



Application for Works Approval

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

Works Approval Number	W6973/2024/1
Applicant	Element 25 Limited
ACN	119 711 929
File number	DER2024/000561
Premises	Butcherbird Manganese Project Mining tenement M52/1074 MEEKATHARRA WA 6642 As defined by the premises map attached to the issued works approval
Date of report	05 March 2025 (FINAL)
Decision	Works approval granted

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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 W6973/2024/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) 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 14 October 2024, Element 25 Limited (the applicant) submitted to the department an application for a works approval under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction works, commissioning and time limited operations relating to processing or beneficiation of metallic ore at the premises. The premises is approximately 115 km south of the town of Newman in the Shire of Meekatharra.

The premises relates to the category and assessed production / design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6973/2024/1. 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 2020) are outlined in works approval W6973/2024/1.

The applicant currently operates mobile and semi-mobile equipment to process up to 1.2 million tonnes per annum (Mtpa) of mined ore to produce manganese (lump) product. The applicant now proposes to construct/install new fixed plant processing infrastructure that will replace the existing mobile plant to allow an increased throughput of up to 7.3 Mtpa. The new processing plant infrastructure will consist of the following:

- **Crushing and Screening circuit**

Ore from the Run of Mine (ROM) pad will be fed into a crushing circuit which will be fitted with water sprays to manage dust emissions. The crushed ore will then be separated into three size fractions utilising mineral sizers, screens, and an apron feeder and transfer conveyor. The crushing circuit is designed to process materials with high clay and moisture content.

- **Washing circuit**

Screening will be carried out by a Dabmar screening module which can handle clay and sticky material with minimal blinding. Following screening, ore will pass via conveyor to a live stockpile. The stockpile will have a reclaim chute in an under reclaim tunnel below the stockpile. The stockpile will hold approximately 7 hours of live feed along with allowing side storage for a further potential 54 hours of plant feed. Feed recovered from the reclaim will then be processed through a log washer to scrub the feed material prior to Dense Medium Separator (DMS). The log washer discharge will be washed on a dewatering screen to remove potential residual fines or clay from the feed. Fines generated by the screens and the log washer will be pumped back to the existing tailings storage facility (TSF1).

- **DMS circuit**

Operation of the DMS will utilise a single module Heavy Media Drum (HMD) unit. The DMS process is designed to maximise the recovery of manganese from the ore, taking into consideration the specific bulk density characteristics of the material being processed, including size and clay content. The use of the HMD and the precise control of the dense medium are designed to facilitate efficient separation and recovery of manganese ore from waste materials.

- **Tailings Thickener**

A high-rate thickener will be incorporated into the tailings circuit to separate liquids from solids in the tails stream. The thickener will take the ROM tailings at typically 20% weight per weight (w/w) water and thicken it to approximately 50% w/w solids, from where it will be pumped directly to TSF1. A flocculant (Magnafloc or similar) will be used as part of the thickening process at approximately 50 grams/tonne solids.

An ore processing flowchart for the processing infrastructure is depicted in Figure 1 below.

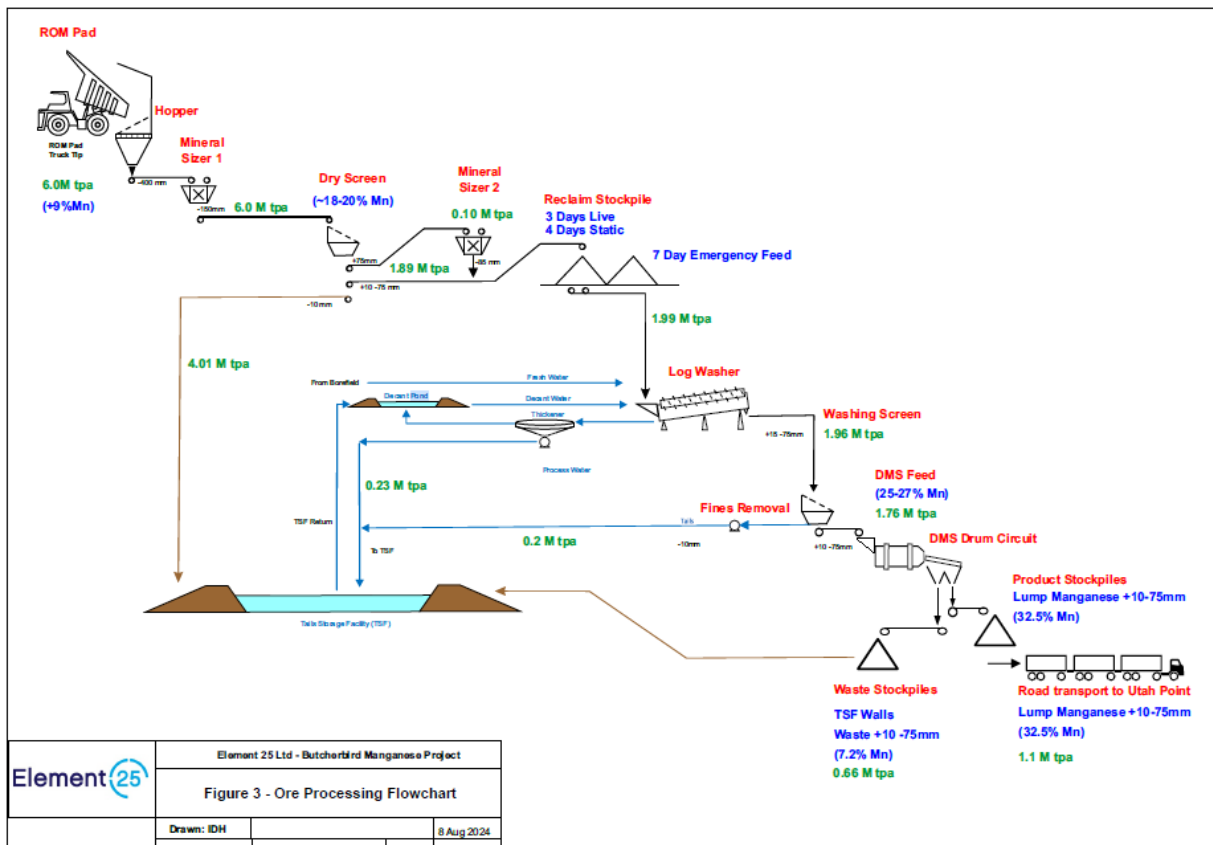


Figure 1: Premises ore processing flowchart

The new fixed plant equipment will minimise ore loss and product dilution by enabling a cleaner cut between manganese concentrate and waste materials. The inclusion of additional screens will remove a significant portion of the coarse tailings fraction (used for onsite construction purposes) and allow greater recovery of water prior to disposal of tailings to TSF1. As tailings will be discharged at a higher percentage solid than currently occurs, discharge volumes to TSF1 are not expected to change. The extra volume of water recovered, which will be stored within an existing process water pond, will be utilised at the processing plant resulting in less groundwater abstraction from production bores at the premises.

The location of the existing processing plant authorised under Licence L9309/2021/1 will not

change significantly, with new processing plant infrastructure being accommodated within the same approved activity area (see Figure 2 below). Licence L9309/2021/1 for the premises regulates the existing TSF1, tailings and decant return water pipelines, process water pond and process plant. Licence L9309/2021/1 will require amending to include the operation of the new processing plant infrastructure following completion of time limited operations.

DWER notes Mining Proposal (MP) Reg ID: 126817 was approved (decided) by the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) on 19 December 2024. MP Reg ID: 126817 includes variations and additions to the previously approved layout and design specifics under MP Reg ID: 97901. Only modification to the process plant design and throughput under MP Reg ID: 126817 have been considered in this application.

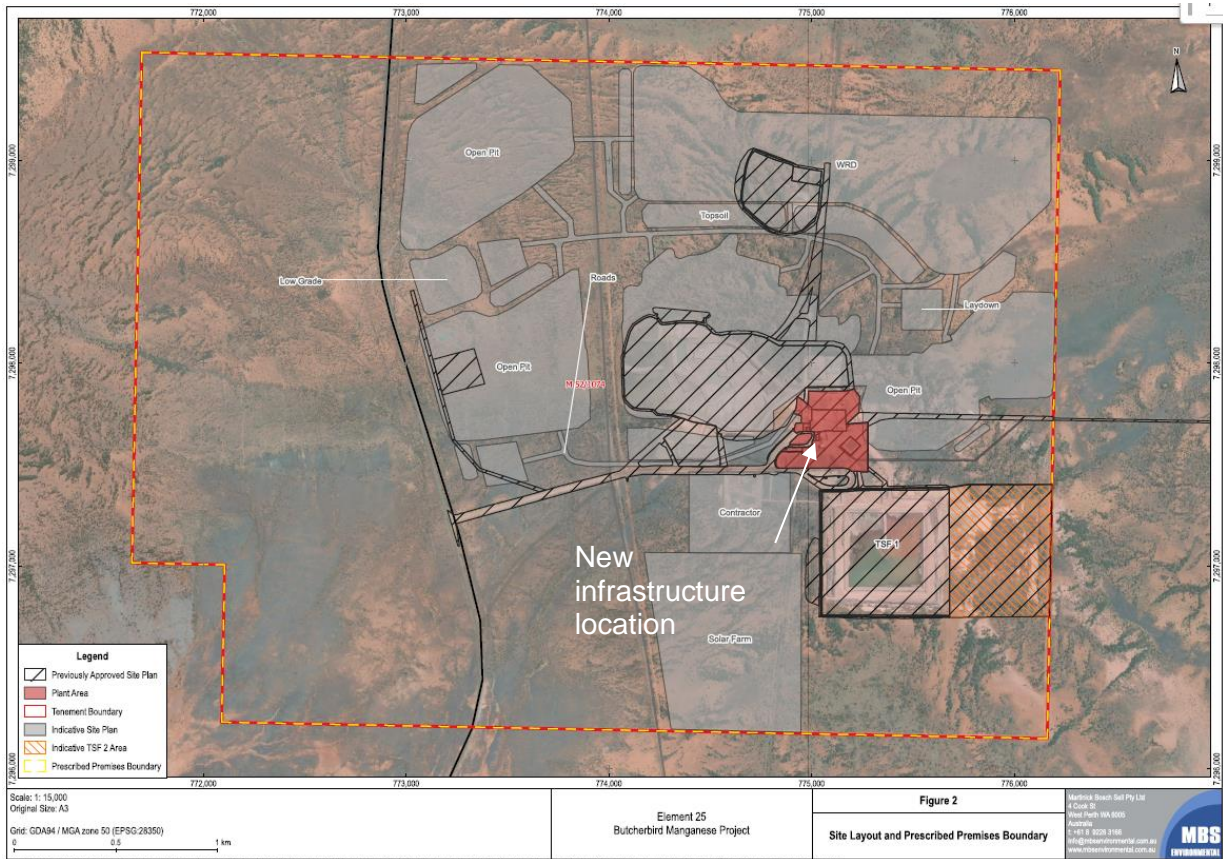


Figure 2: Premises boundary and layout

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 2020).

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 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	Vehicle movement, earth works and construction/installation of additional processing plant infrastructure, stormwater drains and sumps	Air / windborne pathway	Use of water cart/s to wet down roads and cleared areas as required. Speed restrictions on unsealed roads. Vehicles and mining equipment kept on defined roads. Land disturbance will be kept to the minimum necessary for development of the project. During high winds, topsoil stripping and spreading activities will be restricted if dust cannot be adequately managed.
Commissioning and Time Limited Operations			
Dust	Operating additional processing plant infrastructure	Air / windborne pathway	Use of watercart/s to wet down ROM pad and stockpiles as required. Water spray system fitted to crushing and dry screen circuits.
Accidental discharge of product and tailings to land		Direct discharge to land	All wet processing plant infrastructure located on concrete hardstand/s which are designed to capture spilt materials. Hardstand/s graded so all spilt material or stormwater is directed to sumps which are fitted with appropriately sized pumps so any captured materials are sent back to the processing circuit. Stormwater drains installed adjacent to the raised hard stand areas to direct stormwater around the processing plant.

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant’s employees, visitors, and contractors 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 and Figure 3 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 2020)).

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

Human receptors	Distance from prescribed activity
Aboriginal heritage site No registered sites (Aboriginal Heritage Inquiry System DPLH, 2023)	Not applicable
Vehicle movement on the Great Northern Highway.	Highway passes through the Premises (mining tenement) however the project/infrastructure footprint is located approximately 2 km east of the highway. This receptor has been screened out due to separation distance.
Gas pipeline	Approximately 1.0 km to the west of the TSF and processing plant. This receptor has been screened out.
Environmental receptors	Distance from prescribed activity
No threatened flora. Four Department of Biodiversity, Conservation and Attractions (DBCA) listed Priority Flora species were identified at the Premises. 1. <i>Eremophila appressa</i> (P1) 2. <i>Eremophila rigida</i> (P3) 3. <i>Rhagodia sp.</i> (P3) 4. <i>Goodenia nuda</i> (P4)	The closest species, <i>Eremophila appressa</i> , is located approximately 1.0 km west of the proposed new processing plant infrastructure.
Groundwater Average total dissolved solids (TDS) of 1,100 to 1,700 mg/L with pH 7.7 – 8.2. Water quality considered suitable for stockwatering purposes. There are no groundwater bores within 2 km of the Premises.	Approximately 15 metres below ground level
One DBCA listed Priority Fauna species occurs within the Premises. Brush tailed Mulgara.	Habitat for this species makes up a minor portion (1.1%) of the project/infrastructure footprint. Impacts to habitat were assessed by DEMIRS as part of the Native Vegetation Clearing Permit application CPS 8991/1. Construction/installation of the proposed new processing plant infrastructure will occur within a previously cleared area. This receptor has been screened out.
There are no permanent surface water bodies or	Ilgarari Creek is located over 4 km away at the

<p>watercourses within the Premises boundary.</p> <p>Water will be present only as shallow sheet flow during and immediately after rainfall events. Although there are no defined channels, flood modelling indicates surface water flow is expected to be in an easterly direction.</p> <p>The closest surface water body to the Premises is the Ilgarari Creek which is located outside of the Premises boundary. Ilgarari Creek drains east past Woolbunna Pool (17 km away) to Yanneri Lake in the Little Sandy Desert (80 km east of the Premises).</p>	<p>closest point to the Premises boundary.</p> <p>This receptor has been screened out due to the separation distance.</p>
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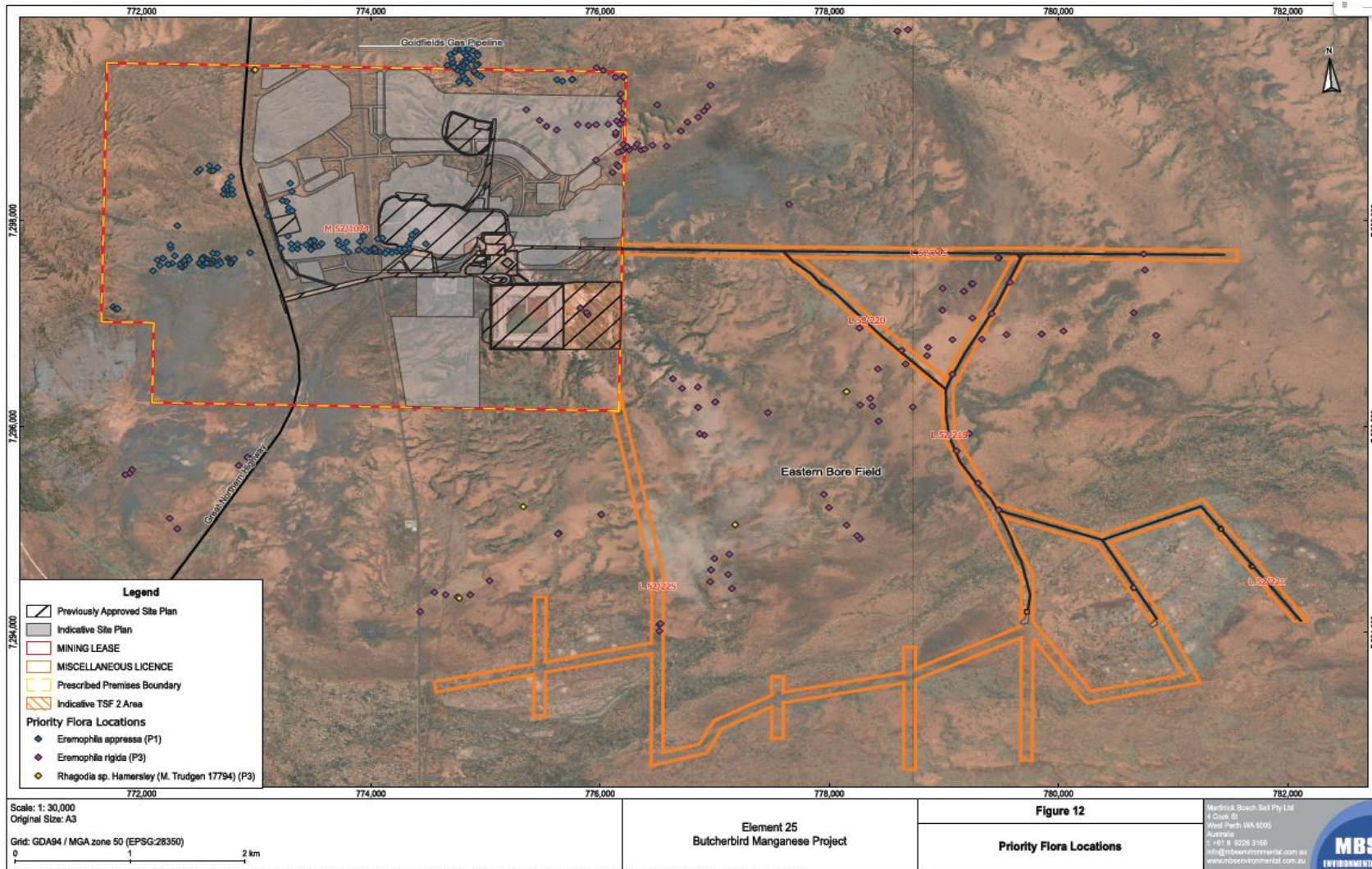


Figure 3: Distance to sensitive receptors

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) 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 W6973/2024/1 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).

An amendment to licence L9309/2021/1 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. Category 5 activities.

Table 3: Risk assessment of potential emissions and discharges from the premises during construction, commissioning and time limited operation

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Construction								
Earth works and construction/installation of processing plant infrastructure, stormwater drains and sumps	Dust	Pathway: Air/windborne pathway Impact: Decline in vegetation health due to smothering	Priority Flora	Refer to Section 3.1	C = Minor L = Rare Low Risk	Y	Condition 1 – Infrastructure and equipment Condition 2 & 3 – Compliance auditing and reporting	Applicant proposed location for new infrastructure has been conditioned in the works approval. Standard auditing and reporting conditions applied to the works approval.
Commissioning								
Commissioning of processing plant infrastructure	Dust	Pathway: Air/windborne pathway Impact: Decline in vegetation health due to smothering	Priority Flora	Refer to Section 3.1	C = Minor L = Rare Low Risk	Y	Condition 1 – Infrastructure and equipment Condition 2 & 3 – Construction compliance reporting Conditions 4 & 5 – Environmental commissioning requirements Conditions 6 & 7 – Environmental commission reporting	Applicant proposed controls for managing dust, stormwater, accidental discharge of product and waste (tailings) have been included as construction requirements in the works approval.
	Accidental discharge of product and tailings to land	Pathway: Direct discharge to land Impact: Reduced groundwater quality	Groundwater	Refer to Section 3.1	C = Minor L = Rare Low Risk	Y	Condition 11 – Inspection requirements Condition 14 – Recording of complaints Condition 15 & 16 – Maintaining accurate and auditable information required by conditions of the	Applicant proposed commissioning requirements and reporting have been included as works approval conditions. Applicant proposed commissioning duration has been included as a

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
							works approval	condition of the works approval. Applicant proposed monitoring (inspections) during commissioning has been included as a condition of the works approval. Standard reporting conditions included in the works approval.
Time Limited Operations								
Operating processing plant infrastructure	Dust	Pathway: Air/windborne pathway Impact: Decline in vegetation health due to smothering	Priority Flora species	Refer to Section 3.1	C = Minor L = Rare Low Risk	Y	Condition 1 – Infrastructure and equipment Condition 2 & 3 – Construction compliance reporting	A standard period of 180 calendar days to conduct time limited operations has been included in the works approval. As opposed to the applicants proposed 16 week period (112 days). 180 days will allow sufficient time for the applicant to submit the licence amendment application and DWER time to assess. Applicant proposed operational requirements during time limited
	Accidental discharge of product and tailings to land	Pathway: Direct discharge to land Impact: Reduced groundwater quality	Groundwater	Refer to Section 3.1	C = Minor L = Rare Low Risk	Y	Conditions 8 – Commencement of time limited operations Condition 9 – Duration for time limited operations Condition 10 – Time limited operation requirements for the new processing plant infrastructure Condition 11 – Inspections during time limited operations	

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
								<p>operations have been included as conditions of the works approval.</p> <p>Applicant proposed monitoring (inspections) during time limited operations has been included as a condition of the works approval.</p> <p>Standard conditions relating to recording and reporting have been included in the works approval.</p>

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk Assessments* (DWER 2020).

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 on 15/11/2024	None received	N/A
DEMIRS advised of proposal on 15/11/2024	<p>DEMIRS replied on 26/11/2024 advising:</p> <ol style="list-style-type: none"> 1) A Mining Proposal and Mine Closure Plan has been submitted to DEMIRS (Reg ID 126817) which includes modifications to the processing plant. The proposal is currently being assessed, and the following has been noted for your consideration. 2) Element 25 Limited have noted in their proposal that a new Works Approval is required to allow for the modification to the Processing Plant and construction of their TSF Cell 2 (noting their current Works Approval W6455/2020/1 is valid until 13/12/2025). They have also included that their Environmental Licence L9309/2021/1 granted 4 April 2022 allows for Category 5 activities. 3) In the Mining Proposal provided to DEMIRS, the purpose of modification to the processing plant is so that it is suitable to process up to 6 Mtpa of ROM ore and produce up to 1.2 Mtpa of manganese concentrate. However, the Works Approval document states an increased throughput from 1.2 to 7.3 Mtpa (Section 5.1, Pg 9). 4) Element 25 Limited have advised us to keep the assessment On Hold for the meantime as they are currently undergoing an internal review of their proposal, with the intention to send DEMIRS a revised Mining Proposal / Mine Closure Plan. Therefore, it is possible that the information provided in the Works 	<ol style="list-style-type: none"> 1) DWER notes MP Reg ID: 126817 was decided 19/12/2024 (minedex search 20/01/2025). 2) The applicants application to DWER for a works approval only related to modifications to the Processing Plant. A separate works approval application would be required for construction of TSF Cell 2. 3) DWER notes MP Reg ID: 126817 was updated 19/12/2024 (after DEMIRS had provided comments to DWER) to the correct throughput of 7.3 Mtpa and therefore this comment from DEMIRS no longer applies. 4) No longer applicable. MP Reg ID: 126817 was decided 19/12/2024.

Consultation method	Comments received	Department response
	<p>Approval application may require a revision from Element 25 Limited (e.g. Figure 2 and Figure 07).</p>	
<p>Applicant was provided with draft documents on 24/01/2025</p>	<p>Comments received 17/02/2025.</p> <p><u>Works Approval</u></p> <ul style="list-style-type: none"> Condition 1, Table 1 Crushing circuit should be referred to as 'Crushing and Screening; and Screening and washing circuit should be referred to as 'Washing Circuit'. Condition 1, Table 1 Requested first two construction requirements of washing circuit are combined into one paragraph. Condition 5, Table 2 Infrastructure description requires updating as discussed above. <p><u>Decision Report</u></p> <ul style="list-style-type: none"> Applicant requested the Decision Report be updated with the correct infrastructure descriptions, correct the proposed number of reclaim chutes and stockpile holding times and generalise the flocculant permitted for use. The Applicant also requested the sprinkler system be referenced as a 'spray' system. 	<p><u>Works Approval</u></p> <ul style="list-style-type: none"> Supported. Description of infrastructure updated. Supported. Table 1 updated as requested. Supported. Description of infrastructure updated. <p><u>Decision Report</u></p> <ul style="list-style-type: none"> Supported. Report updated. <p>DWER noted the Applicant requested 'Table 4: Consultation' regarding comments received from DEMIRS on 15/11/24 be updated. The request related to referencing 6 Mtpa at the ROM instead of 7.3 Mtpa.</p> <p>DWER does not support this request as these were the actual comments received from DEMIRS on 15/11/24. The Applicant should note, DEMIRS comments were provided to DWER prior to the mining proposal being updated on 19/12/24 where a change was made to the quantity of ore processed from 6 Mtpa to 7.3 Mtpa. Consequently, DEMIRS comments to DWER on 15/11/24 are therefore no longer applicable.</p>

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) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
4. Element 25 Limited, Butcherbird Manganese Project, *Works Approval Application Supporting Documentation*, October 2024.