquite hygiene requirements.	GDP procedure and GDP form.	Complete	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.
All vehicles leaving the Project are to be inspected to ensure they are free of weed seeds and soil.	Weed Hygiene Exit Checklists	Prior to any vehicle leaving site.	All	Weed Hygiene Exit Checklist - Light Vehicles (0000-HS-CHK-0004) Weed Hygiene Exit Checklist - Trucks (0000-HS-CHK-0005) Mesquite Management Plan

9.8 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 16.

Table 16 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	• 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	• 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.	Areas marked to signify heritage areas. GIS Data	Prior to construction	BCI	Heritage Sites Register Inspection
Clearing activities to be conducted under the GDP process.	GDP	Prior to disturbance activities taking place.	All	Ground Disturbance Permit (Issued after Ground Disturbance Request Form (BCI-ENV-FRM-001) is submitted and approved). Site Clearing Permit Form (0000-EV-FRM-0003) Ground Disturbance Register (0000-EV-LST-0005)

Heritage				
Management Action	**Monitoring / Evidence**	**Timing**	**Responsibility**	**Supporting Documents**
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

9.9 Greenhouse Gas Emissions

BCI have followed the guidance set out by The *National Greenhouse and Energy Reporting Act 2007* to provide a framework for how greenhouse gas emissions will be reported as outlined in Table 17.

Table 17 Greenhouse Gas Emissions Strategy

Greenhouse Gas Emissions				
Objectives	Ensure that the Mardie Project gas emissions align with The *National Greenhouse and Energy Reporting Act 2007* (NGER Act).			
Targets	• Remain under designated NGER Act trigger and threshold criteria			
Potential Impacts	• Increased carbon footprint contributing to climate change. • Localised degradation of environmentally significant areas.			
Management Action	**Monitoring / Evidence**	**Timing**	**Responsibility**	**Supporting Documents**
All parties during construction are to record greenhouse gas emission data.	Monthly Reports	Monthly	All	NGER Act Consumption Register
All reporting to be conducted as per the framework in The National Greenhouse and Energy Reporting Act 2007	Reports	As required	All	NGER Act

10. CONDITIONAL ENVIRONMENTAL MANAGEMENT PLANS

Conditional Environmental Management Plans have or are being developed to satisfy the obligations stipulated within the EP Act and EPBC Act approvals. The BCI Environment team is responsible for monitoring of the implementation of the following Conditional Environmental Management Plans as approved:

- Benthic Communities and Habitat Monitoring and Management Plan,
- Dredge Management Plan,
- Erosion and Sediment Control Plan,
- Groundwater Management Plan,
- Illumination Plan for marrine and terrestrial fauna,
- Marine Environmental Quality Monitoring and Management Plan,
- Marine pest management procedure for vessels and immersible equipment,
- Marine Turtle Monitoring Program,
- Mesquite Management Plan,
- Migratory Shorebird Monitoring and Management Plan,
- Monitoring and Adaptive Management Plan, and
- Underwater Noise Management Procedure.

11. 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.

12. 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.

Incidents will be reported, investigated and managed as per the Company Incident Reporting and Management Procedure (BCI-WHS-PR-009), and learnings/outcomes communicated as part of continuous improvement of environmental management.

12.1 Notifiable Incidents

The Company shall ensure timely notification to the appropriate regulatory and 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 SSE 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.

12.2 Incident Investigation

The Contractor, in consultation with the Company, will determine the level of incident investigation and assign the incident investigation to the appropriate person for action.

At a minimum a 5 Whys Analysis (5 Whys) process should be used to determine the root cause(s) of incidents. 5 Whys will be utilised for Non Serious level incident investigations, ICAM will be used for Serious Outcome level investigations as per the Company Incident Management Procedure (BCI-WHS-PR-009).

The incident investigation team will comprise members of the Contractor's Management Team and the process may involve taking witness statements, photographs and data collection although this list is not exhaustive as per Table 18.

Table 18 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 Technical Specialists	ICAM
Non-Significant	Supervisor Lead	Personnel involved in incident		'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.

12.3 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.

13. MONITORING & CORRECTIVE ACTION

13.1 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 Construction Manager and Manager Environmental Approvals and Compliance.

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.

13.1.1 Contractor Audits and Inspections

Contractors are required to undertake audits of their workspace, as communicated to the Contractor through the tender and contract.

13.2 Environmental Non-Compliance

All non-compliances, including those 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. Possible non-compliances are to be 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.

13.3 Environmental Complaints

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

13.4 Environmental Breach

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

13.5 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 and Construction Manager.

14. ADAPTIVE MANAGEMENT

The Company's Environmental Management System provides for ongoing review and improvement of existing systems and controls. The Company conducts an annual comprehensive business strategy planning process which guides the overall business operation for the following year. Key performance indicators for the business and individuals are determined from these reviews. The achievement of compliance with environmental management obligations is considered in the strategic objectives for the Project, enabling the identification of issues to upper management and the allocation of resources where necessary to implement improvements.

Specific ongoing review commitments of the CEMP will be implemented and shall assess the appropriateness of the CEMP to the Project activities based on audit information, and determine if any changes to the CEMP are required as a result of scope, legislative or organisational changes.

All revisions of the CEMP shall be submitted to DWER and DCCEEW for approval in accordance with MS 1211 and EPBC 2018/8236 / 2022/9169.

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
BCI-0000-CN-PLN-0003 Rev 0 Previously issued as MAR-WHS-PLN-003	Emergency Response Manual
MAR-0000-LH-PLN-BCI-000-0002	Stakeholder Engagement Management Plan

16. DEFINITIONS

Table 19 Definitions

Term	Definition
ASS	Acid Sulphate Solis
AUD	Australian dollar
BCHMMP	Benthic Communities and Habitat Monitoring and Management Plan
CEMP	Construction Environmental Management Plan
Company	BCI Minerals Limited
Cth	Commonwealth
DBCA	Department of Biodiversity, Conservation and Attractions
DWER	Department of Water and Environmental Regulation
EMP	Environmental Management Plan
EP Act	*Environmental Protection Act 1986*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ERD	Environmental Review Document
ESD	Environmental Scoping Document
ESMS	Environment and Social Management System
GDP	Ground Disturbance Permit
GIS	Geographic Information System
GLpa	Gigalitres per annum
GMMP	Groundwater Monitoring and Management Plan
GST	General Sales Tax
Ha	Hectare
km	Kilometre
kmph	Kilometre per hour
KPI	Key Performance Indicator
ktpa	Kilotonnes per annum
m	Metres
m^3	Cubic metres
mAHD	Metre Australian Height Datum
Mtpa	Million tonnes per annum
NGER Act	*National Greenhouse and Energy Reporting Act 2007*
PAF	Potentially Acid Forming
RAMP	Revised action management plan
$	Dollar

Term	Definition
SSE	Senior Site Executive
WA	Western Australia