



## **SUPPORTING DOCUMENT L9037**

**LICENCE AMENDMENT  
APPLICATION PART V  
ENVIRONMENTAL  
PROTECTION ACT 1986**

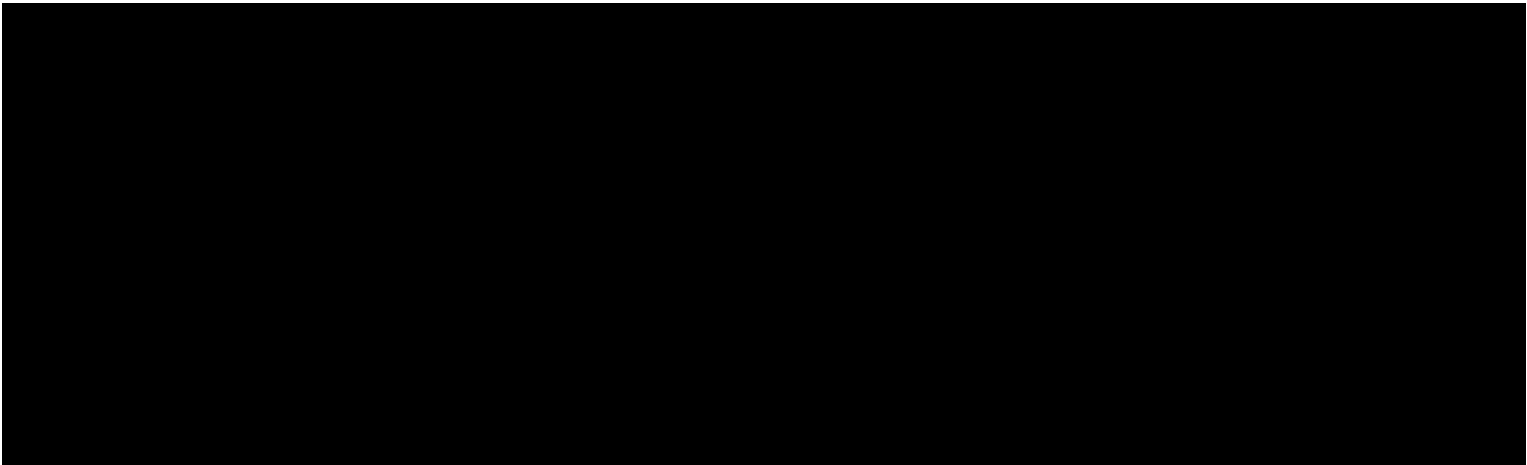
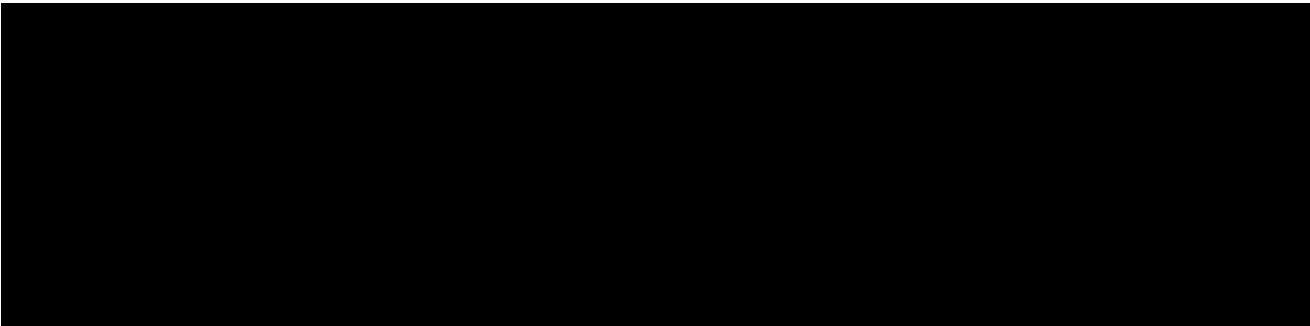
**PROCESS MINERALS  
INTERNATIONAL PTY LTD.**

**4 APRIL 2024 VERSION 01**



## DOCUMENT INFORMATION

This document acts as an attachment to the Part V, *Environmental Protection Act 1986* Licence Amendment Application Form. The document provided additional information as required by the application form, to be submitted to the Department of Water and Environmental Regulation.



### Acknowledgement of Country

MinRes is committed to reconciliation and recognises and respects the significance of Aboriginal and Torres Strait Islander peoples' communities, cultures, and histories. MinRes acknowledge and respect Aboriginal and Torres Strait Islander peoples as the traditional custodians of the land.

# EXECUTIVE SUMMARY

## Introduction

Process Minerals International Pty Ltd (PMI) is proposing minor amendments to the current operating licence (L9037/2017/1) for the Mt Marion Lithium Project (the Project). These amendments include:

- The transfer of Stage 2 and 3 of the Mt Marion Wastewater Treatment Plant (WWTP), constructed and commissioned under Works Approval W6744 to the Licence L9037.
- Increase the capacity for Category 73 Bulk Storage of Chemicals (for Diesel Storage) from 854 kL to 884 kL, as requested in the licence amendment application submitted 9 June 2023.
- Change of discharge point from single discharge point to multiple spigots into Ghost Crab In-Pit TSF as an environmental improvement to even out deposition the rate of fill for the facility and extend the life of the facility. This will also assist in controlling the pond size and assist the efficiency of the decant process.

There are no proposed changes to the premise boundary or prescribed activity locations.

## Application Information

This document supports an application for the amendment to Licence L9037, with amendments summarised in Table ES-1 and further context provided in this supporting document.

Table ES-1: Summary of Licence Amendment Inclusions

Prescribed Premise Category	Current Licence	Requested Amendment						
Category 85: Sewage Facility	Design Capacity: 90 m <sup>3</sup> /day	Replace with Category 54 due to increased throughput						
Category 54: Sewage Facility	-	Inclusion of this Category with Design Capacity of 170 m <sup>3</sup> /day						
Category 73: Bulk Storage of Chemicals	480 kL (LNG) 854 kL (Diesel)	No change to LNG volume Increase volume to 884 kL (Diesel)						
Category 5: Processing or beneficiation of metallic and non-metallic ore	<p>Production Capacity: 5.0 Mtpa</p> <p><b>Table 4: Authorised discharge points</b></p> <table border="1"> <thead> <tr> <th>Emission</th> <th>Discharge Point</th> <th>Discharge Point Location</th> </tr> </thead> <tbody> <tr> <td>Tailings</td> <td>Ghost Crab In-Pit TSF</td> <td>As shown in Schedule 1: Figure 1</td> </tr> </tbody> </table> <p>Previously assessed 15 May 2016, as part of Works Approval in 2016 (W5732/2014/1). In the supporting document it was specified that <i>the tailings streams will be deposited into the pit from the same pit crest location on the eastern wall of the pit.</i></p>	Emission	Discharge Point	Discharge Point Location	Tailings	Ghost Crab In-Pit TSF	As shown in Schedule 1: Figure 1	<p>No change to the Production Capacity</p> <p>No change to the conditions of the Licence, i.e.:</p> <ul style="list-style-type: none"> <li>• No change to Licence Table 4: Authorised discharge points</li> <li>• No change is required to Figure 1 or the authorised discharge point.</li> </ul> <p>Proposal to include multiple spigot discharge arrangement around Ghost Crab In-Pit TSF, which is at variance to the design approved under W5732/2014/1.</p>
Emission	Discharge Point	Discharge Point Location						
Tailings	Ghost Crab In-Pit TSF	As shown in Schedule 1: Figure 1						

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<b>Appendix D</b>	<b>WWTP Stage 2 Commissioning Report</b>
<b>Appendix E</b>	<b>WWTP Stage 3 Commissioning Report</b>

# 1. BACKGROUND AND SCOPE

## 1.1 Project Context

Process Minerals International Pty Ltd (PMI) is a 100% subsidiary of Mineral Resources Limited (MinRes), which holds an exclusive Life of Mine (LOM) Mining Services Agreement (MSA) with Reed Industrial Minerals Pty Ltd (RIM), the holder of most of the tenements for the Mt Marion Lithium Project (Mt Marion or the Project). Pursuant to this MSA, MinRes designed, built and now operates the Project through a joint venture agreement with PMI and Gangfeng Lithium Co. Ltd.

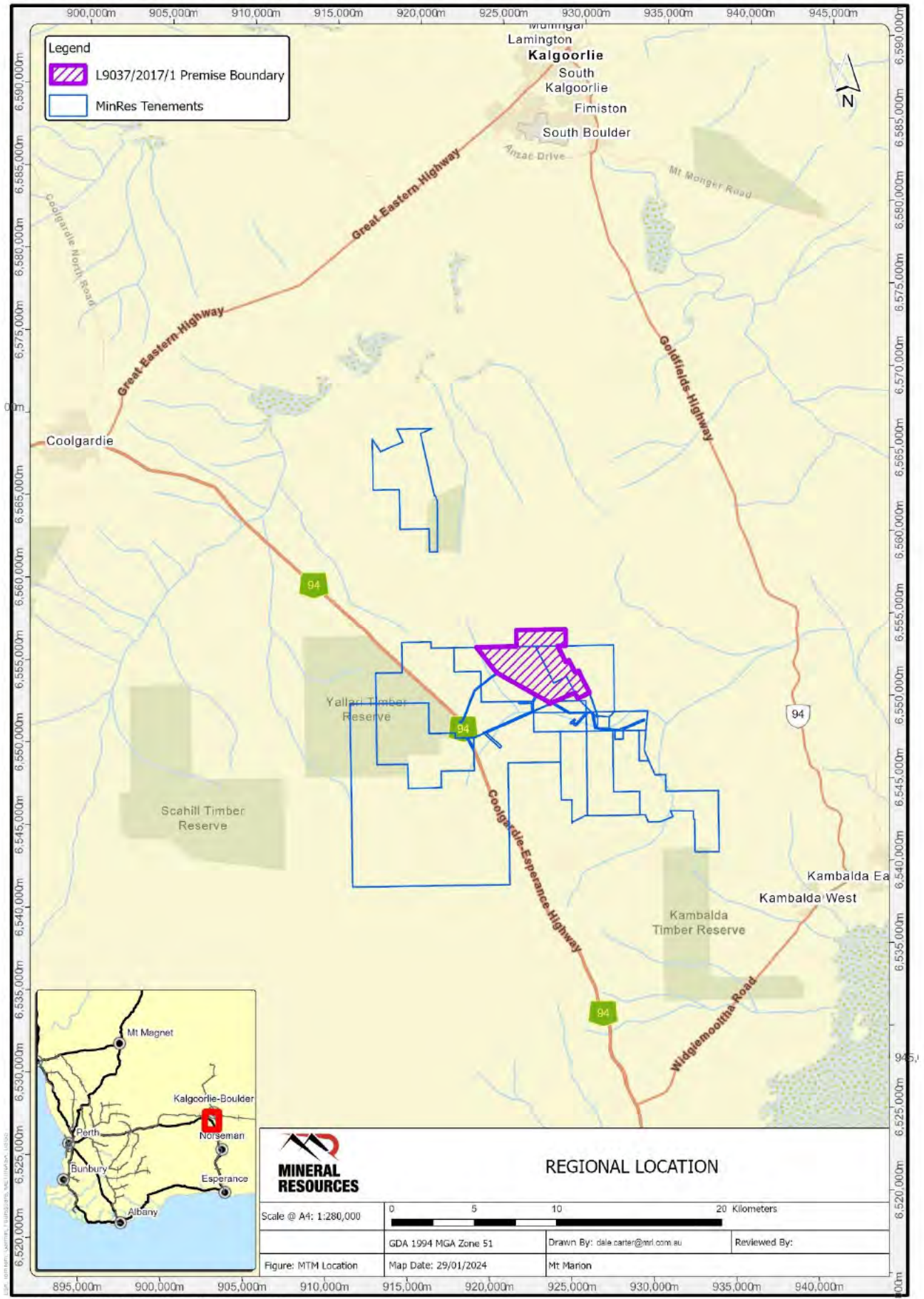
The Project is licensed to operate under *Environmental Protection Act 1986* (EP Act) Licence L9037/2017/1 (L9037) with additional supporting infrastructure approved for construction, commissioning and Time Limited Operation (TLO) under Works Approval W6744/2022/1 (W6744).

The purpose of this Works Approval amendment includes the following main objectives:

- Transfer the relevant conditions of Stages 2 and 3 of the WWTP from the Works Approval (W6744) to the Licence (L9037).
- Increase the Assessed Production Category for Category 73 Diesel Storage from 854 kL to 884 kL, as requested in the licence amendment application submitted 9 June 2023.
- Note the discharge of tailings through a multiple spigot arrangement surrounding the TSF. Notably, this will not change the location of authorised discharge on the Licence, nor result in a change of tailings characteristics or increase in the volume of tailings being deposited.

## 1.2 Project Location

MinRes operates the Project 36 kilometres (km) south-west of the City of Kalgoorlie-Boulder in the Eastern Goldfields region of Western Australia. The Project location and regional setting are illustrated in Figure 1.



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Figure 1: Project Location



### 1.3 Approvals Background to the Project

Approval for the Project was obtained under the *Mining Act 1978* (Mining Act) via Mining Proposal (MP) REGID 28674, granted on 2 February 2012. The most recent MP was granted on 14 March 2024, REGID 120019.

MinRes is responsible for the operation of the Project which includes mining, accommodation, and approvals for the continuation of the Project development. The Project is licenced to operate under EP Act Licence L9037/2017/1 with the current prescribed categories being:

- Category 5: Processing or beneficiation of metallic or non-metallic ore
- Category 6: Dewatering
- Category 12: Screening of Material
- Category 57: Used tyre storage
- Category 64: Class II putrescible landfill
- Category 73: Bulk storage of chemicals
- Category 85: Sewage facility
- Category 85B: Water Desalination.

L9037 was amended and approved by DWER on 19 December 2023, to enable the following changes:

- Increase the below production capacities:
  - Cat 5: Increase from 3 Mtpa to 5 Mtpa
  - Cat 12: Increase from 100,000 tonnes to 200,000 tonnes per annum
  - Cat 73: increase diesel storage from 555 kL to 854 kL
- Removal of restriction for using dewatering for dust suppression
- Removal of set landfill locations, allowance for flexibility within WD2 and Ghost Crab North WRD
- Allowance to discharge RO Brine into North and Central Pit when required
- Install additional ore sorting infrastructure.

Other environmental approvals granted for the project include those summarised in Table 1 below.

Table 1: Other Environmental Approvals

Relevant Legislation	Environmental Factor regulated/affected	Relevant approval requirement
<i>Health (Treatment of Sewage and Disposal OF Effluent and Liquid Waste) Regulations 1974</i>	Treatment of Sewage	Approval to Construct or Install and Apparatus for the Treatment of Sewage – Approval No: 165.22
<i>Mining Act 1978 and Mining Regulations 1981</i>	Land & Soils/ Water Resources/ Rehabilitation & Closure	Mining Proposal and Mine Closure Plan (REG ID 101822) authorises mining and associated activities within the approved proposal boundary
<i>Rights in Water and Irrigation Act 1914</i>	Inland Waters	MinRes has received relevant approvals: 5C Licence - GWL200665(3) & GWL174427(4)
<i>Planning and Development Act 2005</i>	Flora & Vegetation/Terrestrial Fauna/ Landforms	Approval for Mount Marion operations through the Shire of Coolgardie. PA-12/2019



A background in the proposed amendments being requested in this approval are provided for additional context below.

#### Category 54 - Wastewater Treatment Plant

A Works Approval (WA) (W6744/2022/1) for the construction and installation of two additional WWTP units was submitted in October 2022, with approval granted 11 January 2023. The application included the addition of WWTP throughput and associated infrastructure, from its current approved throughput of 90 m<sup>3</sup>/day in Licence L9037, to staged increases of 120 m<sup>3</sup>/day and 170 m<sup>3</sup>/day throughputs, respectively referred to as Stage 2 and 3, in W6744.

This increase in throughput has resulted in a change to the prescribed category from Category 85: Sewage facility (more than 20 m<sup>3</sup> but less than 100 m<sup>3</sup> per day) to Category 54: Sewage facility (100 m<sup>3</sup> or more per day) and therefore an update of the licence is required, to reflect this.

#### Category 73 – Diesel Storage

A licence amendment application was submitted 9 June 2023 to increase the assessed production throughput for Category 73 Diesel Storage from 854 kL to 884 kL. This was acknowledged as part of the assessment process however was not included in the drafting of the licence, appearing to be omitted as a typographical error. MinRes therefore requests that this be included as part of this amendment.

#### Category 5 – Discharge of Tailings to Ghost Crab Pit

The discharge of tailings to Ghost Crab Pit was originally assessed under Works Approval (W5732/2014/1). The relevant supporting document application noted that tailings discharge was to occur from a polyurethane pipeline and deposited into the pit from the eastern crest.

MinRes is requesting an improvement in longevity and overall efficiency of the TSF by changing the deposition of the tailings to a multiple spigot location rather than one single discharge point.

No change is required to either Figure 1 or the authorised discharge point, noted within Table 4 of Licence L9037. Notably, there are no changes in characteristics or volume that will result from the discharge of tailings through multiple spigot locations. Implementing multiple spigots for tailings deposition will yield a favourable environmental outcome by enhancing control over the fill rate and extending the facility's lifespan.

## 1.4 Scope of the Project

The Project currently comprises of the following prescribed premises categories and throughput production/design capacities outlined in Table 2 below.

Table 2: Prescribed Premises Categories

Prescribed Premises Category	Premises production or design capacity
Category 5: Processing or beneficiation of metallic and non-metallic ore	5.0 Mtpa
Category 6: Dewatering	650,000 tpa (0.65 GL)
Category 12: Screening of Material	200,000 tpa
Category 57: Used tyre storage	1,000 tyres
Category 64: Class II putrescible landfill	2,000 tpa
Category 73: Bulk storage of chemicals	480 kL (LNG) 854 kL (Diesel)
Category 85: Sewage facility	90 m <sup>3</sup> /day
Category 85B: Water desalination plant	0.73 Glpa

Infrastructure and equipment included in the current licence for the Project, can be summarised into the following areas:

- Crusher and Beneficiation Plants (and associated equipment)
- Mobile Screening Plant
- Tailings, Process Water and Dewatering Infrastructure
- Waste disposal and storage
- Bulk fuel storage
- WWTP comprising a Submerged Aerated Filter
- WWTP comprising a Sequence Batch Reactor
- Other activities (bioremediation pad, accommodation, motor control centres, control rooms, administration offices, workshops, final product stockyard and weighbridge).

The Premises Map, is illustrated below as Figure 2 and referenced as Attachment 2 in the DWER Application Form. The Premises Map does not require an update as part of this amendment.



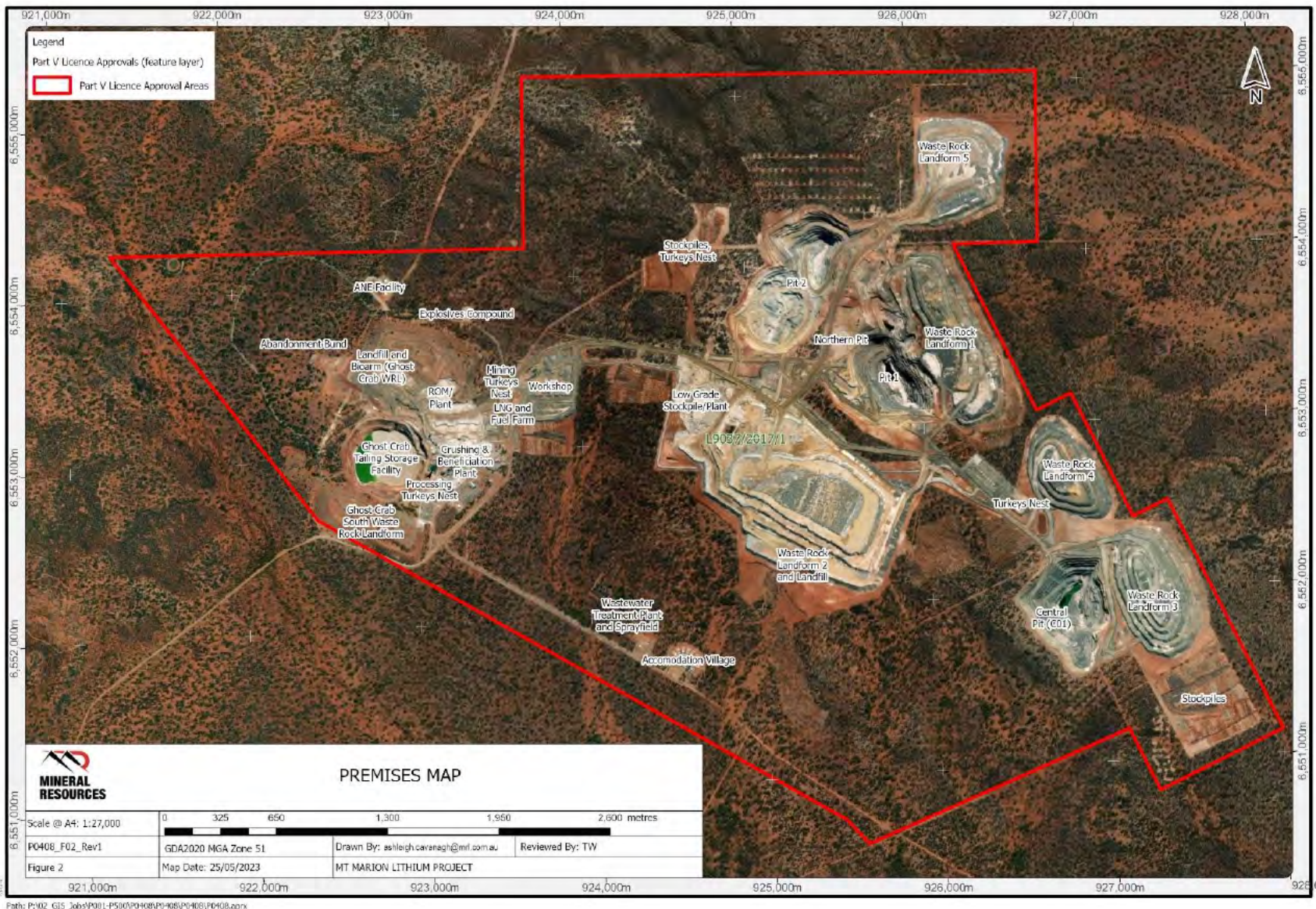


Figure 2: Premise Map



## 1.5 Purpose of this Document

This document supports an application for the amendment to Licence L9037, involving amendments to the following key sections of the licence:

- Prescribed Premises Category Description (Licence cover page) – update from Category 85: Sewage facility (more than 20 m<sup>3</sup> but less than 100 m<sup>3</sup> per day) to Category 54: Sewage facility (100 m<sup>3</sup> or more per day)
- Table 2: Infrastructure and equipment requirements – to reflect diesel storage from 854 to 884 kL; and update to the WWTP category description and relevant WWTP infrastructure.
- Schedule 1: Maps, Figure 5 – to reflect the multi spigot infrastructure into the TSF.

This supporting document, together with the completed DWER Application Form constitutes the L9037 amendment application, pursuant to Part V of the EP Act.

Table 3 provides a summary of where information referenced in the Application Form is presented.

Table 3: DWER Application Form References

DWER Application Form Reference	MinRes Reference
<b>Part 1: Application Type</b>	Application Form, Part 1
<b>Part 2: Applicant Details</b>	Application Form, Part 2
• <b>Attachment 1A: Proof of Occupier Status</b>	Supporting Document, Appendix A
• <b>Attachment 1B: ASIC Company Extract</b>	N/A
• <b>Attachment 1C: Authorisation to act as representative of the occupier</b>	N/A
<b>Part 3: Premises details</b>	To the extent changed. Required in relation to the amendment. Application Form, Part 3
• <b>Attachment 2: Premises Map</b>	Supporting Document, Figure 2
<b>Part 4: Proposed Activities</b>	Application Form, Part 4 Supporting Document, Section 4
• <b>Attachment 2: Premises Map</b>	Supporting Document, Figure 2
• <b>Attachment 3A: Environmental Commissioning Plan</b>	Supporting Document, Section 0
• <b>Attachment 3B: Proposed activities</b>	Supporting Document, Section 4
• <b>Attachment 3C: Map of area proposed to be cleared</b>	N/A
• <b>Attachment 3D: Additional information for clearing assessment</b>	N/A
<b>Part 5: Index of Biodiversity Surveys for Assessments (IBSA)</b>	N/A
• <b>Attachment 4: Marine Surveys (IMSA)</b>	N/A
<b>Part 6: Other DWER Approvals</b>	Supporting Document, Section 6
<b>Part 7: Other Approvals and Consultation</b>	Supporting Document, Section 6
• <b>Attachment 5: Other approvals and consultation documentation</b>	Supporting Document, Section 6
<b>Part 8: Applicant History</b>	Application Form, Part 8
<b>Part 9: Emissions, discharged and waste</b>	Application Form, Part 9
• <b>Attachment 6A: Emissions and discharges</b>	Supporting Document, Section 8
• <b>Attachment 6B: Waste acceptance</b>	N/A



<b>DWER Application Form Reference</b>	<b>MinRes Reference</b>
<b>Part 10: Siting and Location</b>	Application Form, Part 10
• <b>Attachment 7: Siting and Location</b>	Supporting Document, Section 1.2
• <b>Attachment 8: Additional Information Submitted</b>	N/A
<b>Part 11: Submission of any other relevant information</b>	N/A
<b>Part 12: Category Checklist</b>	N/A
• <b>Attachment 9: Category Checklist(s)</b>	N/A
<b>Part 13: Proposed fee calculation</b>	Application Form, Part 13
• <b>Attachment 10: Information and data used to calculate proposed fees</b>	Supporting Document, Section 9
<b>Part 14: Commercially Sensitive or Confidential Information</b>	N/A
• <b>Attachment 11: Request for exemption from publication</b>	N/A
<b>Part 15: Submission of Application</b>	Application Form, Part 15
<b>Part 16: Declaration and Signature</b>	Application Form, Part 16

## 2. PRESCRIBED PREMISES CATEGORIES

The current prescribed premises categories and throughput production/design capacities for the Project, along with the changes requested in this application (marked in red font), are outlined in Table 4: Prescribed Premises Categories

, below.

Table 4: Prescribed Premises Categories

Prescribed Premises Category Description	Current Approved Production Capacity	Proposed Production or Design Capacity
Category 5: Processing or beneficiation of metallic and non-metallic ore	5.0 Mtpa	-
Category 6: Dewatering	650,000 tpa (0.65 GL)	-
Category 12: Screening of Material	200,000 tpa	-
<b>Category 54: Sewage Facility</b>	-	<b>170m<sup>3</sup>/day<sup>1</sup></b>
Category 57: Used tyre storage	1,000 tyres	-
Category 64: Class II putrescible landfill	2,000 tpa	-
Category 73: Bulk storage of chemicals	480 kL (LNG) 854 kL (Diesel)	480 kL (LNG) <b>884 kL (Diesel)</b>
<del>Category 85: Sewage facility</del>	<del>90 m<sup>3</sup>/day</del>	
Category 85B: Water desalination plant	0.73 GLpa	-

Note: - indicates that no changes are required to the production or design capacity of the prescribed premises category

### 2.1 Legal Land Description

The project is situated within mining tenements M15/1000, M15/717 (Reed Industrial, expiry 18/09/2036) and Hamptons Lease Area 53 (portion of Lot 105 on Deposited Plan 40396, Volume 2668 Folio 420). The legal land description is reflected on the current prescribed premises licence (L9037/2017/1).

There are no changes to the land tenure or relevant descriptions, as part of this application.

<sup>1</sup> Amend licence sewage facility category from 85 to 54

### **3. APPLICANT INFORMATION**

#### **3.1 Applicant Name**

The tenement is owned by Reed Industrial Minerals Pty Ltd (RIM) which is a Joint Venture (JV) between PMI and Jiangxi Gangfeng Lithium Co. Ltd and operated by PMI (a subsidiary of MinRes). The applicant and current licence holder is PMI.

#### **3.2 Occupier Details**

PMI is a 100% subsidiary of MinRes which holds an exclusive Life of Mine (LOM) Mining Services Agreement (MSA) with Reed Industrial Minerals Pty Ltd (RIM), the holder of most of the Mt Marion tenements. Pursuant to this MSA, MinRes designed, built, and now operates the Project through a joint venture agreement with PMI and Gangfeng Lithium Co. Ltd.

Proof of occupier status is provided in Appendix A.

## 4. PROPOSED ACTIVITY

This document supports an application for the amendment to Licence L9037, with details of the proposed amendments outlined below.

### 4.1 Prescribed Premise Category Description Amendment

It is requested that the design and production capacities in L9037 be amended in accordance with the proposed amendments explained below.

#### 4.1.1 Update of Sewage Facility from Category 85 to Category 54

The current licence instrument, L9037/2017/1 includes a Category 85: Sewage Facility production capacity of 90 m<sup>3</sup>/day, consisting of:

- 70 m<sup>3</sup>/day - Submerged Aerated Filter (SAF) WWTP
- 20 m<sup>3</sup>/day – Sequence Batch Reactor (SBR).

Under this licence application MinRes is proposing to:

- Remove the 20 m<sup>3</sup>/day SBR unit from the licence
- Retain the 70 m<sup>3</sup>/day SAF unit in the licence
- Add two 50 m<sup>3</sup>/day SBR units to the licence (constructed as part of Stages 2 & 3, under W6744/2022/1)
- Remove Category 85 (Sewage Facility 20 – 100 m<sup>3</sup>/day) and include with Category 54 (100 m<sup>3</sup> or more/day)
- Increase the total Sewage Facility throughput to 170 m<sup>3</sup>/day
- Increase the spray field size from 3.5 ha to 6.64 ha (as per Stage 3 Compliance report, submitted to DWER 23 October 2023).

Stage 3 WWTP unit is currently operating under Time Limited Operations (TLO), in accordance with Condition 14 & 15 of the works approval.

Table 5: WWTP Stage 2 and 3

WWTP Stage	Description	Compliance/ Commissioning Report	Time Limited Operations
2	<ul style="list-style-type: none"> <li>• 50 m<sup>3</sup>/day Sequence Batch Reactor (SBR).</li> <li>• Increased site capacity to 120 m<sup>3</sup>/day</li> </ul>	<ul style="list-style-type: none"> <li>• Compliance Report: Submitted to DWER 27 June 2023</li> <li>• Commissioning Report: Submitted to DWER 22 September 2023</li> </ul>	<ul style="list-style-type: none"> <li>• Commenced 22 September 2023</li> <li>• Concludes 20 March 2024</li> </ul>
3	<ul style="list-style-type: none"> <li>• 50 m<sup>3</sup>/day Sequence Batch Reactor (SBR).</li> <li>• Increased site capacity to 170 m<sup>3</sup>/day</li> </ul>	<ul style="list-style-type: none"> <li>• Compliance Report: Submitted to DWER 23 October 2023</li> <li>• Compliance Report: Submitted to DWER 15 January 2024</li> </ul>	<ul style="list-style-type: none"> <li>• Commenced 16 January 2024</li> <li>• Concludes 14 July 2024</li> </ul>

A site layout showing the recently constructed Stage 2 and Stage 3 WWTP units, adjacent to the existing unit is illustrated in Figure 3. An as built arrangement of the units are detailed in Figure 4.



The expansion of the spray field, to accommodate the additional throughput, is illustrated in Figure 5 and described further in Section 4.2.3.

Emissions and Discharges, including controls are detailed further in Table 12.



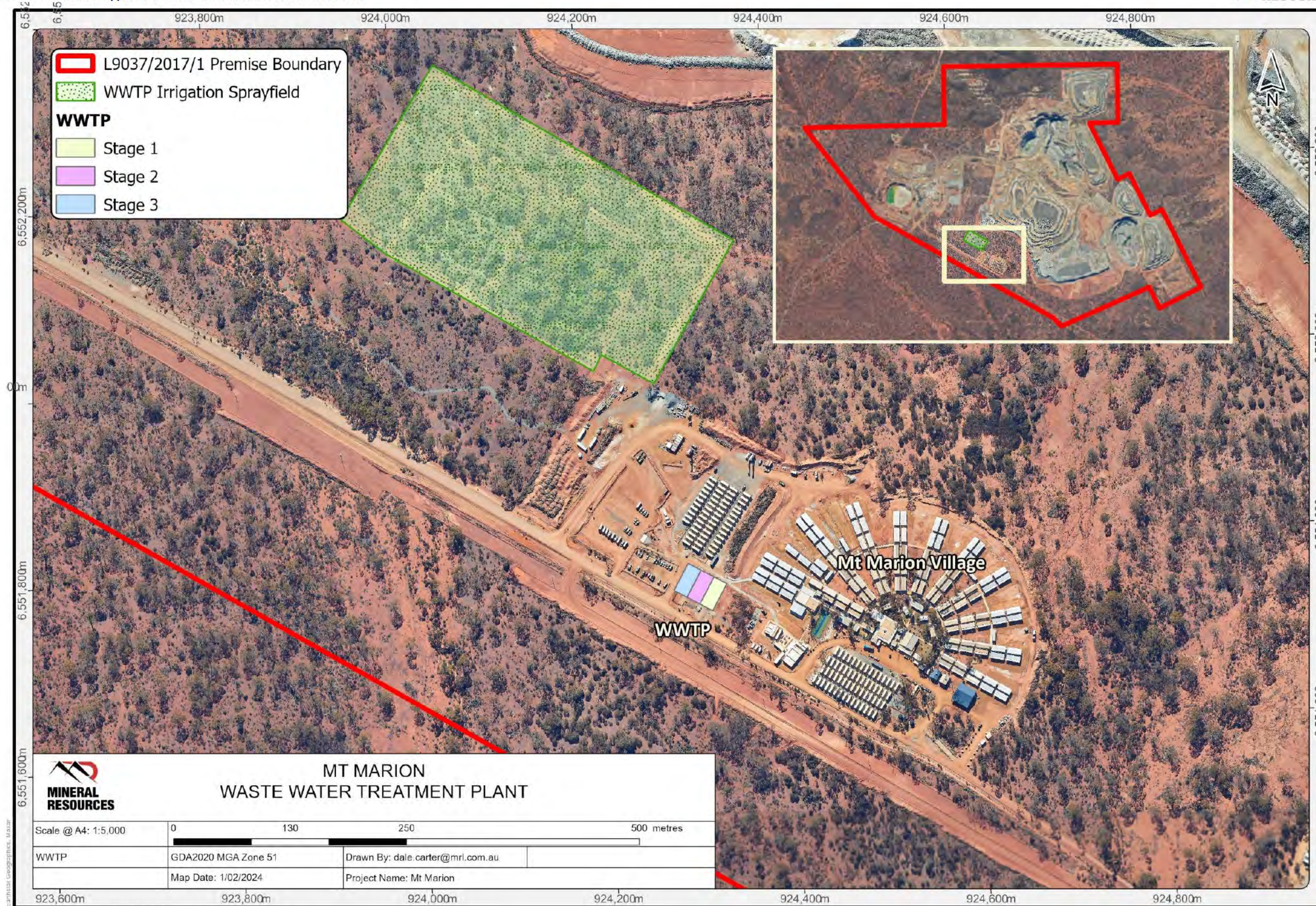


Figure 3: WWTP Location



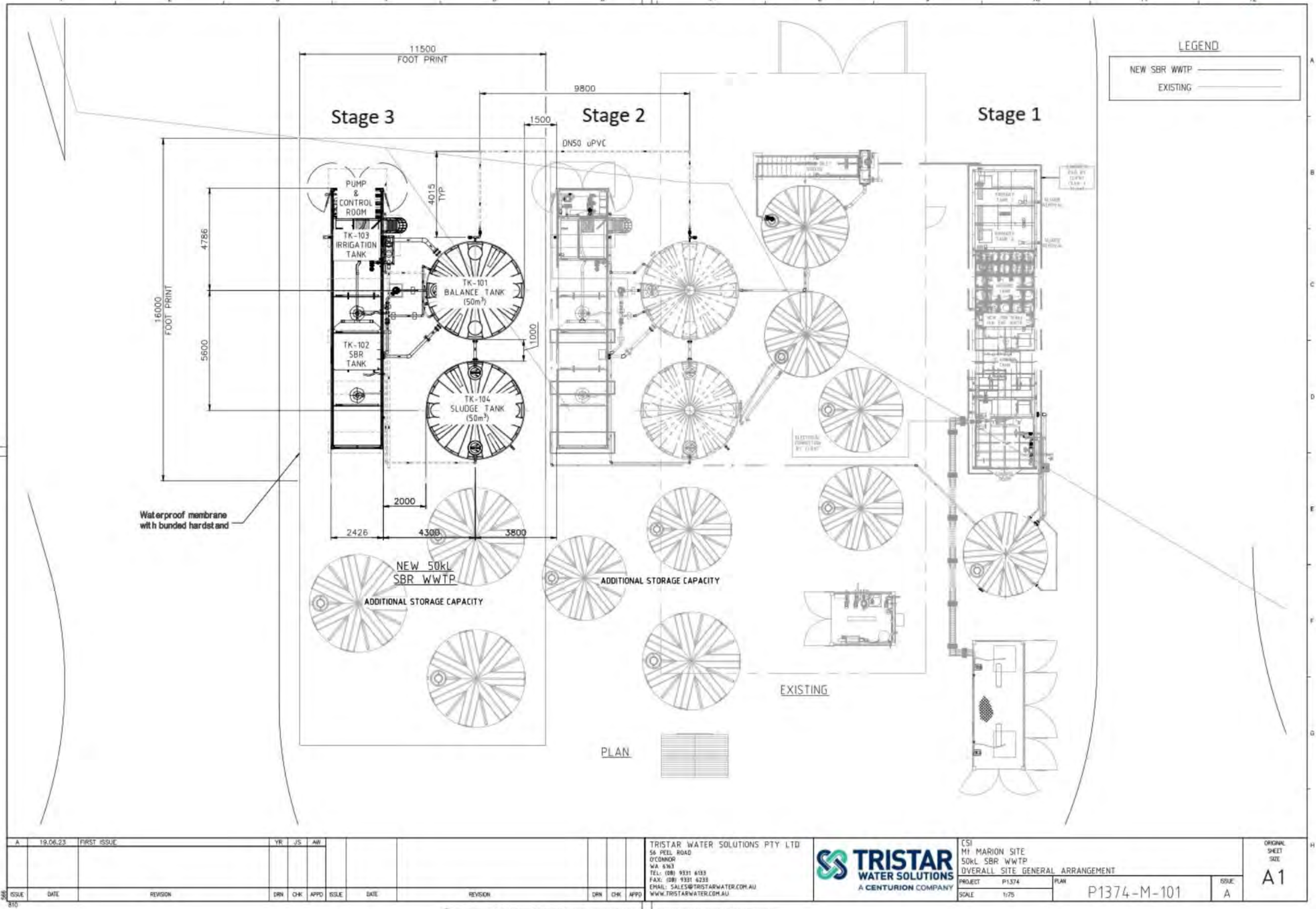


Figure 4: WWTP As Built

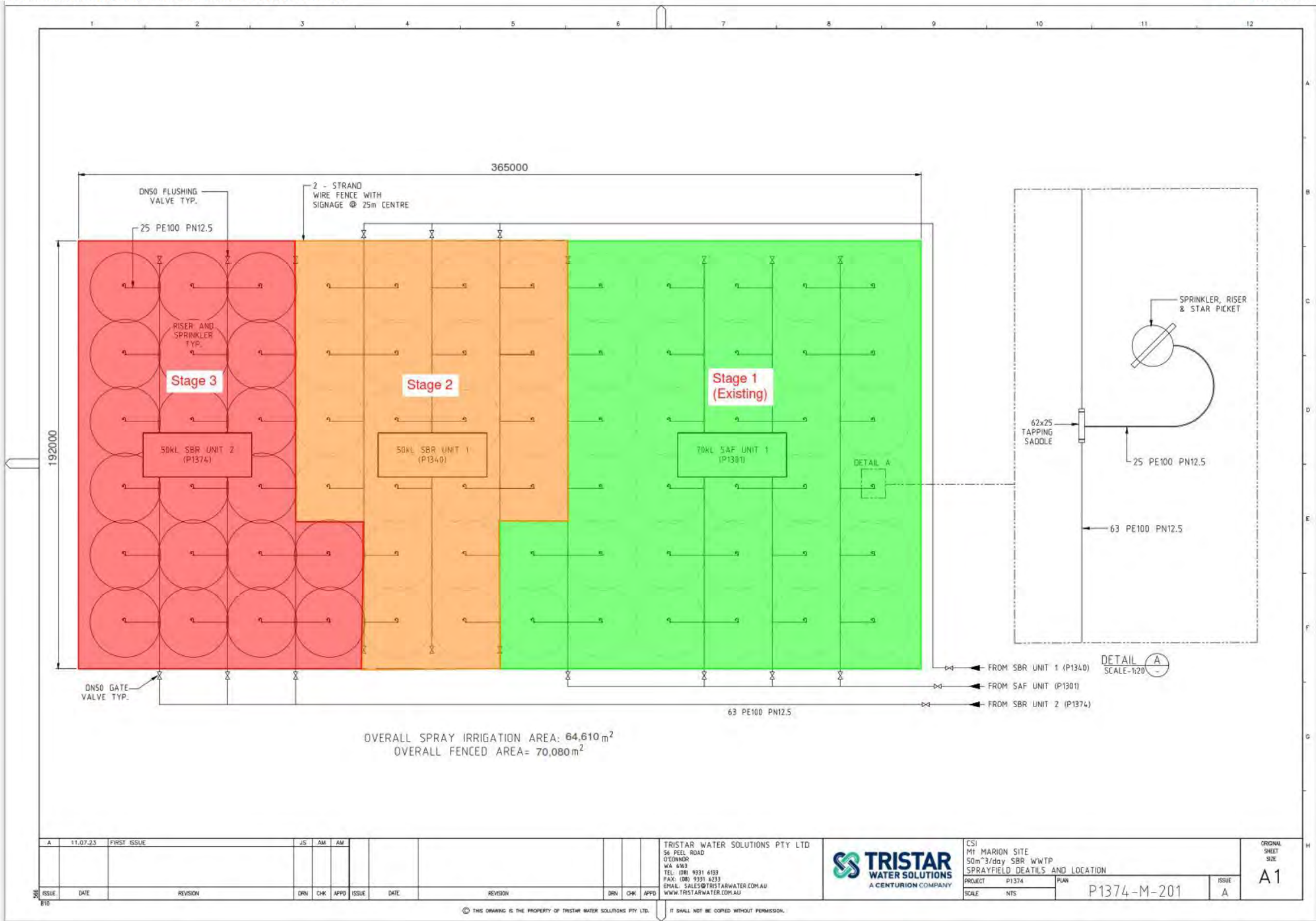


Figure 5: WWTP Irrigation Spray field As Built



#### 4.1.2 Category 5: Install Multiple Tailings Discharge Spigots Around Ghost Crab In-Pit TSF

Current operation of the Ghost Crab In-Pit TSF involves tailings discharge via a single discharge location on the eastern crest, as described in the supporting document assessed 15 May 2016, as part of Works Approval in 2016 (W5732/2014/1). To maximise the efficiency and capacity of the TSF, MinRes is proposing multiple spigots positioned in a ring arrangement around Ghost Crab TSF. Flexibility in placement and movement of spigots is required to optimise beach formation and manage erosion risks.

Modelling was undertaken to determine the TSF rate of rise based on the current single deposition point arrangement (Figure 6) and a scenario involving multiple spigots (Figure 7 & Figure 8). Table 2 of the current licence (L9037) conditions the TSF to maintain a 6m freeboard, with the tailings level not exceeding the 374 mRL. Based on the current tailings deposition strategy once the pit crest reached the 374 mRL, the centre of the pit would only be filled to the 364.4 mRL, with a steep beach leading up to the current discharge location.

The scenarios provided in Figure 7 and Figure 8 demonstrate a more favourable outcome, allowing the outer perimeter of the TSF to reach the 374 mRL, providing approximately 660,000 m<sup>3</sup> of additional tailings storage. Figure 7 and Figure 8 include various options for five to seven spigots in indicative locations. These various arrangements allow flexibility to enable the most appropriate locations for the spigots and pipeline extensions to be sited. This will not only maximise the capacity of the TSF but also enable the safe operation of the facility, through consideration of the safest accessibility and the condition of the local pit face areas, on an ongoing basis.

The intention is to reclaim decant water from the southern access ramp and therefore the pond needs to be centred around that location where feasible. The additional spigots around the rim will enable this by improving the control of the tailings beaching formation and therefore pond management. The actual capacity achieved in all scenarios will be influenced by the tailings beach slope.

No increase in tailings deposition rate or change in tailings characteristics will occur as a result of the multiple spigots. In summary, the benefits to the multiple spigot arrangement include:

- Maximising the capacity of the facility, in the safest available manner
- Spreading out tailings deposition across multiple areas around the pit will reduce the potential for erosion of the pit wall in any one area, in comparison to the current practice
- Improving the control of the tailings beaching formation and therefore pond management
- Increased water efficiency by being able to maximise the reclamation of the decant
- Maximising the life of the facility, therefore delaying the urgency for the operation to have an additional tailings storage facility.

Tailings Pipelines will be within a bunded drain to contain any potential leaks or spills.

Table 12 summarises potential emissions and discharges, including management controls.

In addition to the above five to seven spigot scenarios provided, it is noted that a further increase in storage capacity could be realised towards the end of life for the facility, when water reclaim is not as critical. This would be achieved by adding additional spigots in the south of the TSF, to fill in the new (low lying) pond area.

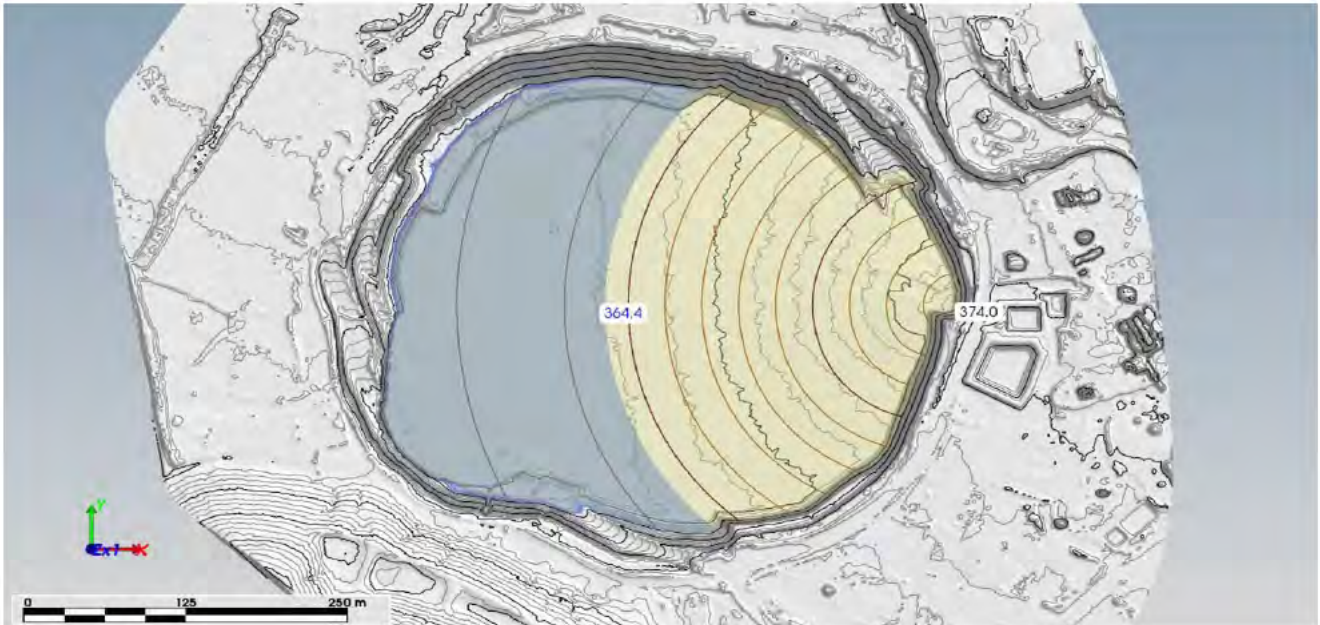


Figure 6: Existing Tailings Deposition Scenario

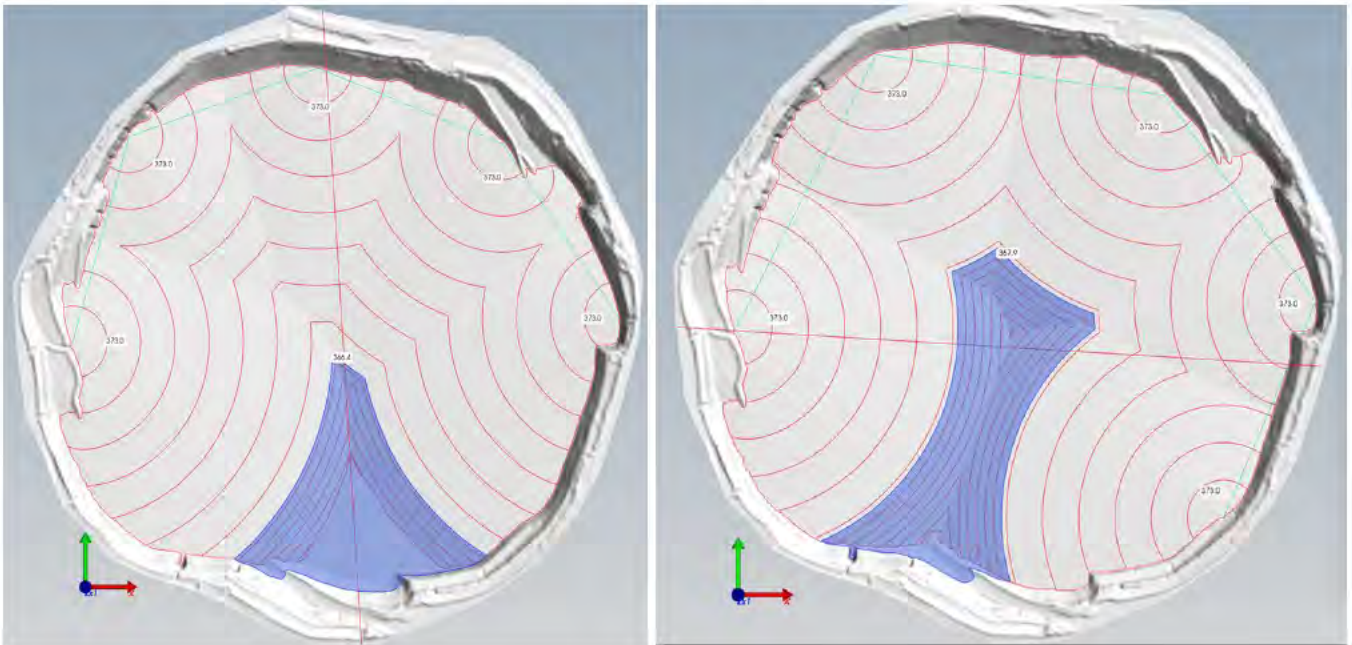


Figure 7: Examples of Optimised Scenario – Five Spigots East Discharge with indicative locations



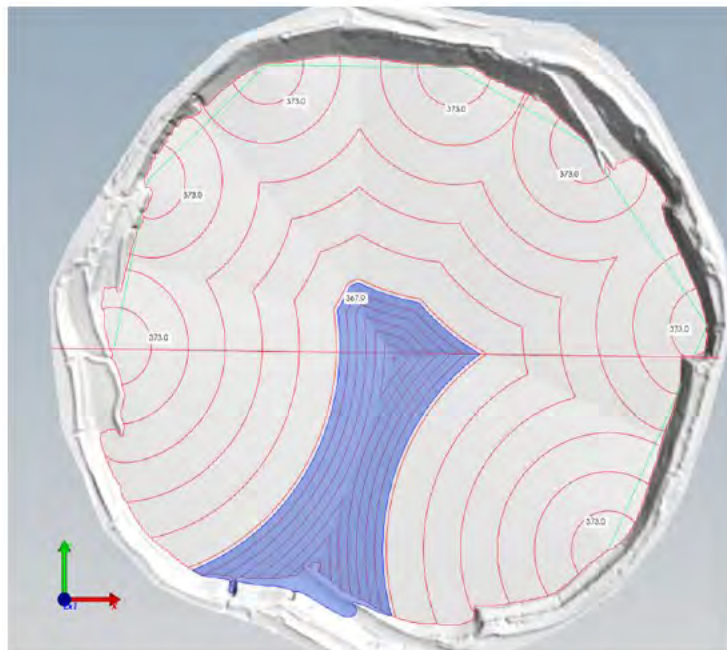
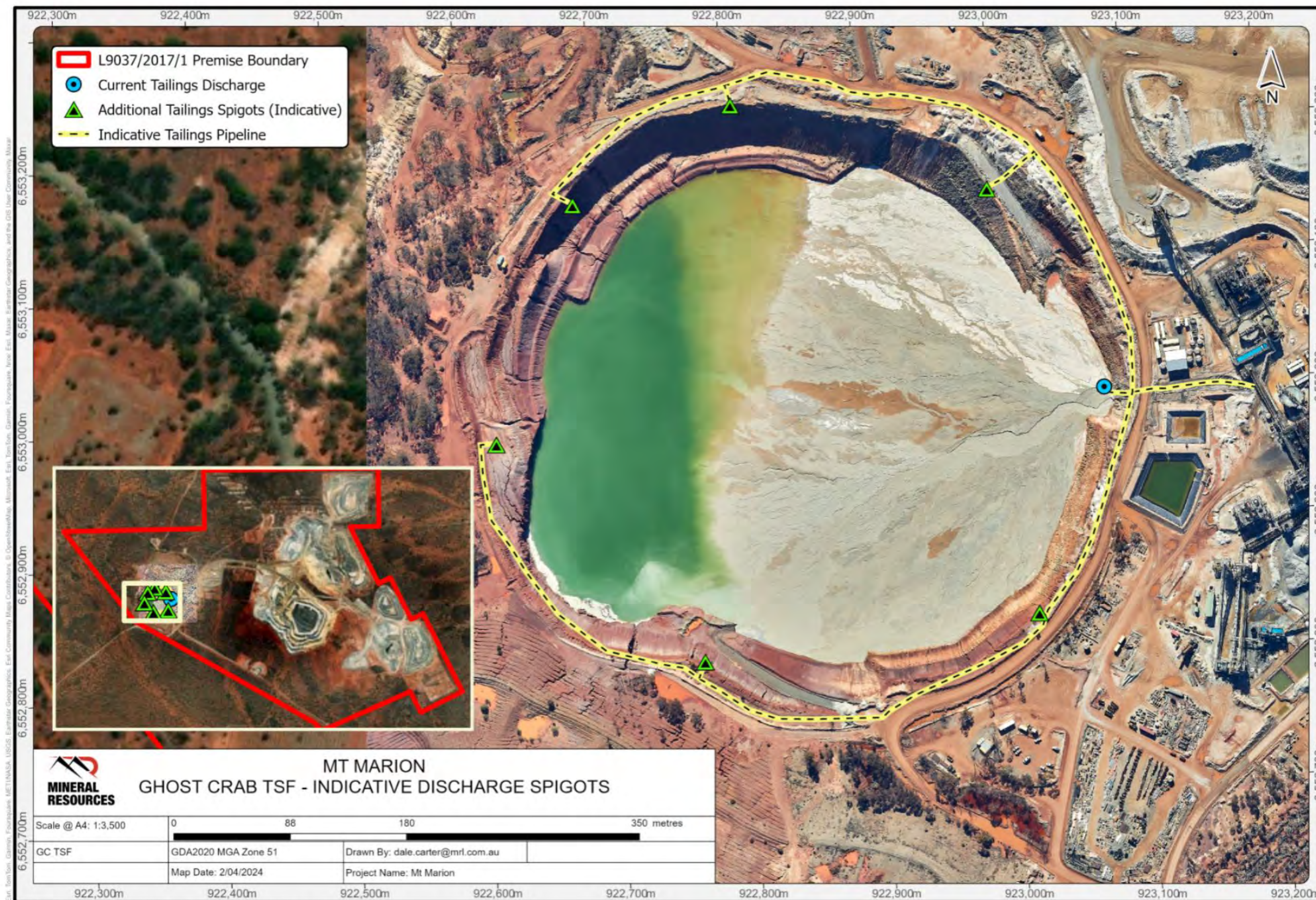


Figure 8: Example Optimised Scenario - Seven Spigots North Ghost Crab TSF





Path: P:\02\_GIS\_Jobs\P001-P500\P0466\Projects\Mt Marion\_Dale Working.aprx

Figure 9: Indicative Ghost Crab In-Pit TSF Spigot Arrangement



#### **4.1.3 Category 73 – Increase Diesel Storage Capacity from 854 kL to 884 kL**

An application to amend L9037/2017/1, submitted 8 June 2023 requested an increase to the existing capacity from 554 kL up to 884 kL of diesel storage, with the inclusion of an additional three x 110,000 L diesel tanks. This was acknowledged as part of the assessment process however was not included in the drafting of the licence, appearing to be omitted as a typographical error. In contrast, Table 2 of the updated licence reflects the accurate quantity of storage.

The final licence amended, issued 19 December 2023 listed the assessed production capacity for Category 73 Diesel storage as 854 kL, 30 kL below what was requested. MinRes is therefore requesting that the Licence is amended to reflect 884 kL in this amendment.



## 4.2 Project Construction and Commissioning

Stage Two and Three of the Mt Marion village WWTP were constructed in the location illustrated in Figure 3, with an as-built general arrangement provided in Figure 4. To accommodate the additional 80 m<sup>3</sup>/day throughput (increase from 90 m<sup>3</sup>/day to 170 m<sup>3</sup>/day) the spray field was increased from 3.5 ha to 6.64 ha (within a 7 ha fenced paddock), with the as-built spray field arrangement provided in Figure 5. The spray field construction was originally segregated to receive treated effluent from specific WWTP units (Stage 1- 3). This will eventually be comingled to have a single effluent discharge, to allow adequate rotation of sprinklers and reduce the risk of ponding.

Stage Two and Three commissioning for the Mt Marion WWTP occurred within the dates presented in Table 6. Commissioning was carried out by a Tristar specialist engineer, to ensure each WWTP unit was correctly installed, free of defects and operated as per the specifications, design requirements and regulatory conditions.

Compliance certification was provided by Tristar, certifying that the facilities were constructed in accordance with specification. These were provided with the Stage 2 & 3 compliance reports (Appendix A & Appendix B).

Table 6: WWTP Stage 2 & 3 Commissioning Timeframe

	WWTP Stage 2	WWTP Stage 3
Commissioning Commenced	6 May 2023	25 October 2023
Commissioning Completed	26 August 2023	24 December 2024

### 4.2.1 WWTP Stage 2

Weekly treated effluent analysis was undertaken during commissioning, with the results displayed in Table 7.

Where parameters were reported above the manufacturers design specifications, Tristar (installer) continued to integrate unit improvements to return wastewater quality to the design specification. Weekly monitoring continues to provide data to optimise the plant to the required specifications.

Post commissioning data below demonstrates that the WWTP unit is mostly operating within design parameters.

Table 7: WWTP Stage 2 Treated Effluent Quality

Parameters	BOD	Total Suspended Solids	Total Nitrogen	Total Phosphorus	Thermo-tolerant Coliforms (E.Coli)
Limit	<30 mg/L	<40 mg/L	<50 mg/L	<12 mg/L	<1000 cfu/100ml
5/05/2023	92	410	33	17	55000
09/05/2023	20	33	15	19	80
17/05/2023	100	270	28	22	5600
24/05/2023	47	20	14	18	150000
31/05/2023	<5.0	30	11	13	<10
7/06/2023	9.1	160	12	21	310
14/06/2023	12	13	17	16	100
22/06/2023	<5.0	73	21	20	<10
28/06/2023	<5.0	20	9.7	14	<10
5/07/2023	<5.0	22	9.4	17	10
12/07/2023	41	460	33	22	<10

Parameters	BOD	Total Suspended Solids	Total Nitrogen	Total Phosphorus	Thermo-tolerant Coliforms (E.Coli)
19/07/2023	6.7	51	6	14	20
8/08/2023	60	380	12	18	10
15/08/2023	12	20	4.4	13	<10
22/08/2023	51	38	17	18	<10
29/08/2023	28	120	16	21	<10
5/09/2023	80	34	29	22	<10
Post Commissioning – TLO Results					
31/10/2023	91	5.5	6	8.9	<10 [1]
7/11/2023	77.0	8.5	7.6	10.0	<10
14/11/2023	<5	8.0	11.0	11.0	<10
21/11/2023	6.8	15.0	8.0	11.0	<10
28/11/2023	12.0	<5	7.9	12.0	<10
5/12/2023	23	8.5	8	12	<10
11/12/2023	10	22	9.6	13	<1
18/12/2023	12	24	7.5	12	<10

### 4.2.2 WWTP Stage 3

Stage Three WWTP commissioning occurred within the dates listed in Table 8. While initial testing revealed some initial variances, particularly with Biological Oxygen Demand (BOD), results have consistently remained within compliant parameter limits since week four.

Table 8: WWTP Stage 3 Treated Effluent Quality

Parameters	BOD	Total Suspended Solids	Total Nitrogen	Total Phosphorus	pH	Thermo-tolerant Coliforms (E.Coli)
Limit	<20 mg/L	<30 mg/L	<50 mg/L	<12 mg/L	6.5 – 8.5	<1000 cfu/100ml
31/10/2023	250	98	63	13	8.1	<10 [1]
7/11/2023	80.0	8.5	53.0	12.0	8.0	<10
14/11/2023	86	12.0	7.9	13	7.7	<10
21/11/2023	<5	12.0	7.3	11.0	8.1	<10
28/11/2023	9.7	10.0	15.0	12.0	7.9	<10
5/12/2023	15	5	22	12	7.7	<10
11/12/2023	9	8.5	29	11	7.5	<10
18/12/2023	<5	16	8.2	2.3	8	190

### 4.2.3 Irrigation Spray field

The existing spray field has been extended to a 7 ha fenced area, with a spray field footprint of 6.64 ha (Figure 5). This increased area is more than adequate to contain the expected loading rates shown in Table 9.

Table 9: Sprayfield Discharge Loading Rates

Parameter	Discharge Rate	Expected Quality (mg/L)	Kg per year	Kg/ha/year
Phosphorus	170kL/day	8	496	75
Nitrogen		80	1,241	187



### 4.3 Condition and Infrastructure Amendment

The current listed infrastructure and equipment and operational requirements (Table 2 of the Licence), along with the proposed changes of this application, are outlined in Table 10 below.

Table 10: Infrastructure and Equipment requirements

Site infrastructure and equipment	Operational requirement	Proposed Amendment
<b>Ore Processing Infrastructure</b>		
<p><b>Crushing circuits:</b> Primary, secondary and tertiary crusher, screens, conveyors, product stackers</p> <p><b>Beneficiation Plant:</b> Process and raw water tanks, Wet screening and sizing circuit, Dense Media Separation (DMS) plant including fines treatment, Dense media regrind circuit, Classification cyclone and classifiers, Flotation circuit, Thickeners</p>	<ol style="list-style-type: none"> <li>1. Dust suppression systems must be used during operation.</li> <li>2. Dust suppression systems including water sprays fitted to conveyors, head chutes and stackers must be kept maintained.</li> <li>3. Drive in sumps maintained to capture sediment in stormwater runoff.</li> <li>4. All pipelines containing environmentally hazardous materials are provided with secondary containment adequate to contain any spill for a period equal to the time between routine inspections.</li> </ol>	-
<p><b>Tailings storage facility(tailings):</b> Ghost Crab in-pit TSF</p>	<ol style="list-style-type: none"> <li>5. The tailings level must not exceed RL 374, (below ~ 6 m from lowest point of pit crest)</li> </ol>	<p><b>Site Infrastructure and Equipment</b></p> <p>Tailings Discharge to Ghost Crab to be via multiple spigots, which will be rotated to achieve an even rate of tailings rise within the facility.</p> <p>All piping will be constructed in accordance with AS/NZS 2033:2008 "Installation of polyethylene pipe systems" and contained within appropriate sized bunding to contain any potential spills.</p> <p><b>Operational Requirement</b></p> <ol style="list-style-type: none"> <li>5. No Change</li> </ol>
<p><b>Tailings storage (coarse reject material):</b> Waste rock landforms</p>	<ol style="list-style-type: none"> <li>6. Waste rock landforms containing coarse reject tailings must have drainage capable of containing any run-off or stormwater originating from the landform surface.</li> </ol>	-
<p><b>Ore sorting infrastructure</b> Used in conjunction with mobile crushing plants.</p>	<ol style="list-style-type: none"> <li>7. Dust suppression systems must be used during operation.</li> <li>8. Dust suppression systems including water sprays fitted to conveyors, head chutes and stackers must be kept maintained.</li> </ol>	-
<b>Categories 5, 6 and 85B water management infrastructure</b>		
<p><b>Turkey's Nests</b> (Processing and dewatering)</p>	<ol style="list-style-type: none"> <li>9. Lined with HDPE; and</li> <li>10. 300 mm freeboard to be maintained.</li> </ol>	-



Site infrastructure and equipment	Operational requirement	Proposed Amendment
<p><b>Pipelines:</b> Including tailings, tailings return, dewatering and RO brine pipelines</p>	<p>11. Must be positioned in v-drains with sufficient capacity to contain any spill for a period equal to the time between routine inspections.</p> <p>12. Must be inspected daily.</p> <p>13. Isolation valves, telemetry and flow metres are to be maintained to manufacturers specifications</p>	-
<p>Northern Pit 1, Northern Pit 2 Central C01 Pit;</p>	<p>14. A minimum vertical freeboard of 6 meters must be maintained below the lowest crest level at all times.</p>	-
<b>Categories 5 and 12 Crushing and screening infrastructure</b>		
<p><b>Mobile crushing plants</b> Category 5</p>	<p>15. Bunds maintained around the screening plant and product stockpile area</p> <p>16. Shields and covers on transfer points to be kept maintained.</p>	-
<p><b>Mobile crushing plants</b> Category 12</p>		-
<b>Category 57 Used tyre management</b>		
<p><b>Used tyre storage</b></p>	<p>17. Maximum of 1,000 tyres stored across the premises.</p> <p>18. Stored at two waste disposal facilities and at workshops.</p>	-
<b>Category 64 landfill infrastructure and management</b>		
<p><b>Class II putrescible landfill</b></p>	<p>19. Landfill trenches to be located on waste rock landforms within the Waste Rock Landform boundary seen in Figure 1.</p> <p>20. No more than two landfill trenches are to be open on the waste rock landform at any one time.</p> <p>21. Tip face to not exceed 30 m in length.</p> <p>22. Landfill trench not to exceed 2 metres in depth, and</p> <p>23. Tipping area(s) to be covered each week with a dense (at least 200 mm) layer of inert and incombustible material.</p> <p>24. Signage to be maintained so as to be legible.</p> <p>25. Inspected weekly to ensure correct wastes are being disposed of and that trenchers are being covered weekly</p> <p>26. Waste that has been washed or blown away from the tipping area is to be return to the tipping area at least one in each month.</p>	-
<b>Category 73</b>		

Site infrastructure and equipment	Operational requirement	Proposed Amendment
Fuel supply: 3 x 57,000 L diesel tanks, 1 x 53,000 L, and 6 x 110,000 L tanks. LNG: 8 x 60,000L tanks	27. None specified	-
<b>Category 85 wastewater treatment infrastructure and management</b>		
<b>Wastewater treatment plants</b> Submerged aerated filter WWTP capacity 70 m <sup>3</sup> /day Sequence Batch Reactor WWTP capacity 20 m <sup>3</sup> /day Irrigation field	28. Tank bunding to be maintained so as to contain volume of 110% of the largest tank. 29. Treated effluent is to be discharged via irrigation to the 3.5 ha irrigation field indicated in Schedule 1, Figure 1 30. Sprinklers in the irrigation field are to be maintained and operated such that the effluent does not pond or runoff from the irrigation field.	<b>Infrastructure and Equipment</b> <ul style="list-style-type: none"> <li>Replace Category 85 with Category 54.</li> <li>Remove Sequence Batch Reactor WWTP capacity 20 m<sup>3</sup>/day</li> <li>Include 2 x Sequence Batch Reactor WWTP capacity 50 m<sup>3</sup>/day</li> </ul> <b>Operational Requirement</b> <p>28. No Change</p> <p>29. Treated effluent is to be discharged via irrigation to the 6.64 ha irrigation field indicated in Schedule 1, Figure 1 of L9037.</p> <p>30. No Change</p>
<b>Category 85B Reverse osmosis water treatment infrastructure</b>		
Reverse Osmosis Plant	31. None specified	-
<b>Other Activities:</b>		
Biofarm (bioremediation pad) within Ghost Crab waste rock landform Workers' accommodation camp Motor Control Centres within Processing Plant Control rooms/ administration offices/ workshops Final product stockyard, weighbridge	32. None specified	-

Note: - indicates that no changes are proposed



## 4.4 Other Inputs – Not Prescribed Activities

There are no non-prescribed activities to declare as part of this LAA.

## 4.5 Emission and Discharge Types

Authorised emissions in the form of approved waste types are outlined in Table 4: Authorised Discharge Points, of L9037. No additional waste types or emissions are proposed or expected as part of this LAA.

A comparison of proposed waste types and emissions to those existing within the current licence is included in Table 11 below.

Table 11: Authorised Discharge Points from L9037

Emission	Discharge Point	Discharge Point Location	Proposed Amendment
Tailings (with the exception of coarse reject material)	Ghost Crab Pit in-pit TSF	As shown in Schedule 1: Figure 1	Multiple spigot arrangement proposed – see Section 4.1.2
Coarse reject (tailings) materials	Discharge to Waste rock landforms, Or Use for construction purposes only within operational pit areas or within the processing plant footprint.	As shown in Schedule 1, figure 1: Waste Rock Landforms 1 – 5 Northern Pits 1 and 2 Central Pit (C01) Beneficiation plant	-
Treated Effluent from WWTPs	Irrigation Sprayfield	As shown in Schedule 1: Figure 1	Increase in throughput and spray field size – see Section 4.1
Class II waste (putrescible and inert)	Trenches within the Landfill & biofarm (Ghost Crab WRL) and Waste Rock Landform 2 and Landfill	As shown in Schedule 1: Figure 1	-
Used tyres and rubber	Waste rock landforms 1 -5 Ghost Crab Pit Northern Waste Rock Landform. Ghost Crab Southern Waste Rock Landform	As shown in Schedule 1: Figure 1	-
Dewatering Water	Pits: Northern Pit 1, Northern Pit 2 and Central C01 Pit; Ghost Crab in- Pit TSF; and dust suppression within operational areas of process plant and mines.	As shown in Schedule 1: Figure 1 and 4	-
RO Brine	Ghost Crab Pit in-pit TSF; and Pits: Northern Pit 1, Northern Pit 2 and Central C01 Pit RO Brine is not to be used for dust suppression	As shown in Schedule 1: Figure 1	-

Note: - indicates that no changes are proposed

The relevant controls for potential emissions and discharges, as a result of the multiple spigot locations for the tailings deposition are provided in

Table 12, below. As the controls for the management of potential discharges for the WWTP expansion were included as part of the 2022 relevant works approval application for W6744, they remain unchanged and therefore have not been included below.

For completeness, all controls related to this licence amendment application have been included as part of the Risk Assessment, in Section 8.



Table 12: Summary of Emissions and Discharges

Source / Activities	Potential Emission	Volume and Frequency	Applicant Controls
<b>Category 5 – Tailings Discharge</b>			
Discharge of tailings via multiple spigots to the existing Ghost Crab In-Pit TSF	Tailings Discharge to the Environment	Approximately 850,000 tonnes/annum	<ul style="list-style-type: none"> <li>All piping will be constructed in accordance with AS/NZS 2033:2008 "Installation of polyethylene pipe systems".</li> <li>Tailings pipeline will be contained within appropriately sized bunds, with any potential leaks contained or diverted into the Ghost Crab TSF.</li> <li>Pipelines will be inspected daily.</li> <li>Isolation valves, telemetry and flow metres are to be maintained to manufacturers specifications.</li> </ul>

## **5. INDEX OF SURVEYS FOR ASSESSMENT**

No new supporting surveys have been submitted as part of this LAA, due to the requested amendments being either administrative or previously assessed as part of the Works Approval Application for W6744.

## 6. STAKEHOLDER ENGAGEMENT

### 6.1 Stakeholder Engagement

MinRes recognises the value of building positive relationships with key stakeholders and the communities in which it is active. A Stakeholder Engagement Plan is developed and implemented for each project undertaken by MinRes. Stakeholder engagement is ongoing and part of the larger Project. The key stakeholders identified as relevant to this project is outlined in Table 13.

Table 13: Stakeholders for the Project

<b>Stakeholder</b>
<b><i>Australian Government Agencies</i></b>
Department of Agriculture Water and the Environment
<b><i>Western Australian Government Agencies</i></b>
Department Biodiversity, Conservation and Attractions
Department of Mines, Industry Regulation and Safety
Department of Planning, Lands and Heritage
Department of the Premier and Cabinet (Minister for Water and Environment)
Department of Water and Environmental Regulation
Department of Water and Environmental Regulation – Environmental Protection Authority Services
Environmental Protection Authority
<b><i>Local Government Agencies</i></b>
Shire of Coolgardie
<b><i>Traditional Owners</i></b>
Marlinyu Ghoorlie Aboriginal People
<b><i>Pastoralists</i></b>
Woolibar Station

### 6.2 Stakeholder Engagement Process

MinRes' objective for stakeholder consultation in relation to its operations is to ensure that all identified stakeholders, who may be affected by implementation of our projects have been appropriately consulted, and that their input has been considered with respect to key operational aspects.

MinRes has established a presence within the communities surrounding our Mt Marion operation through various community investment and engagement initiatives. MinRes recognises that effective stakeholder consultation is an integral component of its planning, assessment, and development processes to support the Company's various ongoing operations through to mine closure. Recognising the importance of stakeholder engagement, MinRes has a dedicated Communities and Stakeholder Engagement team that facilitates the Company's engagement with local communities, pastoralists, private landowners, Traditional Owner groups and local government as part of tenement applications, regulatory approval processes and ongoing operations.

In addition to formal stakeholder engagement forums (via media such as meetings, telephone calls and/or written correspondence), MinRes has developed a Stakeholder Engagement Management Plan to assist with guiding effective engagement with local communities, government and other key stakeholders on environmental, land access, heritage and community matters during all phases of the Company's operations.



### 6.3 Stakeholder Consultation to Date

A targeted stakeholder engagement consultation approach is undertaken by MinRes, involving meetings and telephone calls with stakeholders. The outcomes of these discussions are summarised in Table 14.

Table 14: Stakeholder Engagement Summary

Date	Stakeholder	Description of Engagement	Stakeholder comments/Issues	Proponent Response and/or Resolution	Stakeholder Response
November 2017	Shire of Coolgardie	Preliminary scoping meeting	No issues raised.	N/A	N/A
December 2018	DEMIRS and Shire of Coolgardie	Preliminary scoping meeting	No issues raised.	N/A	N/A
April 2019	DEMIRS	Phone and email correspondence regarding approach to Mining Proposal and Mine Closure Plan.	No issues raised.	N/A	N/A
May 2019	Shire of Coolgardie	Meeting to discuss Development Application.	No issues raised.	N/A	N/A
June 2019	Shire of Coolgardie	Council briefing for upcoming Development Application.	No issues raised.	N/A	N/A
17 March 2021	Shire of Coolgardie	Introduction and general update meeting.	Introduced Dan Barker and discussed more regular, ongoing communication between both parties.	MinRes to prepare a project overview/map of projects for their information.	Shire remains highly supportive of our operations and is keen to stay better informed.
22 March 2021	Shire of Coolgardie (SoC)	General Update on MinRes projects and opportunity to raise any issues.	James (SoC) flagged a keen desire to support our projects but to be transparent and keep them informed.	No actions required.	No issues, positive meeting.
14 June 2021	Marlinyu Ghoorlie	Discuss native title agreement and heritage.	No issues raised.	No actions required.	N/A
15 June 2021	Marlinyu Ghoorlie	Business development opportunities.	No issues raised.	No actions required.	N/A
23 June 2021	Goldfields-Esperance Development Commission	Update on projects and planned support of Goldfields Aboriginal Business Chamber.	No issues raised.	No actions required.	N/A

Date	Stakeholder	Description of Engagement	Stakeholder comments/Issues	Proponent Response and/or Resolution	Stakeholder Response
23 June 2021	Wheatbelt Development Commission (WDC)	Update on operations.	A possible 'native seed harvesting' program to help bolster the availability of seedlings to meet the future needs of mining rehabilitation.	WDC main focus is on agriculture.	N/A
29 June 2021	Marlinyu Ghoorlie	Business development opportunities.	No issues raised.	Understanding business capabilities of the MG.	N/A
10 August 2021	Marlinyu Ghoorlie	Rehabilitation and seed collection business discussions with Olive Branch (MG business) and Red Dirt Seeds and West Coast Civil.	No issues raised.	Arranging JV set up and requirements to capture business critical rehab work through Indigenous business.	N/A
02 September 2021	Shire of Coolgardie	Discussed community partnership framework.	No issues raised.	N/A	N/A
25 October 2021	Marlinyu Ghoorlie	Negotiations toward a comprehensive native title and heritage agreement (claim wide).	Issues surrounding legacy agreements were raised.	No actions required.	N/A
4 November 2021	DEMIRS	To provide an update to DEMIRS of Mt Marion operations and inform DEMIRS of the upcoming Mine Proposal and Mine Closure Plan submissions to align the site with new (2020) regulatory guidelines.	No issues raised.	Mine Proposal and Mine Closure Plan submission scheduled for the 30 <sup>th</sup> of November 2021.	N/A
24 November 2021	DWER – Industry Regulation	Email to Kerri Wilkes, highlighted suggested changes to Part V Licence L9037/2017/1, and if a meeting is required or to just submit licence amendment application.	None raised as at 25/11/21.	Stakeholder sufficiently updated.	N/A



Date	Stakeholder	Description of Engagement	Stakeholder comments/Issues	Proponent Response and/or Resolution	Stakeholder Response
25 November 2021	St Ives	Mt Marion Lithium Project Update. MinRes provided a letter to St Ives providing an update in regard to the submission of a new MP and MCP for Mt Marion.	None raised as at 25/11/21.	Stakeholder sufficiently updated.	N/A
25 November 2021	Northern Star	Mt Marion Lithium Project Update. MinRes provided a letter to Northern Star providing an update in regard to the submission of a new MP and MCP for Mt Marion.	None raised as at 25/11/21.	Stakeholder sufficiently updated.	N/A
26 November 2021	Shire of Coolgardie	Presented proposal of MP and MCP. Shire appreciated the consultation and said any permits or approvals required by the Shire would be given priority.	No issues raised.	Stakeholder sufficiently updated.	Shire appreciated the consultation and said any permits or approvals required by the Shire would be given priority.
08 December 2021	Community Members DBCA Yilgarn Shire WA Salt Toodyay Naturalists Club	Brief update on Mt Marion mentioned during the Yilgarn Community Consultation Group meeting.	No issues raised.	Stakeholder sufficiently updated.	N/A
25 February 2022	Marilinyu Ghoorlie	Negotiation meeting with MG in Kalgoorlie.	No issues raised.	Positive meeting with a few small items to follow up on.	N/A
02 March 2022	Shire of Coolgardie	Meeting at Kambalda Minerals Forum. Updated on all projects and timelines.	No issues raised.	Positive meeting	N/A
08 March 2022	Goldfields Aboriginal Business Chamber	Mentor session run with new Executive Manager of GABC.	No issues raised.	Stakeholder sufficiently updated.	N/A
17 March 2022	Marilinyu Ghoorlie – Olive Branch Enterprises	Discussion to progress cultural awareness training and labour hire opportunities.	No issues raised.	Stakeholder sufficiently updated.	N/A



Date	Stakeholder	Description of Engagement	Stakeholder comments/Issues	Proponent Response and/or Resolution	Stakeholder Response
April 2022	DWER – Industry Regulation	Clarify future approvals required for upgrades to operations	No issues raised.	MinRes to provide information for DWER to review and decide on approval process – Complete Apr 22	N/A
April 2022	DEMIRS	Mining Proposal – Discuss information requests in RFI received from DEMIRS in April 2022	No issues raised.	Meeting held RFI supporting. Information sent to DEMIRS via EARS on 9 May 2022	N/A
May 2022	DWER – Industry Regulation	Discussed future changes and final designs to determine if this information can be incorporated into the current DWER licence amendment or require a separate Works Approval	No issues raised.	MinRes to provide information to add to licence amendment – Complete June 22 DWER will commence LAA review once additional info are received – Complete July 2022	N/A
May 2022	DEMIRS	Mining Proposal – Discuss information requests in second RFI received from DEMIRS in May 2022	No issues raised.	Meeting held RFI supporting. Information sent to DEMIRS via EARS July 2022	N/A
June 2022	DWER – Industry Regulation	MinRes provided DWER information for changes for increased throughput in Wastewater Treatment Plant to be included in licence amendment	No issues raised.	MinRes to provide information to add to licence amendment – Complete July 22	N/A
June 2022	DWER – Industry Regulation	DWER issued draft licence for feedback	N/A	MinRes to provide feedback on draft licence conditions – Complete 1 July 22	N/A
July 2022	DWER – Industry Regulation	DWER issued licence to MinRes	N/A	MinRes to implement licence after public appeal period – Complete 26 July 22	N/A
August 2022	DWER – Industry Regulation	MinRes submitted native vegetation clearing approval for Exploration	N/A	DWER assessment in progress,	N/A

Date	Stakeholder	Description of Engagement	Stakeholder comments/Issues	Proponent Response and/or Resolution	Stakeholder Response
		North Hamptons CPS 9866 26/8/22		anticipated approval July 2023	
August 2022	DEMIRS	Mining Proposal approved 2 Aug 22	N/A	MinRes to implement MP	N/A
19 October 2022	DPLH	Request for information related to historic s 18s lodged over the mine	No issues raised.	N/A	N/A
October 2022	DWER – Industry Regulation	MinRes submitted works approval for Wastewater Treatment Plant increase throughput and change of Prescribed category	No issues raised.	DWER commenced review of application Oct 22	N/A
November 2022	DWER – Industry Regulation	DWER sent MinRes an RFI for Wastewater Treatment Plant works approval application. DWER approved clearing permit CPS 9518 15 Nov 22 MinRes submitted a clearing permit for road widening of the main entrance. MinRes submitted Clearing permit amendment for road widening of main entrance – CPS 8632.	No issues raised.	MinRes to submit information requested – Completed Dec 22 DWER advised of recommencement of review 1 Dec 22 MinRes to comply with permit conditions	N/A
November 2022	DEMIRS	Engage and provide an update for relevant approvals.	No issues raised.	MP amendment to be submitted 2023	N/A
November 2022	DEMIRS	Mining Proposal – Submission – Increased Footprints of Waste Rock Landforms, Pit Expansions	N/A	MP amendment to be submitted 2023	N/A
22 November 2022	City of Kalgoorlie Boulder	Provided an update on MinRes operations in the Goldfields area, noting there are no	No issues raised. No actions to follow up.	Agreed to meet annually to provide high level updates unless otherwise required. Next	Update was well received and appreciated.



Date	Stakeholder	Description of Engagement	Stakeholder comments/Issues	Proponent Response and/or Resolution	Stakeholder Response
		<p>current operations with the City's local government boundary.</p> <p>Discussed social challenges across housing and skills shortages in Kalgoorlie-Boulder and outlined MinRes commitment to supporting social investment through our investments in the Goldfields Women's Refuge, Goldfields Aboriginal Business Chamber, and our community grants program.</p>		meeting scheduled in August 2023.	
December 2022	DWER – Industry Regulation	Licence Amendment – Submission – Increase Production Capacity to 4Mtpa.	N/A	Licence amendment submitted June 2023, expected approval July 2023.	N/A
1 December 2022	DWER – Industry Regulation	Groundwater Licence Application Section 26D submitted to authorise taking of groundwater for hydro investigation and sampling purposes	N/A	Ongoing – expected submission 2023	N/A
January 2023	DWER – Industry Regulation	<p>Expected Works – Road entrance to Mt Marion – Held up by an amendment to a clearing permit CPS 8632.</p> <p>Ongoing consultation with DWER.</p> <p>Amendment to CPS 8632/2017, resubmitted to DWER 13/12/2022, DWER issued approval however an appeal was lodged May 2023. The NVCP is now being assessed by the Appeals</p>	N/A	Ongoing – expected approval Aug 23	N/A

Date	Stakeholder	Description of Engagement	Stakeholder comments/Issues	Proponent Response and/or Resolution	Stakeholder Response
01-February-2023	Marilynyu Ghoorlie	Convenor with anticipated approval 08/23. Discuss upcoming Heritage surveys	MinRes to send Heritage survey trips to Terra Rosa Consulting	James was appreciative of the update, and remains highly supportive of our operations, and use of Shire infrastructure including his camp accommodation and airstrip.	N/A
27-February-2023	Shire of Coolgardie	MinRes provided a high-level update on our ongoing expansion of the Mt Marion mining operation, as well as possible areas of further development in the region.	No issues raised	MinRes acknowledged for their contribution to the project and support of the team.	N/A
10-March-2023	Goldfield Women's Refuge	Launch of the Hope Project, supporting the Kalgoorlie and Coolgardie region, of which MinRes is a major sponsor and contributor.	No issues raised	Follow-up email with revised application form	N/A
30-March-2023	Coolgardie Junior Volunteer Fire Brigade	Engagement visits with previous Community Grant recipients	Applications opening for the April round. Encouraged to apply for April round for enable MinRes logo inclusion in annual Comp shirts	Follow-up email with revised application form	
30-March-2023	Kambalda Men's Shed	Engagement visits with previous Community Grant recipients	Applications opening for the April round. Encouraged to apply for April round for enable MinRes logo inclusion in annual Comp shirts	N/A	Positive
30-March-2023	Shire of Coolgardie – Coolgardie Day	Engagement visits with previous community partners	Request for additional volunteers to assist with parade set-up, potential mining equipment to be used in the show, stall requirements and merch orders	N/A	Positive



Date	Stakeholder	Description of Engagement	Stakeholder comments/Issues	Proponent Response and/or Resolution	Stakeholder Response
13-April-2023	CME Goldfields Regional Council	Broad and general discussion on a range of issues facing the industry across the Goldfields region including housing and workforce constraints, and changes to state and federal legislation including workplace safety and training.	WA Police presented a summary of recent cases of theft on mine sites and provided industry members with advice on how to prevent/mitigate future instances.	N/A	Positive
02-June-2023	Marilinyu Ghoorlie	Engagement providing a summary of all MinRes operations in the Goldfields and Yilgam region, including the scope of the DWER Licence amendment and MP submission in 2023.	Positive	Provide copy of applications prior to submission of applications.	N/A
06-June-2023	DWER – Industry Regulation	Engage and provide an update on scope of Licence Amendment.	Officer provided general advice on upcoming approval.	Submission of approval in June 2023.	Received approval and approval in progress.
28-June-2023	DEMIRS	Engage and provide an update on scope of MP.	Officer provided general advice on upcoming approval and future underground approvals	Submission of approval in July 2023.	N/A
12-July-2023	DWER – Native Clearing branch	Engage, request general advice, and provide an update on scope of future clearing permits in Hamptons area.	DWER provided general advice on upcoming approval	Submission of approval in August – Dec 2023.	N/A
14-July-2023	DEMIRS – Native Clearing branch	Engage, request general advice, and provide an update on scope of future clearing permits for both Mt Marion and Wodgina sites	DWER provided general advice on upcoming approvals	Submission of approval in August – Dec 2023.	N/A
02-November 2023	DEMIRS	Update on activities at Mt Marion, including	DEMIRS discussed preferred approvals	MinRes submitted Mining Proposal with required	Mining Proposal submitted and

Date	Stakeholder	Description of Engagement	Stakeholder comments/Issues	Proponent Response and/or Resolution	Stakeholder Response
		proposed underground mining	approach, including key factors to address	information requested by DEMIRS	approved (Reg ID 121578)
21- November-2023	DEMIRS	Meeting to discuss RFI on Mining Proposal Reg ID 120019	Discussed aligning Mining Proposal with L9037	Ongoing licence applications will align with Mining Proposal, and visa versa	N/A
12- December 2023	Shire of Coolgardie	Hosted an industry workshop on behalf of the Shire to explore opportunities for investing in Coolgardie and Kambalda	The Shire were highly appreciative of MinRes support in helping drive further investment in their communities	MinRes reiterated our commitment to reinvesting in the Coolgardie community with direction from the Shire	N/A
20- December-2023	DWER – Industry Regulation	Approval of L9037/2017/1	DWER provided revised licence	N/A	N/A
06- February 2023	Shire of Coolgardie	Updated Mine Plan Presentation	No issues raised	N/A	N/A
21- February 2024	Woolibar Pastoral Station	Update on water investigation and Heritage Surveys at Mt Marion	Requested details on proposed disturbance and timing of surveys.	MinRes provided dimensions and amount of hydro drill pads and dates/ area of heritage surveys.	N/A
27- March 2024	Marilinyu Ghoorlie	Update on current and proposed activities at Mt Marion	No concerns raised	N/A	N/A



## 7. ENVIRONMENTAL SITING

The Project area is located within the Goldfields region of WA between Coolgardie and Kambalda, and within the Coolgardie Botanical District of the Southwestern Interzone. The landscape in this region is gently undulating consisting of a deeply weathered surface, dry creeks, and low hills with areas of low elevation consisting of salt lakes and dunes.

The Goldfields region is characterised by hot summers and cool winters with low rainfall distributed throughout the year. Using meteorological data collected at Bureau of Meteorology (BoM) weather station at the Kalgoorlie- Boulder Airport (Site No. 12038), approximately 36 km north of the Project, January is the hottest month with a mean maximum temperature of 33.6°C. Temperatures more than 40°C can regularly be experienced during the summer months.

Regionally, the Project is positioned within the greenstone and granitic rocks of the Yilgarn Craton (Rapallo 2010b). The local geology is dominated by two rock groupings – a mafic to ultramafic flow sequence and a pegmatite granodiorite sequence. Soils across the Goldfields are old, being Pre-Cambrian or Archaean in composition, and deeply weathered. Deep weathering in the soil profile has either partially or wholly removed large volumes of rock forming minerals to solution. Once in solution, these minerals have been transported in the groundwater systems and discharged into the many salt lakes typical of the region, or redeposited.

The Project area is located within the Lake Lefroy Catchment (Lefroy Dundas Sub Area). The pre-existing surface water regime in the area is characterised by extensive paleo-alluvium and chains of playa (salt) lakes of low relief (Clarke, 1991). Lake Lefroy (approximately 20 kms south-east of the Project area) represents the ultimate receptor of surface water drainage from the project catchments and is a highly saline playa.

The topography across the project area varies between 350 and 450m AHD, with the site disturbance footprint straddling a ridge of high elevation. Runoff from the majority of the Project area flows to the southeast. The Project area is located within the Goldfields Groundwater Management Area, where the identified water resources are in shallow ephemeral lakes or unconfined aquifers and are generally saline or hypersaline.

### 7.1 Sensitive Receptors

Sensitive land uses and environmentally sensitive receptors identified near the premises are presented below. The location/s of sensitive land uses and receptors with respect to the premises is/are shown in the following figures:

- Figure 10: – Location of aboriginal heritage
- Figure 11 – Location of pastoral stations
- Figure 12 – Location of nearby water bodies and reserves

There are no sensitive land use areas within 20 km of the proposed Prescribed Premises boundary. The nearest sensitive premise is the Woolbar station, approximately 20 km to the southeast of the Premises boundary. The predominant land use in the area is for pastoral purposes (cattle grazing) and mineral exploration. Summary of environmental siting of nearby receptors is within Table 15.

Table 15: Environmental Siting of nearby sensitive landuses and receptors

Type/Classification	Description	Distance from premises	Context
<b>Residential and Sensitive Land Uses</b>			
<b>Aboriginal and other heritage sites</b>	Native Title group with interests over the Premises area	Registered heritage sites within the Premises are located more than 1.3 kms from the proposed ore sorting technology trial and infrastructure areas.	A heritage survey was undertaken in October 2009 over the Project Area and surrounds by Deep Wood Surveys (2009). One new archaeological site named 'Richmond 1' was recorded in Mining Lease 15/1000 but was considered as being of low significance (Deep Wood Surveys, 2009). Further surveys were undertaken across the Project Area in 2016 and 2017.

Type/Classification	Description	Distance from premises	Context
			<p>The locations of the Aboriginal heritage sites are displayed in Figure 10:</p> <p>Due to a number of heritage locations being identified within the project area, MinRes submitted an Aboriginal Heritage Act s18 application to the Department of Aboriginal Affairs (DAA) in November 2017 seeking to disturb a number of identified heritage locations within its operational footprint located on M15/717 and M15/1000. Following the grant of the s18 application in March 2018, MinRes engaged with the relevant stakeholders and undertook a cultural salvage of artefacts from the nominated s18 areas.</p> <p>All staff and contractors will be made aware of the heritage avoidance areas, as well as undertake cultural awareness training.</p> <p>The works associated with the installation and ongoing operation of the ore sorting technologies will not impact upon any registered or non-registered heritage sites.</p>
<b>Pastoral Lease and Stations</b>	Woollibar Pastoral Lease underlies the Premises boundary and therefore the closest pastoral lease to the premise.	Woollibar Homestead is approximately 20 km east of the premise boundary.	<p>Separation distance from the proposed Premises boundary to Woollibar Homestead is approximately 20 km and east of Goldfields Highway, south-east of Jubilee Mine (Northern Star, 2020).</p> <p>The works associated with the installation and ongoing operation of the ore sorting technologies will not impact upon the pastoral lease and stations.</p> <p>The locations of the pastoral stations are displayed in Figure 11.</p>
<b>Rural Residential Developments</b>	N/A	No rural residential developments within the Premises boundary or within proximity of the boundary.	N/A
<b>Specified Ecosystems</b>			
<b>Ecological Communities (Threatened Ecological Communities (TEC) and Priority Ecological Communities (PEC))</b>	No PECs or TECs occur within the Premises boundary.	The nearest mapped PEC is approximately 63 km to the east of the Premises boundary (MinRes, 2022)	EPBC and DBCA database searches indicate that there is no known PEC or TECs within, or in proximity to, the premise boundary. Recent surveys in Spring 2021 (Ecologia, 2022; & NVS, 2022) surrounding the premise boundary, further confirmed this.
<b>Important wetlands – Western Australia</b>	N/A	No water bodies occur within the premise boundary. The closest waterbody (Lake Lefroy) lies 20 km to the southeast from the survey area.	There are no important wetlands located within the proposed Premises boundary. The locations of wetlands in proximity to Mount Marion is displayed in Figure 12.
<b>Ramsar Sites in Western Australia</b>	N/A	N/A	No Ramsar Sites within the proposed Premises boundary or within proximity to the boundary
<b>Department of Conservation and Biodiversity (DBCAs) Legislated Lands and Waters</b>	N/A	As illustrated in Figure 12, the closest DBCA managed lands are located approximately 5 km to the west of the Premises	There are no DBCA managed lands within the study area.



Type/Classification	Description	Distance from premises	Context
		Boundary – Yallari Timber Reserve	The locations of DBCA managed lands in proximity to Mount Marion is displayed in Figure 12.
<b>Biological Component</b>			
<b>Threatened /Priority Flora</b>	No Threatened or Priority flora recorded in proximity to the site	No declared rare flora or Priority 1 Flora species have been identified within the Premises boundary during previous flora and vegetation surveys.	<p>The closest recorded Priority species (Priority 1) from the DBCA's Threatened and Priority Flora Database (MinRes, 2022) is located approximately 12km outside the premise boundary.</p> <p>Recent surveys in Spring 2021 (Ecologia, 2022; &amp; NVS, 2022) to the north and west of the premise boundary, confirmed the location of Priority species within the region. The closest Priority species recorded in these surveys included the <i>Eremophila acutifolia</i> (P3) approximately 2km north of the WWTP facility (NVS, 2022) and <i>Thryptomene planiflora</i> (P1) to the west of the tenement boundary (Ecologia, 2022).</p>
<b>Threatened / Priority Fauna</b>	Malleefowl ( <i>Leipoa ocellata</i> )	No known locations of fauna habitat or conservation significant species in close proximity to local conservation significant species.	<p>Recent surveys in Spring 2021 (Bamford, 2022); completed to the north and west of the premise boundary, confirmed the location of several conservation species within the region.</p> <p>Several Trapdoor Spider burrows and two Malleefowl mounds were recorded in Hamptons, with one of these being recent but inactive. They were located within a densely vegetated area in the southern part of Hamptons, which is considered likely to provide suitable habitat for Malleefowl. Any Malleefowl utilising habitat in the permit area are unlikely to exclusively rely on this area for all habitat resource requirements.</p> <p>No Chuditch or <i>Camponotus</i> ants (associated with the Arid Bronze Azure Butterfly) were recorded in the field (Bamford, 2022).</p>
<b>Physical Component</b>			
<b>Public Drinking Water Source Areas (PDWSA)</b>	N/A	There are no PDWSA within or near the premise boundary	N/A
<b>Surface Water Management Area</b>	N/A	There are no Surface Water Management Areas within or near the premise boundary	N/A
<b>Major watercourses / water bodies</b>	The permit area is located within the Lake Lefroy Catchment (Lefroy Dundas Sub Area) (Clarke, 1991).	<p>No major water bodies occur within the premise boundary.</p> <p>Lake Lefroy lies approximately 25 km to the southeast of the premises area, with the nearest water bodies located over 20km to the north of the premises (Lake Douglas, Lake Red and Lake Brown).</p> <p>A non-perennial minor watercourse is located</p>	<p>There are no important wetlands located within the proposed Premises boundary.</p> <p>The location of Lake Lefroy in proximity to Mount Marion is displayed in Figure 12.</p> <p>There is a non-perennial minor water course in close proximity to the site, however it is 390 m from the fuel storage area and 600 m from ore sorting technology areas. The distance is displayed in Figure 12.</p>

Type/Classification	Description	Distance from premises	Context
		approximately 600 m east of the area where the ore sorting technologies are proposed.	
<b>Groundwater</b>	Groundwater is typically 50 m below ground level.	Depth to groundwater within the Premises area ranges from 8 – 60 m BGL.	<p>Groundwater at the Mt Marion Lithium Mine is within the Goldfields Groundwater Area and includes shallow ephemeral lakes or unconfined aquifers that are saline or hypersaline.</p> <p>The site has recorded groundwater quality with a pH of 6.4 and with Total Dissolved Solids (TDS) concentrations of 30,000 milligrams per litre (mg/L) to 40,000 mg/L. Deeper regional aquifers in the area host hypersaline water quality, typically of 140,000 mg/L TDS (Aquaterra, 2008).</p> <p>Groundwater will continue to be monitored and utilised as per ongoing groundwater management in accordance with Groundwater licences GWL200665(3) &amp; GWL174427(4).</p>
<b>Acid sulphate soils</b>	N/A	There is no known occurrence of acid sulphate soil within or near the premise boundary	N/A
<b>Contaminated Sites – Reported Sites</b>	The site has received a classification of possibly contaminated – investigation required (DWER, 2021)	A notice of classification has been received within the prescribed premises boundary (mining tenement M15/717).	<p>The site formerly operated as a gold mine but is currently used for lithium mining operations. The site was reported to the DWER due to historical records relating to site infrastructure including a bio-remediation area, vehicle washdown area, fuel storage facilities, landfills and vehicle maintenance facilities.</p> <p>These are land uses and activities have the potential to cause contamination, as specified in the guideline Assessment and management of contaminated sites (DWER, 2021).</p> <p>The historical records noted visual identification of oil staining surrounding the vehicle maintenance area and the presence of landfills. Other infrastructure was also noted although supporting evidence of contamination was not provided to the department.</p> <p>A risk assessment and contamination assessment are required to be undertaken for the site for soil and groundwater, to determine the classification of the site.</p>



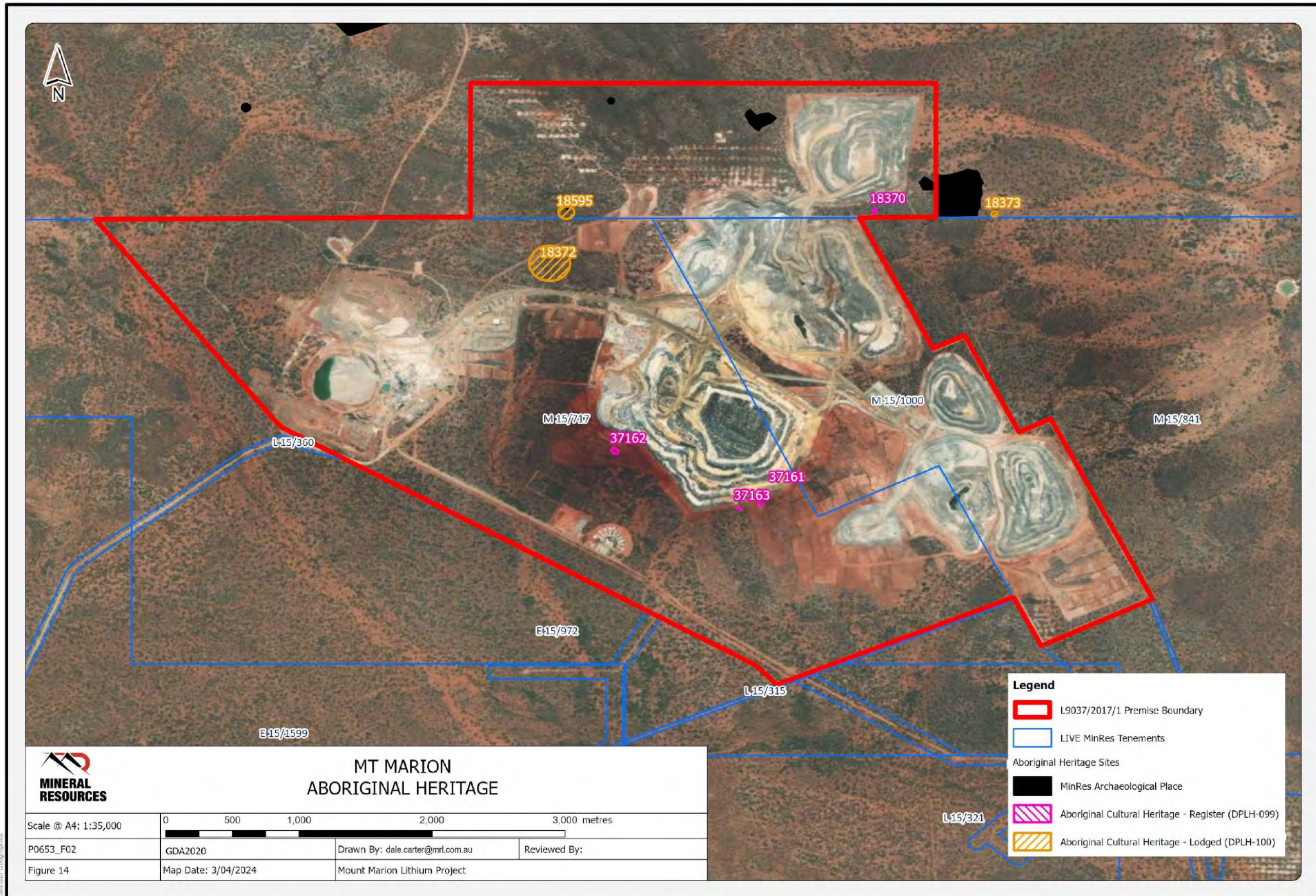
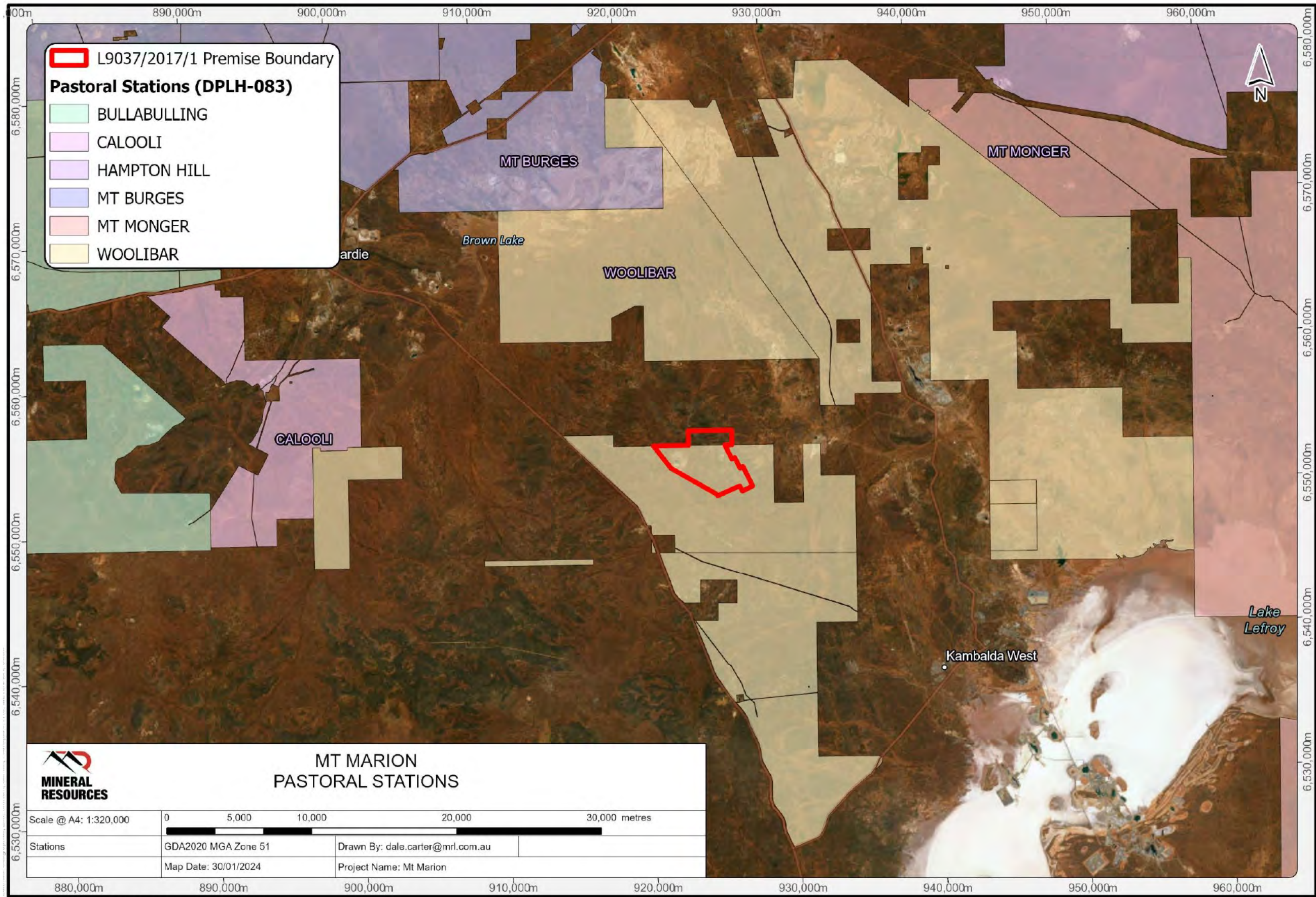


Figure 10: Location of Aboriginal Heritage

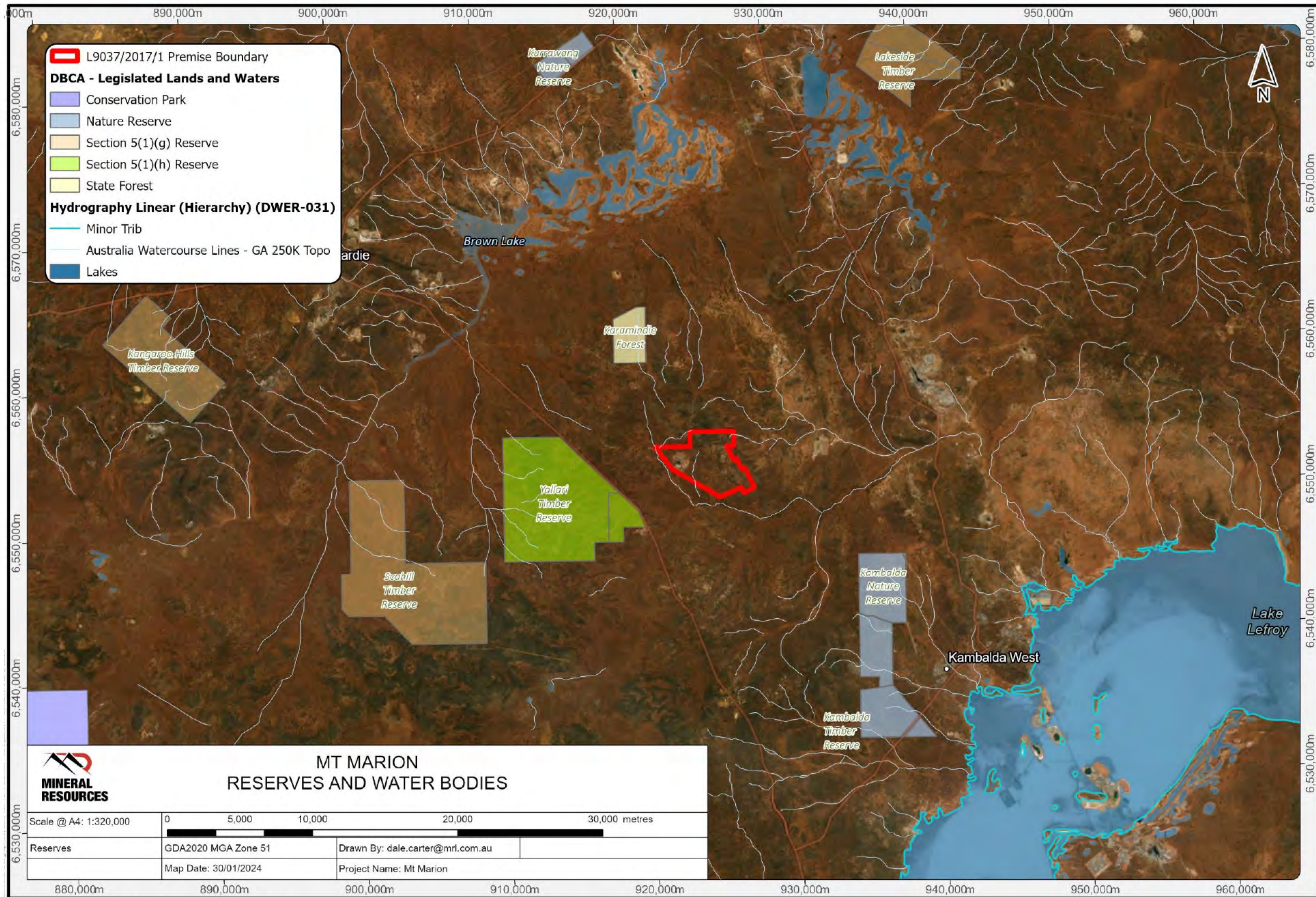




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Figure 11: Location of Pastoral Stations





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Figure 12: Location of Waterbodies and Reserves



## 8. RISK ASSESSMENT

### 8.1 Compliance and Legislation

Compliance with relevant legislation is summarised in Table 16 below.

Table 16: Compliance with Existing Legislation and Environmental Factors

Legislation	Environmental Factor	Relevant Approval/Requirement and Status of Relevant Approval
<p><b>Mining Act 1978 (WA) (Mining Act)</b> Projects involving mining, processing and associated activities that require approval and regulation under the Mining Act (WA).</p>	<p>Compliance with tenement conditions. Assessment of mining proposals and Mine Closure Plans (MCPs) (which are reviewed every three years).</p>	<ul style="list-style-type: none"> <li>MinRes are committed to continue complying with all tenement conditions for the Project.</li> <li>A site wide Mining Proposal and Mine Closure Plan associated with the activities described in this LAA will be submitted to DEMIRS</li> </ul>
<p><b>Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act)</b> Projects with the potential to have significant impacts upon Matters of National Environmental Significance require referral.</p>	<p>Assessment against Matters of National Environmental Significance (MNES).</p>	<ul style="list-style-type: none"> <li>The proposed Project does not have a significant impact on MNES and therefore is unlikely to trigger a requirement for referral under the EPBC Act.</li> </ul>
<p><b>Environmental Protection Act 1986 (WA) (EP Act)</b> Part IV: Projects with the potential to have significant impacts on the environment require referral.</p>	<p>Key environmental factors assessed via Environmental Protection Authority (EPA) assessment under Part IV:</p> <ul style="list-style-type: none"> <li>Flora and Vegetation.</li> <li>Landforms.</li> <li>Subterranean Fauna.</li> <li>Terrestrial Environmental Quality.</li> <li>Terrestrial Fauna.</li> <li>Terrestrial Environmental Quality.</li> <li>Inland Waters.</li> <li>Air Quality.</li> <li>Greenhouse Gas Emissions.</li> <li>Social Surroundings.</li> <li>Human Health.</li> <li>Benthic Communities and Habitats.</li> <li>Coastal Processes.</li> <li>Marine Environmental Quality.</li> <li>Marine Fauna.</li> </ul>	<ul style="list-style-type: none"> <li>The proposed Project does not have a significant impact on the EPA's key environmental factors and therefore is unlikely to trigger a requirement for referral under the Part IV of the EP Act.</li> </ul>
<p><b>EP Act (WA)</b> <b>Part V (Section 51): Clearing of Native Vegetation</b> Part V of the EP Act specifies that clearing of native vegetation in Western Australia needs a permit.</p>	<p>Assessment against the ten clearing principles:</p> <ul style="list-style-type: none"> <li>Biological diversity.</li> <li>Significant fauna habitat.</li> <li>Rare flora.</li> <li>Threatened ecological community.</li> <li>Remnant vegetation.</li> <li>Association with watercourse or wetland.</li> <li>Land degradation.</li> </ul>	<ul style="list-style-type: none"> <li>There is a Native Vegetation Clearing Permit (NVCP) over the prescribed premise boundary (CPS 8632/3)</li> <li>CPS 8632/3 expires on 12 January 2030 and approves the clearing of 600 ha of native vegetation on M15/717, M15/1000, M15/220, M15/360, M15/376, M15/392 Coolgardie-Esperance Highway Road reserve Karramindie and Lot 105 on Plan 40396, Karramindie.</li> </ul>



Legislation	Environmental Factor	Relevant Approval/Requirement and Status of Relevant Approval
	<ul style="list-style-type: none"> <li>• Impact on a conservation area.</li> <li>• Impact surface or underground water quality.</li> <li>• Cause or exacerbate flooding.</li> </ul>	
<p><b>EP Act (WA)</b> <b>Part V (Section 52)</b> Establishes a range of statutory instruments to permit the assessment and management of environmental outcomes arising from emissions from industry by Department of Water and Environmental Regulation (DWER).</p>	<p>A Works Approval authorises work to be undertaken on Prescribed Premises which is likely to cause, increase, alter or result in a discharge of waste, emissions or noise, odour or electromagnetic radiation to the environment.</p>	<p>The Project has a current Licence (L9037/2017/1) for:</p> <ul style="list-style-type: none"> <li>• Category 5: Processing or beneficiation of metallic or non-metallic ore</li> <li>• Category 6: Dewatering</li> <li>• Category 57: Used tyre storage.</li> <li>• Category 64: Class II putrescible landfill</li> <li>• Category 73: Bulk storage of chemicals</li> <li>• Category 85: Sewage facility</li> <li>• Category 85B: Water desalinisation plant.</li> </ul> <p>This document describes the proposed activities to support the application for a licence amendment.</p>
<p><b>Biodiversity Conservation Act 2016 (WA) (BC Act)</b> Provides protection for biodiversity, particularly threatened species and threatened ecological communities within Western Australia.</p>	<p>Threatened Flora, Fauna and Ecological Communities.</p>	<p>No flora, fauna or communities protected under the BC Act (WA) will be impacted by the LAA. Baseline studies have been completed by specialist contractors with the required licence to take flora or fauna for the purposes of biological assessment.</p>
<p><b>Aboriginal Heritage Act 1972 (WA) (AH Act)</b> The AH Act provides protection to places and objects important to Aboriginal people of Western Australia.</p>	<p>Protection of Aboriginal heritage sites and matters.</p>	<p>Appropriate buffer provided to registered sites within the prescribed premises boundary. Refer to Table 15 for further information.</p>
<p><b>Native Title Act 1993 (Cth)</b></p>	<p>Provides a national system for the recognition and protection of native title and for its co-existence with the national land management system. An Indigenous Land Use Agreements (ILUA) is a voluntary agreement between a native title group and others about the use of land and waters.</p>	<p>Native Title registration exists for the Project area for the Marlinyu Ghoorlie (WAF647\2017).</p>
<p><b>Rights in Water and Irrigation Act 1914 (WA) (RIWI Act)</b> Provides for the regulation, management, use and protection of water resources.</p>	<p>Groundwater licences are required to abstract groundwater for dewatering and water supply purposes within proclaimed groundwater areas. Water resources: The Project is located within the proclaimed Goldfields Groundwater Area.</p>	<p>There are currently licences under 5C and 26D of the RIWI Act, giving authority to take water and to construct or alter wells. The 5C licences are GWL200665 and GWL174427 (palaeochannel and combined – fracture rock west – fractured rock aquifers, respectively). The 26D licences are currently CAW203977 and CAW203978, which have been renewed in January 2023 as CAW208289(1) and CAW208291(1) (palaeochannel and combined –</p>

Legislation	Environmental Factor	Relevant Approval/Requirement and Status of Relevant Approval
		fracture rock west – fractured rock aquifers, respectively).
<p><b>Contaminated Sites Act 2003 (WA) (CS Act)</b></p> <p>Complements the EP Act and addresses contamination and legacy issues not regulated under the EP Act.</p>	Requires that known or suspected contamination is reported to DWER where the substance is present at above background concentrations in the land or waters of a site that presents or potentially presents a risk of harm to human health, the environment or any environmental value.	<p>A notice of classification of a known or suspected contaminated site given under section 15 of the CS Act has been received for the site on 20 September 2021. The site has been classified under Section 13 of the CS Act, based on information submitted to the DWER in March 2021.</p> <p>Refer to Table 15 for further details.</p>

## 8.2 DWER Guidelines

In 2015 and 2016, DWER released a series of guidelines that apply to Works Approvals, Licences and associated impact assessments. Guidelines that are of specific relevance to this Works Approval and Licence Application are listed in Table 17.

Table 17: Consideration of DWER Guidelines

Document Title	Description	Discussion
<b>Guidance: Industry Regulation Guide to Licensing (June 2019).</b>	Describes the assessment process for works approvals and licence applications.	<ul style="list-style-type: none"> <li>Reviewed as part of the application preparation process.</li> </ul>
<b>Guidance Statement: Environmental Risk Assessment Framework (February 2017).</b>	Establishes a risk assessment framework for assessment of Part V applications.	<ul style="list-style-type: none"> <li>The risk assessment framework including definitions of likelihood and consequence provided in the Guidance Statement has been utilised as an impact assessment tool for this application.</li> </ul>
<b>Guidance Statement: Environmental Siting (November 2016).</b>	Provides guidance to environmental siting to inform the risk assessment of activities carried out on the prescribed premises. Environmental siting is the consideration of a prescribed premises in relation to sensitive and high value ecosystems.	<ul style="list-style-type: none"> <li>No Threatened or Priority flora will be impacted by the Project.</li> <li>There are no public drinking water supply areas within the Project footprint.</li> <li>There are no Ramsar wetlands within the Project footprint.</li> </ul>

## 8.3 Control of Emissions

### 8.3.1 Risk Assessment Overview

A risk assessment was completed in accordance with the DWER *Guidance Statement: Environmental Risk Assessment Framework* (February 2017). The risk assessment process identified:

- The sources of pollution and where available, quantification of emissions
- The pathway which pollution follows from the source to the receptor
- The environmental and health receptors
- The potential impacts on the receptors from this source of pollution
- The project specific controls and mitigation measures which will be applied to the Project
- The likelihood, consequence and overall risk rating associated with this factor



- The requirement for monitoring.

Likelihood and consequence categories were derived from the DWER Guidance Statement (DWER, 2017) and are provided in the Risk Criteria in Table 18. The associated risk matrix is presented in Table 19.

Table 18: Risk Criteria

Likelihood		Consequence		
		Environment	Public Health and Amenity (such as air and water quality, noise and odour)	
<b>Almost Certain</b>	The risk event is expected to occur in most circumstances	<b>Severe</b>	<ul style="list-style-type: none"> <li>• Onsite impacts: catastrophic</li> <li>• Offsite impacts local scale: high level or above</li> <li>• Offsite impacts wider scale: mid-level or above</li> <li>• Mid to long-term or permanent impact to an area of high conservation value or special significance<sup>^</sup></li> <li>• Specific Consequence Criteria (for environment) are significantly exceeded</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of life</li> <li>• Adverse health effects: high level or ongoing medical treatment</li> <li>• Specific Consequence Criteria (for public health) are significantly exceeded</li> <li>• Local scale impacts: permanent loss of amenity</li> </ul>
<b>Likely</b>	The risk event will probably occur in most circumstances	<b>Major</b>	<ul style="list-style-type: none"> <li>• Onsite impacts: high level</li> <li>• Offsite impacts local scale: mid-level</li> <li>• Offsite impacts wider scale: low level</li> <li>• Short-term impact to an area of high conservation value or special significance<sup>^</sup></li> <li>• Specific Consequence Criteria (for environment) are exceeded</li> </ul>	<ul style="list-style-type: none"> <li>• Adverse health effects: mid-level or frequent medical treatment</li> <li>• Specific Consequence Criteria (for public health) are exceeded</li> <li>• Local scale impacts: high level impact to amenity</li> </ul>
<b>Possible</b>	The risk event could occur at some time	<b>Moderate</b>	<ul style="list-style-type: none"> <li>• Onsite impacts: mid-level</li> <li>• Offsite impacts local scale: low level</li> <li>• Offsite impacts wider scale: minimal</li> <li>• Specific Consequence Criteria (for environment) are at risk of not being met</li> </ul>	<ul style="list-style-type: none"> <li>• Adverse health effects: low level or occasional medical treatment</li> <li>• Specific Consequence Criteria (for public health) are at risk of not being met</li> <li>• Local scale impacts: mid-level impact to amenity</li> </ul>
<b>Unlikely</b>	The risk event will probably not occur in most circumstances	<b>Minor</b>	<ul style="list-style-type: none"> <li>• Onsite impacts: low level</li> <li>• Offsite impacts local scale: minimal</li> <li>• Offsite impacts wider scale: not detectable</li> <li>• Specific Consequence Criteria (for environment) likely to be met</li> </ul>	<ul style="list-style-type: none"> <li>• Specific Consequence Criteria (for public health) are likely to be met</li> <li>• Local scale impacts: low level impact to amenity</li> </ul>
<b>Rare</b>	The risk event may only occur in exceptional circumstances	<b>Slight</b>	<ul style="list-style-type: none"> <li>• Onsite impact: minimal</li> <li>• Specific Consequence Criteria (for environment) met</li> </ul>	<ul style="list-style-type: none"> <li>• Local scale: minimal impacts to amenity</li> <li>• Specific Consequence Criteria (for public health) criteria met</li> </ul>

Notes: <sup>^</sup> For areas of high conservation value or special significance, the *Guideline: Environmental siting* has been considered

\*In applying public health criteria, the Department of Health's *Health risk assessment (scoping guidelines)* have been considered

'Onsite' means within the prescribed premises boundary

Table 19: Risk Matrix

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost Certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

Key sensitive receptors within the vicinity of the Project include:

- Flora, fauna and vegetation
- Groundwater and surface water systems.
- Underlying soils.
- Accommodation Village
- Employees and contractors on the operational mine site.

## 8.4 Risks and Impact Assessment

Potential impacts, control measures and risk evaluation associated with the proposal is detailed in Table 20.



Table 20: Risk Assessment for LAA (L9037)

Risk Event						Residual Risk			Reason for Residual Risk Rating	
Source	Activities	Potential Emission	Potential Receptor	Potential Pathway	Potential Adverse Impact	Controls	Likelihood	Consequence		Risk
<b>Commissioning and Operations</b>										
Category 54: WWTP	Discharge of tailings via multiple spigots to the existing Ghost Crab In-Pit TSF	Tailings Discharge to the Environment	Native Vegetation Drainage Lines	Spills and leaks from tailings pipelin	Contamination of adjacent soil and/or water course	<b>Management Control</b> <ul style="list-style-type: none"> <li>All piping will be constructed in accordance with AS/NZS 2033:2008 "Installation of polyethylene pipe systems"</li> <li>Tailings pipeline will be contained within a bund, to prevent leak or spills being discharge to the environment.</li> <li>Isolation valves, telemetry and flow metres are to be maintained to manufacturers specifications</li> </ul> <b>Proposed Monitoring</b> <ul style="list-style-type: none"> <li>Pipelines will be inspected daily</li> </ul>	Unlikely	Moderate	Medium	<ul style="list-style-type: none"> <li>No residences in the immediate vicinity, the nearest receptor is the (Woolibar Homestead, located approximately 20 km from the Premises)</li> <li>Existing Tailings controls to be utilised</li> </ul>
	Operation of WWTP or sludge removal, generated from WWTP pumps and units	Noise and vibration	Woolibar Homestead is located approximately 20 km from the Premise boundary. Mt Marion Village -closest room approximately 30 m from WWTP. Fauna	Air/windborne pathway causing impacts on amenity and health	Amenity impacts Impacts of anthropogenic noise and vibration to fauna (behavioural, displacement from foraging habitat)	<b>Management Controls</b> <ul style="list-style-type: none"> <li>Noise emissions will comply with the Environmental Protection (Noise) Regulations 1997.</li> <li>Regular servicing/maintenance of equipment</li> </ul> <b>Proposed Monitoring</b> <ul style="list-style-type: none"> <li>An incident reporting system is maintained to assist in managing environmental incidents such as noise complaints.</li> </ul>	Unlikely	Slight	Low	<ul style="list-style-type: none"> <li>No residences in the immediate vicinity, the nearest receptor is the (Woolibar Homestead, located approximately 20 km from the Premises)</li> <li>Mobile nature of fauna</li> <li>Noise emissions from commission, TLO and operations are not expected to have an adverse impact on sensitive receptors</li> </ul>
	Operating WWTP and ancillary infrastructure Movement of mobile machinery and vehicles.	Dust	Woolibar Homestead is located approximately 20 km from the Premise boundary. Mt Marion Village -closest room approximately 30 m from WWTP. Native Vegetation	Air / windborne pathway causing ecosystem disturbance	Health and amenity impacts. Deposition of dust on native vegetation affecting photosynthesis	<b>Management Controls</b> <ul style="list-style-type: none"> <li>Control / lower vehicle speed limits during dust prone climatic conditions where practicable.</li> <li>Routine maintenance and housekeeping practices to prevent dust build up.</li> <li>Dust suppression on roads and cleared areas</li> </ul> <b>Proposed Monitoring</b> <ul style="list-style-type: none"> <li>Opportunistic inspections for dust emissions during commissioning, TLO and operation of the WWTP and spray field, fence and surrounding vehicle track.</li> <li>If visible dust emissions are noted outside of the area where the prescribed activity is located then an assessment of the source will be made and additional water will be applied to key source areas, or alternative treatments applied.</li> <li>An incident reporting system is maintained to assist in managing environmental incidents such as noise complaints.</li> <li>The potential for high risk weather conditions for dust emissions (i.e. windy conditions) will be monitored and extra water applied in preparation</li> </ul>	Unlikely	Slight	Low	<ul style="list-style-type: none"> <li>Dust emissions from commissioning, TLO and operations of the WWTP and spray fields could potentially migrate to adjacent vegetation and may cause low level effects to vegetation from dust deposition.</li> <li>The likelihood of this event is reduced due to measures to manage dust emissions at the premises</li> <li>Dust emissions from the premises are not expected to migrate to sensitive receptors due to the separation distance between the Premises and the nearest receptor and the controls implemented (Woolibar Homestead, located approximately 20 km from the Premises).</li> </ul>
Odour generated from WWTP and sludge during commissioning and operations	Odour	Woolibar Homestead is located approximately 20 km from the Premise boundary. Mt Marion Village -closest room approximately 30 m from WWTP.	Air/windborne pathway causing impacts on amenity and health	Health and amenity impacts.	<b>Management Controls</b> <ul style="list-style-type: none"> <li>Any pollution control on the temporary plant will be operating in accordance with manufacturing specifications</li> <li>The WWTP has been designed as an enclosed containerised system to ensure odour levels are kept to a minimum</li> <li>Sludge is stored in sealed tanks</li> </ul> <b>Proposed Monitoring</b> <ul style="list-style-type: none"> <li>The WWTP will be inspected prior to filling with water to ensure it has been constructed according to manufacturer specifications</li> <li>Regular inspections of the WWTP will include assessment of any unplanned sources of odour</li> </ul>	Unlikely	Slight	Low	<ul style="list-style-type: none"> <li>Odour emissions are not expected to be significant given the relatively small scale of the WWTP</li> <li>No residences in the immediate vicinity, the nearest receptor is the (Woolibar Homestead, located approximately 20 km from the Premises)</li> </ul>	



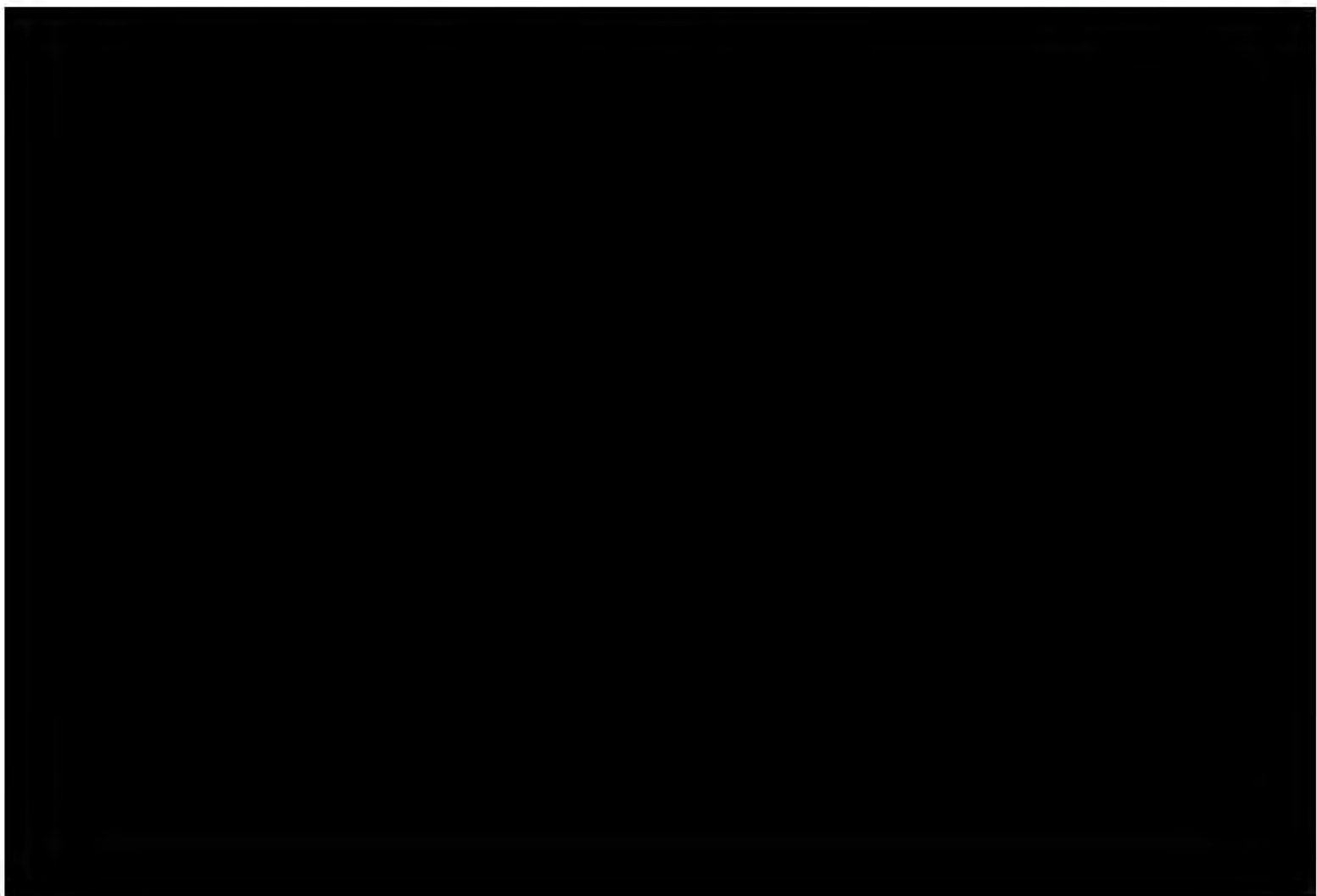
Risk Event						Controls	Residual Risk			Reason for Residual Risk Rating
Source	Activities	Potential Emission	Potential Receptor	Potential Pathway	Potential Adverse Impact		Likelihood	Consequence	Risk	
Category 54: WWTP	Leaks or spills of wastewater or sludge/biosolids from tanks or pipelines from the WWTP during commissioning and operations	Discharge of contaminated or potentially contaminated stormwater Waste and leachate	Surrounding soil and water course, adjacent to spray field compound	Discharge of contaminated or potentially contaminated stormwater to adjacent environment and surface water runoff following heavy rainfall events	Contamination of adjacent soil and/or water course	<p><b>Management Controls</b></p> <ul style="list-style-type: none"> <li>All wastewater storage components of the WWTP will be impermeable (i.e. fiberglass, concrete or lined with HDPE)</li> <li>The WWTP will be installed as per manufacturer specifications and built to the requirements of the <i>Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974 (WA)</i> with all plumbing work to be carried out in accordance with the Plumber Licencing and Plumbing Standards Regulations 2000 (WA).</li> <li>After construction and installation of the system, the Local Government Health Officer will be advised and an inspection organised to inspect the system to obtain a permit to use the system.</li> <li>High-level audio-visual warning alarms are provided to indicate malfunction in the pumps in the control and effluent tanks</li> <li>Sufficient freeboard will be maintained within each tank to ensure overflow does not occur</li> <li>Stormwater and subsoil drainage shall be diverted away from the wastewater system</li> <li>Any incident involving a spill of untreated sewage will be responded to immediately with contaminated soil removed and taken by a licensed transporter to a licensed facility. Remediation actions will be taken to minimise the risk of reoccurrence</li> <li>Sludge generated from the treatment process will be stored in separate sludge storage tanks and pumped directly from the tanks during sludge removal to avoid spillage.</li> <li>Sludge is to be removed on an annual basis in accordance with the <i>Environmental Protection (Controlled Waste) Regulations 2004</i></li> </ul> <p><b>Proposed Monitoring</b></p> <ul style="list-style-type: none"> <li>Regular inspections of the WWTP</li> <li>All pipelines will be inspected on a regular basis for leaks or damage</li> <li>The WWTP is to be inspected prior to filling with water to ensure it has been constructed according to manufacturer specifications</li> <li>Fresh water will be used to test the WWTP for leaks prior to filling with wastewater</li> </ul>	Rare	Minor	Low	<ul style="list-style-type: none"> <li>All wastewater storage components of the WWTP will be impermeable (i.e. fiberglass, concrete or lined with HDPE)</li> <li>The WWTP is located 300m to the east of the water course and therefore unlikely for spills, or soil contamination from spills, to discharge into the nearby water course.</li> <li>Due to the infrequent occurrence of high rainfall and runoff events in the region, the discharge of contaminated or potentially contaminated stormwater to the adjacent environment, surface water and associated impacts are expected to be rare events.</li> </ul>



Risk Event						Controls	Residual Risk			Reason for Residual Risk Rating
Source	Activities	Potential Emission	Potential Receptor	Potential Pathway	Potential Adverse Impact		Likelihood	Consequence	Risk	
Category 54: WWTP	Discharge of low-quality treated wastewater to irrigation area	Wastewater discharges	Spray field, adjacent soil and water course	Discharge of low-quality treated effluent to spray field, adjacent environment and surface water runoff following heavy rainfall events	Soil contamination resulting in discharge to the surrounding environment and water course	<p><b>Management Controls</b></p> <ul style="list-style-type: none"> <li>Wastewater will be disposed to a designated spray field irrigation area and comply with the existing Licence Conditions 9037/2017/1</li> <li>The WWTP will be installed as per manufacturer specifications and operated, maintained and monitored in accordance with Licence Conditions 9037/2017/1</li> <li>Irrigation will be designed such that run-off, spray drift or other discharge will not occur beyond the spray field boundary</li> <li>An earthen containment bund will be constructed and maintained to prevent any wastewater travelling outside the spray field boundary and towards the adjacent water course</li> <li>Wastewater will be evenly distributed over the spray field irrigation area to prevent soil erosion and pooling</li> <li>Irrigation is not to occur during significant rainfall events to prevent potential discharges to surface water flows. Suitable storage will be maintained in the treated wastewater tank in case irrigation cannot occur for several days</li> </ul> <p><b>Proposed Monitoring</b></p> <ul style="list-style-type: none"> <li>Regular inspections of the spray field and structure of earthen bund.</li> <li>Wastewater samples will be collected in accordance with AS/NZS 5667.10 <i>Water quality - Sampling - Guidance on sampling of waste waters</i> and submitted to a NATA accredited laboratory</li> <li>Verification and validation monitoring will be conducted during commissioning in accordance with DoH guidelines (DoH, 2013)</li> <li>A flow meter has been installed to record the volume of treated wastewater discharged to the irrigation area</li> </ul>	Unlikely	Minor	Medium	<ul style="list-style-type: none"> <li>An earthen bund has been constructed to contain any potential contamination or discharge within the spray field compound</li> <li>Due to the infrequent occurrence of high rainfall and runoff events in the region, the discharge of contaminated or potentially contaminated stormwater to the adjacent environment, surface water and associated impacts are expected to be rare events.</li> </ul>
	Leaks or spills of chlorine from WWTP	Contaminated or potentially contaminated stormwater	Surrounding soil and water course, adjacent to spray field compound	Discharge of contaminated or potentially contaminated stormwater to adjacent environment and surface water runoff following heavy rainfall events	Contamination of adjacent soil and/or water course	<p><b>Management Controls</b></p> <ul style="list-style-type: none"> <li>Chlorine will be stored and fully contained in a designated storage area within the WWTP</li> <li>Only low quantities of chlorine will be stored at the WWTP</li> <li>Spillages will be cleaned up and disposed in accordance with MinRes spill response procedures</li> <li>Any release which is likely to cause pollution or environmental harm will be reported to the DWER in accordance with the <i>Environmental Protection Regulations 1987</i>.</li> </ul>	Rare	Minor	Low	



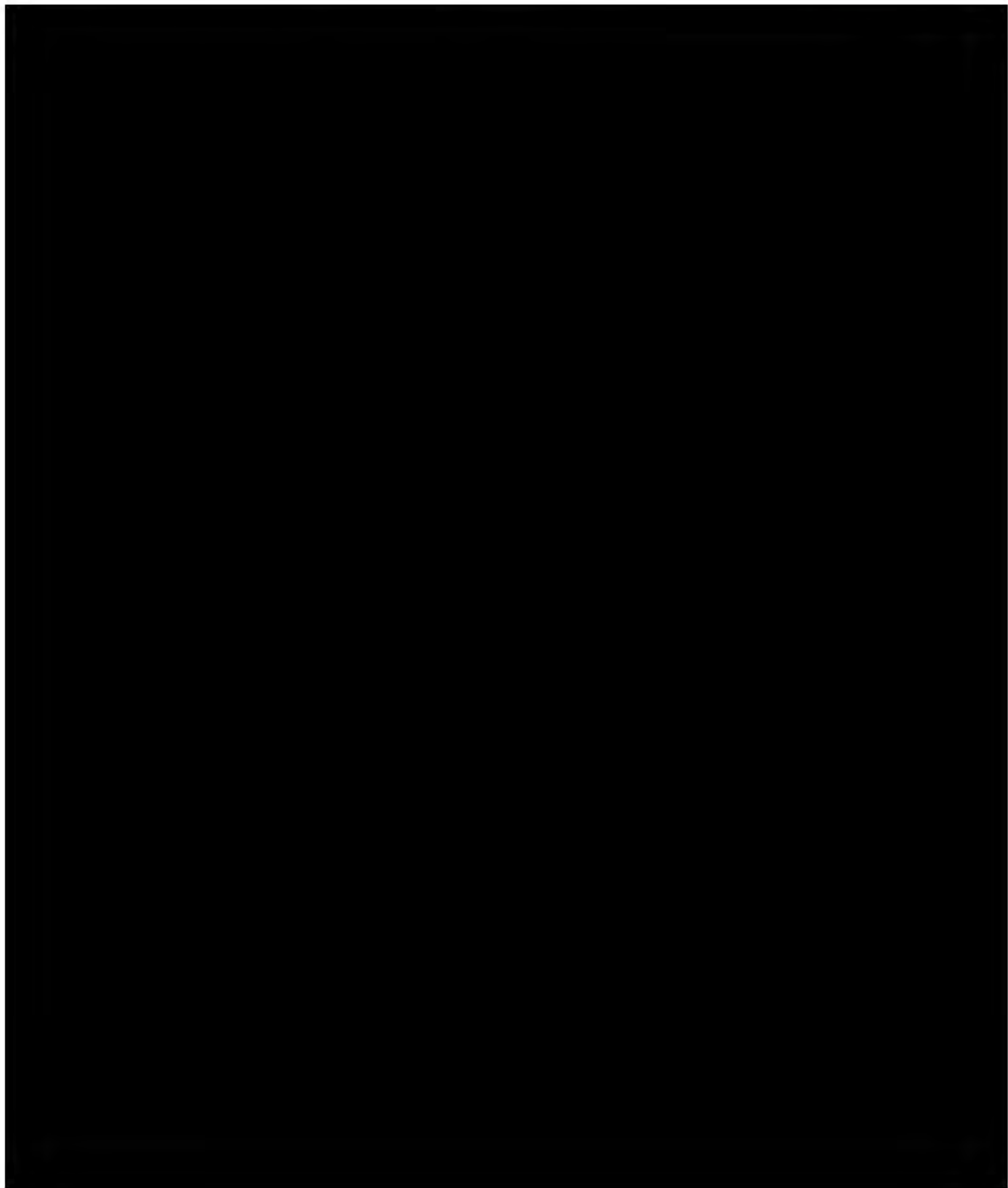


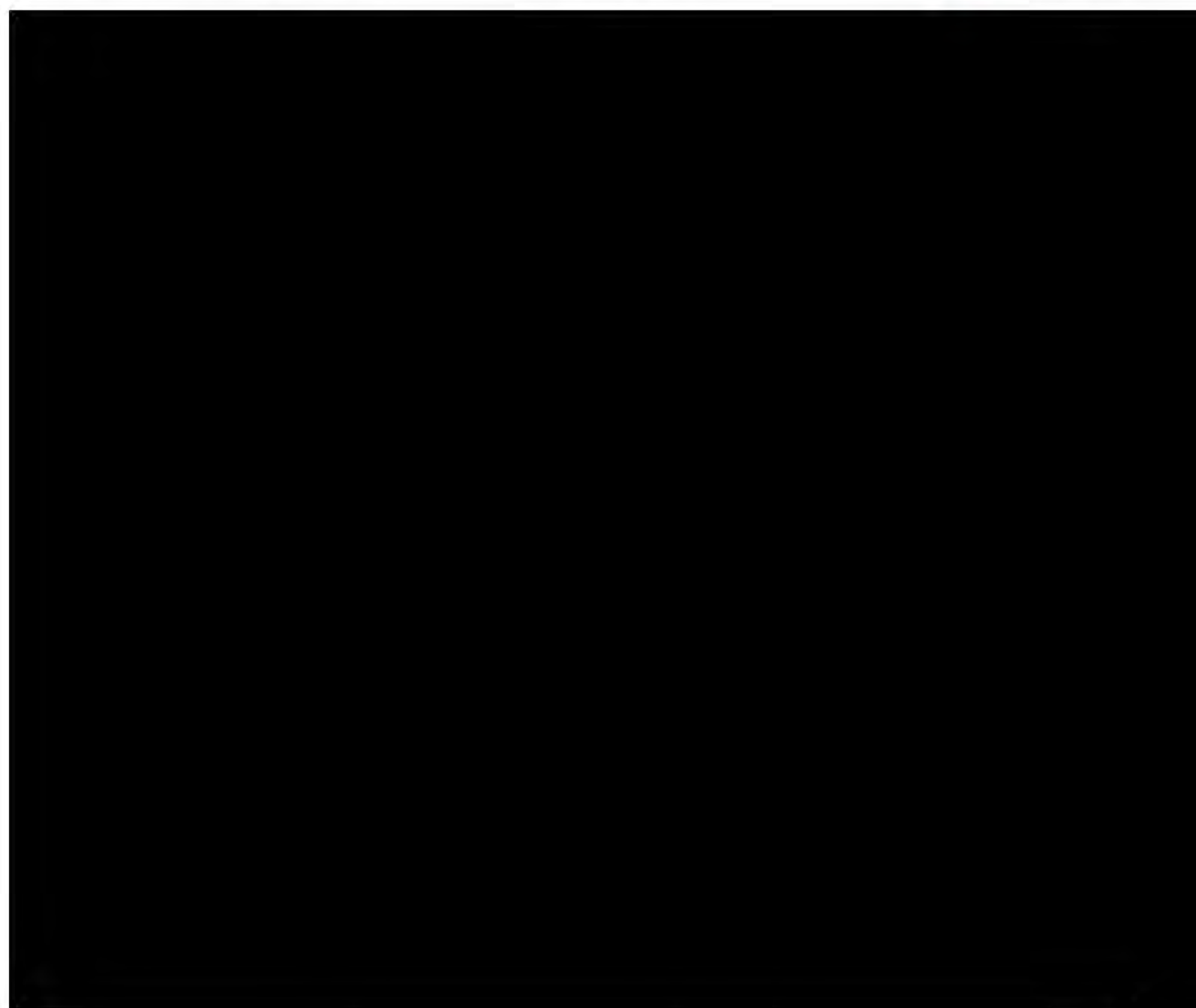




**APPENDIX A**  
**PROOF OF OCCUPIER  
STATUS**









WESTERN



AUSTRALIA

REGISTER NUMBER <b>105/DP40396</b>	
DUPLICATE EDITION <b>2</b>	DATE DUPLICATE ISSUED <b>14/1/2019</b>

**RECORD OF CERTIFICATE OF TITLE**  
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **2668** FOLIO **420**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.



**LAND DESCRIPTION:**

LOT 105 ON DEPOSITED PLAN 40396

**REGISTERED PROPRIETOR:**  
(FIRST SCHEDULE)

NORTHERN STAR (HAMPTON GOLD MINING AREAS) LIMITED OF 1 [REDACTED] 2018

**LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:**  
(SECOND SCHEDULE)

1. G277418 EASEMENT TO WESTERN MINING CORPORATION LTD FOR PIPELINE PURPOSES AND SEE DEPOSITED PLAN 219047 REGISTERED 12/9/1996.  
G999952 NOTIFICATION. THE GRANTEEES OF EASEMENT G277418 ARE NOW SOUTHERN CROSS PIPELINES AUSTRALIA PTY LTD. PURSUANT TO S20(5) OF THE PETROLEUM PIPELINES ACT 1969 LODGED 12/1/1999.
2. \*K253963 CAVEAT BY DIORO EXPLORATION NL LODGED 2/7/2007.
3. \*K434327 CAVEAT BY LODESTAR MINERALS LTD LODGED 5/12/2007.
4. \*N075712 CAVEAT BY REED INDUSTRIAL MINERALS PTY LTD LODGED 28/7/2015.

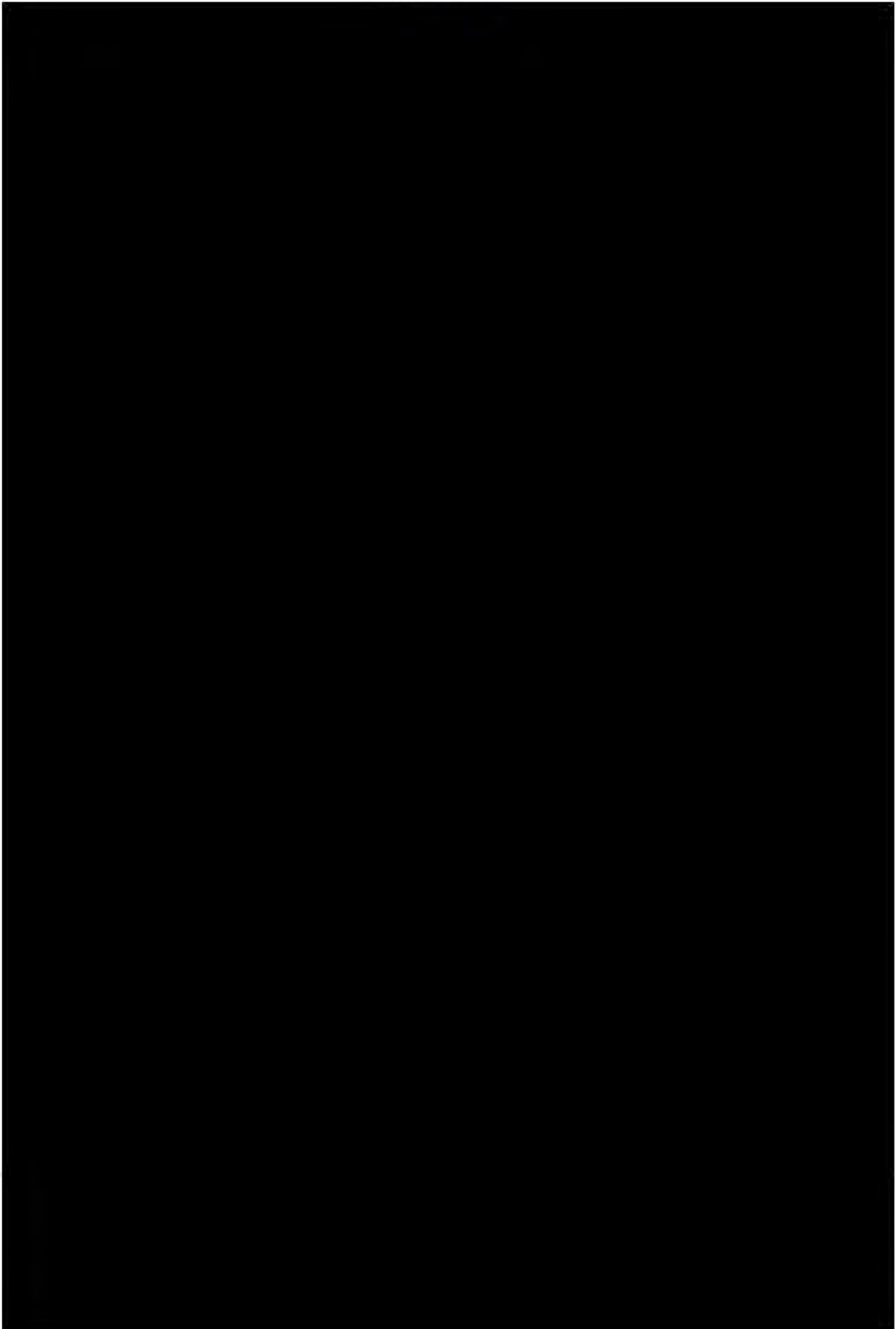
Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.  
\* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.  
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

**STATEMENTS:**

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: DP40396  
PREVIOUS TITLE: 2190-957  
PROPERTY STREET ADDRESS: LOT 105 COOLGARDIE-ESPERANCE HWY, KARRAMINDIE,  
LOCAL GOVERNMENT AUTHORITY: SHIRE OF COOLGARDIE







**APPENDIX B**  
WWTP STAGE 2  
CONSTRUCTION  
REPORT



**APPENDIX C**  
WWTP STAGE 3  
CONSTRUCTION  
REPORT





**APPENDIX D**  
WWTP STAGE 2  
COMMISSIONING  
REPORT



**APPENDIX E**  
WWTP STAGE 3  
COMMISSIONING  
REPORT



