Government of Western Australia
Department of Water and Environmental Regulation

Decision Report

Application for Works Approval

Part V Division 3 of the *Environmental Protection Act 1986*

Works Approval Number	W6881/2024/1
Applicant	Mardie Minerals Pty Ltd
ACN	152 574 457
File Number	DWERVT13704~58
Premises	Mardie Project Legal description Part of Mining tenement M08/538 KARRATHA WA 6714 As defined by the Premises maps attached to the issued works approval
Date of Report	17/06/2024
Decision	Works approval granted

Christine Pustkuchen

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MANAGER, RESOURCE INDUSTRIES
INDUSTRY REGULATION (STATEWIDE DELIVERY)

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

This Decision Report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the Premises. As a result of this assessment, Works Approval W6881/2024/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Decision Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary and overview of Premises

On 20 December 2023, Mardie Minerals Pty Ltd (the Applicant) submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction works and time limited operations of a crushing and screening plant within tenement M08/538 (the Premises) at the Optimised Mardie Project Quarry. The Premises is approximately 100 km South West of the Town of Karratha.

The Premises relates to the category and assessed production capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in Works Approval W6881/2024/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline*: *Risk assessments* (DWER 2017) are outlined in Works Approval W6881/2024/1.

The Applicant is currently developing a greenfield high-quality salt and sulphate of potash project (Mardie Project) in the Pilbara region, between Dampier and Onslow. To support the initial construction of infrastructure for the Mardie Project and ongoing maintenance, the Applicant requires a source of rock material which has been found to be present within mining tenement M08/538. Therefore, a quarry and crushing and screening plant is being established.

The Quarry is to be located adjacent to the Mardie Access Road and lies approximately 1 km north-west of the Mardie Access Road - Northwest Coastal Highway intersection. The quarry covers an area of approximately 15.5 hectares (ha) and will be mined to a depth of up to 20 metres (m). Figure 2 below shows the location of the proposed quarry in relation to surrounding landmarks. Up to 2 Mm^3 of material will be extracted during the first four years of construction and operation. The quarry may then operate for the life of the Optimised Project at a reduced rate with the purpose of providing rock material for the maintenance of embankments and roads.

Extraction of raw material involves blasting when required. All blasting will be undertaken by contractors and no explosive materials will be stored on site. Excavation and blasting activities are not considered within the scope of this works approval.

Mined material will be moved via front end loader to a mobile crushing and screening plant (the subject of this works approval) located adjacent to the quarry pit where it will be processed and sized dependant on the end use. Crushed material will be sorted and stacked adjacent to the crushing and screening plant. As required, the processed material will be loaded onto haul trucks and transported via the Mardie Access Road to its intended destination.

Product sourced from the quarry will be for use within the Mardi Project only and there are no plans to export the product off site. Operations at the quarry are intended to be 24 hours a day 7 days a week on a ‘when required’ basis. It is expected that approximately 1.7 million tonnes of material will be processed through the crushing and screening plant per year.

Site construction will be undertaken under the framework of a dedicated Construction Environmental Management Plan (CEMP). The CEMP will provide an overview of environmental controls that will be implemented for all identified environmental impacts. Based on this overview, the Applicant has identified emission risks from construction and operation of the crushing and screening plant and will implement a range of measures to reduce risk of emissions.

Hydrocarbon stored on site will be limited to a 50-60kL self-bunded tank, the location shown below in Figure 3.

Construction and operation of the crushing and screening plant at the quarry will require the following supporting infrastructure:

- Access road from Mardie Access Road;
- Laydown;
- Office;
- Vehicle parking;
- Fuel storage 50-60kL self-bunded tank;
- Small workshop; and
- Material stockpiles.

Machinery and infrastructure associated with the proposed crushing and screening activities will consist of:

- Mobile rock-breaker;
- 300 TPH feed grizzly;
- Finlay J-1480 screen;
- Finlay C-1550 direct feed x2;
- Finlay 893 HD screen; and
- Conveyor.

Figure 1 below summarises the proposed crushing and screening plant including machinery. The proposed premises boundary and layout of the quarry is shown below in Figure 3.

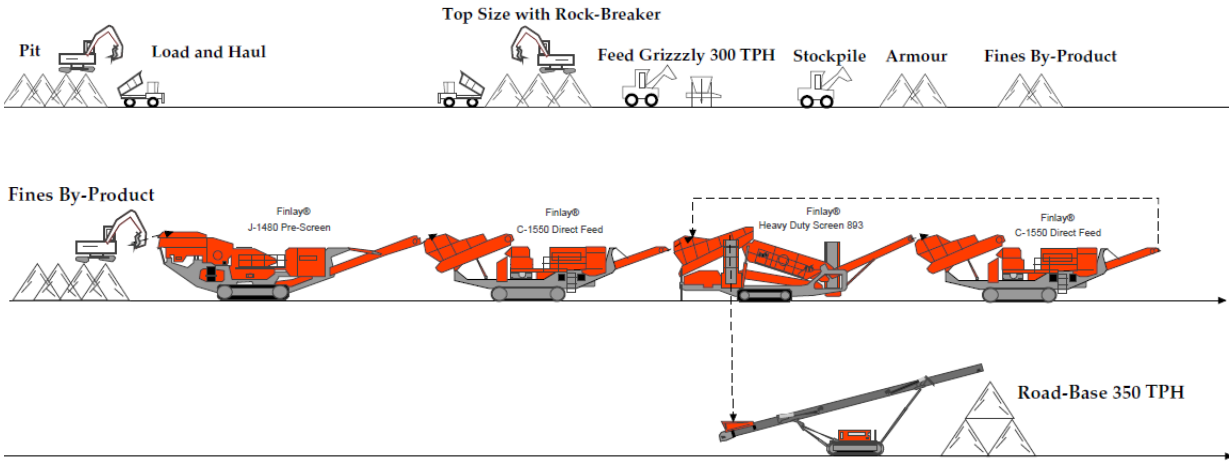

Figure 1: Quarry production processing

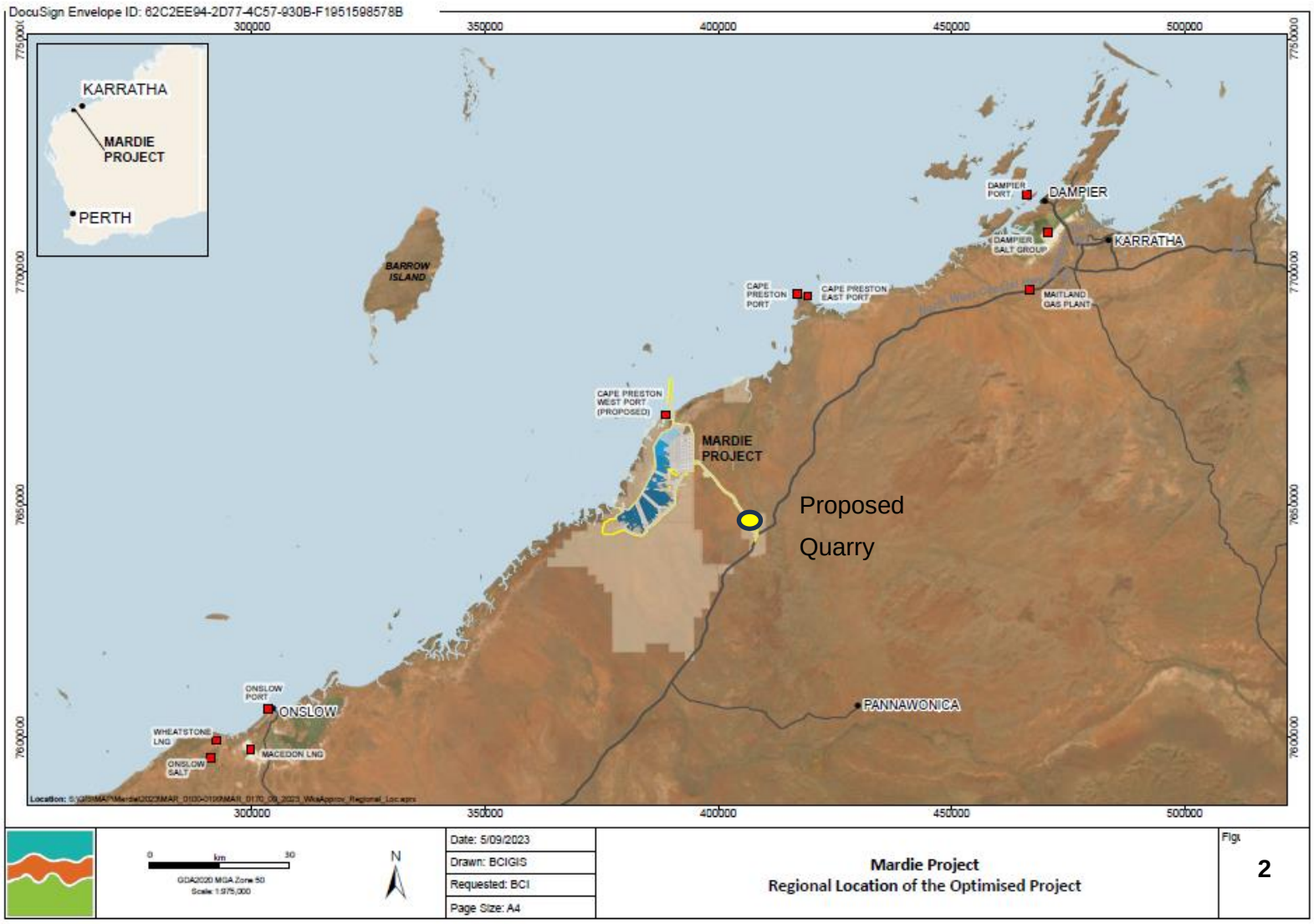

Figure 2: Mardie Project

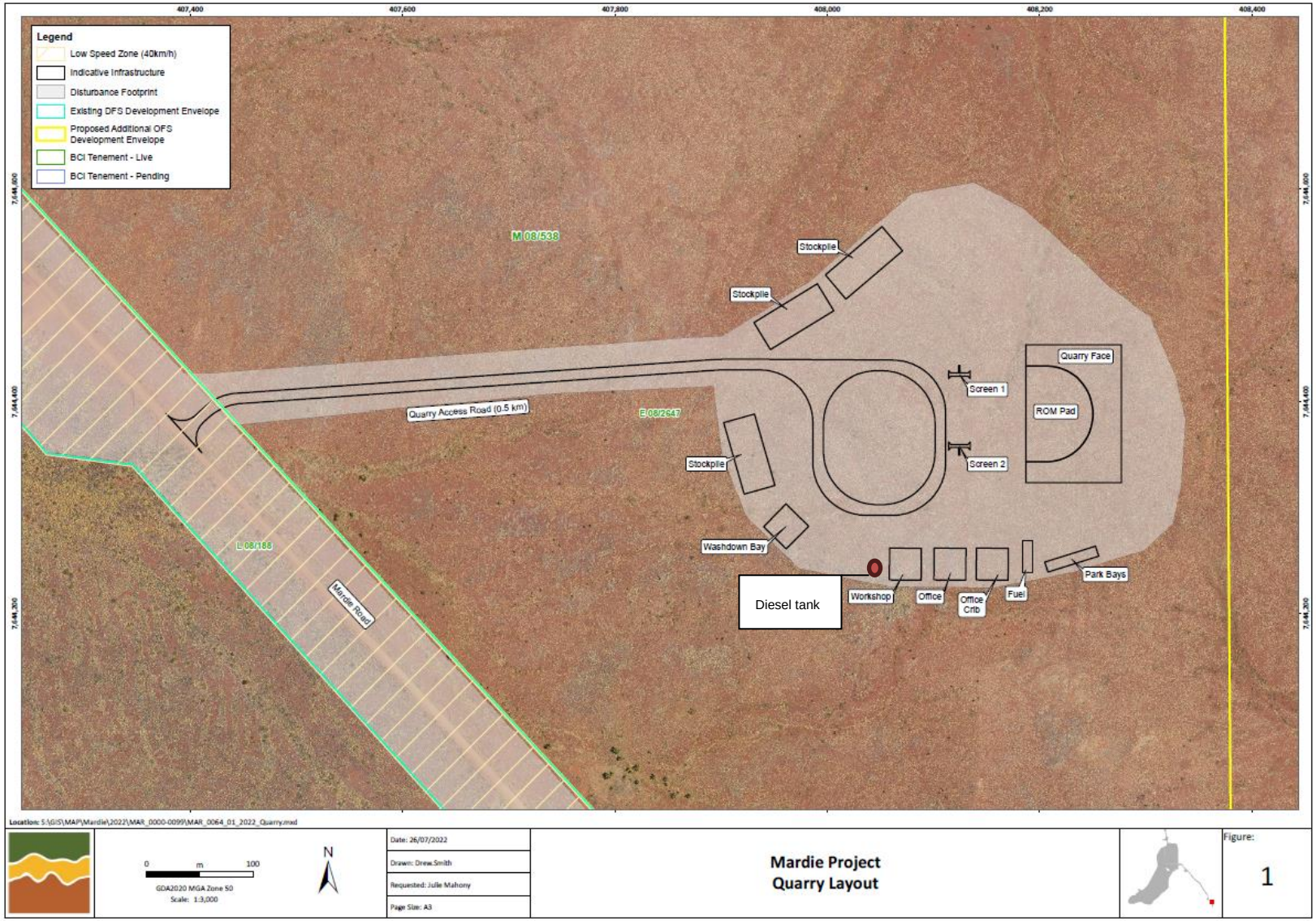

Figure 3: Quarry layout and premises boundary

2.3 Part IV of the EP Act

The Applicant was issued Ministerial Statement (MS) 1211 on 19 October 2023, as approval under Part IV of the *Environmental Protection Act 1986* (WA) (EP Act) to develop the Optimised Mardie Project, a greenfield high-quality salt and sulphate of potash (SoP) project. The Establishment and operations of the quarry are described within EPA Report 1740, June 2023.

The establishment of the quarry (including the crushing and screening plant) was not part of the original EPA assessment for the Mardie Project under EPA Report 1704 (Ministerial Statement 1175). The quarry was part of the additional changes the made up the "Optimised Project" and assessed in EPA Report 1740.

A summary of key factors affecting nearby social surroundings in EPA Report 1740 found that noise and dust emissions were not likely to have a material impact.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk assessments* (DWER 2017).

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this Decision Report are detailed in Table 1 below. Table 1 also details the proposed control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 1: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Installation of crushing and screening plant, Vehicle movements, lift-off from stockpiles and/or stored product, earthworks etc.	Air/windborne pathway	Implementation of a Dust Management Plan that will include the following control measures: • Water will be applied to any roads or cleared areas that pose a dust risk; • Utilise magnesium compounds as dust suppressants where applicable. Constant monitoring of dust emissions will be undertaken and appropriate action undertaken, including: • If visible dust emissions are observed then an assessment of the source will be made and additional control measures (e.g., water or magnesium compounds) will be applied to

Emission	Sources	Potential pathways	Proposed controls
			key source areas; • Weather conditions will be monitored to identify potential high risk conditions (i.e. windy conditions). Additional control measures will be considered for high risk weather conditions; and • An incident reporting system will be maintained to assist in managing environmental incidents such as excessive dust emissions.
Noise	Vehicle movements, construction machinery etc.	Air/windborne pathway	• Construction will be scheduled for daylight hours; • Noise monitoring will be undertaken at the nearest receptor (Mardie Station) if required by the station owners; and • Noise complaints will be recorded and maintained to future manage emissions.
Operation			
Dust	Operation of crushing and screening plant, vehicle movements, lift-off from stockpiles and/or stored product.	Air/windborne pathway	Implementation of a Dust Management Plan that will include the following control measures: • Water will be applied to any roads or cleared areas that pose a dust risk; • Minimise traffic and maintain speeds as slow as feasible; • Pre-dampen run-of-mine (ROM) in excavation areas; • Water sprays used on crusher unit; • Minimise distances to transfer product; • Vehicles will be regularly cleaned to remove excess dust; and • Utilise magnesium compounds as dust suppressants where applicable. Constant monitoring of dust emissions will be undertaken and appropriate action undertaken, including: • If visible dust emissions are observed then an assessment of the source will be made and additional control measures (e.g., water or magnesium compounds) will be applied to key source areas; • Weather conditions will be monitored to identify potential high risk conditions (i.e. windy conditions). Additional control measures will be considered for high risk

Emission	Sources	Potential pathways	Proposed controls
			weather conditions; and • An incident reporting system will be maintained to assist in managing environmental incidents such as excessive dust emissions.
Noise	Vehicle movements, construction machinery etc.	Air/windborne pathway	• Noise monitoring will be undertaken at the nearest receptor (Mardie Station) if required by the station owners; and • Noise complaints will be recorded and maintained to future manage emissions.
Hydrocarbon or chemical discharges	Machinery, storage facilities, vehicle wash down bay	Seepage to soil and groundwater	• Spill kits will be located around high activity areas within the Quarry, as well as at fuel storage area and within vehicles; • The wash down bay and machinery workshop will be constructed to ensure hydrocarbons are captured and stored within impermeable concrete bunds until disposal off site; • Any spills will be controlled, contained and cleaned up in accordance with a Spill Management Procedure (BCI-ENV-PRO-007); • Hydrocarbons and chemicals will be stored in accordance with Australian Standard 1940:2004; and • All hydrocarbon and chemical spills will be recorded.
Sediment laden stormwater	Stormwater runoff from within operations area, runoff from product stockpiles	Overland flow	• No specific controls proposed.

3.1.2 Receptors

In accordance with the *Guideline: Risk assessment* (DWER 2017), the Delegated Officer has excluded employees, visitors and contractors of the applicant's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 2 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental siting* (DWER 2016)).

Table 2: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	**Distance from prescribed activity**
Fortescue River Roadhouse	Approximately 2.3 km east of the premises boundary.
Environmental receptors	**Distance from prescribed activity**
Native vegetation	Immediately surrounding the premises boundary. There are no declared or priority flora.
Localised groundwater	4-6 metres below ground level.
Fortescue River	Approximately 2.3 km east of the premises boundary.

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk assessments* (DWER 2017) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

Works Approval W6881/2024/1 that accompanies this Decision Report authorises construction and time-limited operations. The conditions in the issued Works Approval, as outlined in Table 3 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the Premises i.e. crushing and screening activities. A risk assessment for the operational phase has been included in this Decision Report, however licence conditions will not be finalised until the department assesses the licence application.

Table 3: Risk assessment of potential emissions and discharges from the Premises during construction and operation

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of works approval	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Construction								
Placement of crusher, screen and associated equipment including vehicle movements (reversing beepers).	Dust	Air/windborne pathway causing impacts to health and amenity	2.3 km east of the prescribed premises boundary	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	N/A
	Noise			Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y		
	Hydrocarbon or chemical discharges	Direct discharge to land impacting surface and ground water quality	Localised soils and groundwater	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	N/A The *Environmental Protection (Unauthorised discharges) Regulations 2004* apply.
Operation (including time-limited-operations operations)								
Screening, crushing, unloading, loading and storage of material. Vehicle movements	Dust	Air/windborne pathway causing impacts to health and amenity	2.3 km east of the prescribed premises boundary	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	Conditions 1 and 6	During operations dust and noise emissions are unlikely to impact the nearest sensitive receptor (Fortescue River Roadhouse) due to distance (2.5 km away) resulting in a lack of pathway Applicant's controls have been conditioned.
	Noise			Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	
	Hydrocarbon or chemical	Direct discharge to land impacting	Localised soils and	Refer to Section	C = Minor	Y	Condition 6	N/A

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of works approval	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
	discharges	surface and ground water quality	groundwater	3.1	L = Unlikely **Medium Risk**			
	Sediment laden stormwater (from stockpiles)	Overland runoff potentially causing ecosystem disturbance or impacting surface water quality	Native vegetation	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	N	Condition 6	Standard conditions relating to capture of contaminated/potentially contaminated stormwater has been added to the works approval.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk assessments* (DWER 2017).

Note 2: Proposed applicant controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

4. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

Table 4: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website (8/04/2024)	None received	N/A
City of Karratha advised of proposal (5/04/2024)	Comments received 23/04/2024. 1. Should the Mining Lease be approved in accordance with the *Mining Act 1978,* development approval will not be required for the proposed activity under Clause 61(1)(ze) of the City of Karratha's Local Planning Scheme No. 8. 2. The proposal includes an office, where it is expected there will be toilets and a crib facility. The information does not include details on effluent disposal, where (due to the remote location) it is assumed to be an on-site system. The installation of any septic system is subject to prior approval by the City of Karratha. 3. The applicant has indicated the preparation of a Dust Management Plan. Given the proximity to a workforce accommodation site, the City requests a copy of the Dust Management Plan prior to activities commencing. 4. It is noted that the storage of any fuels and lubricants must be in accordance with the *Dangerous Goods Safety Act 2004* and associated legislation and codes of practice. 5. The City and BCI have been in on-going negotiations in relation to the future dedication of Mardie Road, which will be subject to the road being constructed to a standard accepted by the City and entering into a Road Maintenance Agreement. It is recommended the road be constructed to cater for the RAV vehicles and volume of vehicles that will be accessing the quarry to a standard that will be able to be added to the RAV network, when the time comes to dedicate the road. Subject to the above, the City has no objection to the Works Approval.	1. Noted. 2. Noted. There is no mention of sewage treatment being undertaken on site within the application documents. If sewage treatment is required and it triggers regulation under the *Environmental Protection Regulations 1987* then a separate works approval application will be required. 3. Noted. The City of Karratha is to contact the Applicant for a copy of the requested report. 4. Noted. 5. Any agreement on the usage and maintenance of Mardie Road is a matter between the Applicant and the City of Karratha.
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal (5/04/2024)	Email received 26/04/2024 stating: Tenements M08/538 and M08/539 were granted on 9 April 2024. Mining Proposal Reg ID 114153 was subsequently approved on 23 April 2024.	Noted.

Applicant was provided with draft documents on 22/05/2024	Responded on 14/06/2024 stating they have no comments on the draft documents.	Noted.

5. Conclusion

Based on the assessment in this Decision Report, the Delegated Officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2016, *Guideline: Environmental siting*, Joondalup, Western Australia.
3. DWER 2017, *Guideline: Risk assessments*, Joondalup, Western Australia.
4. Preston Consulting Pty Ltd 2023, *Optimised Mardie Project Quarry Crushing and Screening Plant Works Approval Application*, East Perth Western Australia.
5. Office of the Appeals Convenor Western Australia 2023, *Statement No. 1211*, Perth, Western Australia.
6. BCI Minerals Limited, 2023, Mardie Salt and Potash Project Construction Environmental Management Plan, West Perth 6005.