



Licence Number	L4247/1991/13
Licence Holder	Talison Lithium Australia Pty Ltd
ACN	139 401 308
File Number:	2012/0071641
Premises	Talison Lithium Mine Mining Tenements M01/3, M01/6, M01/7, M1/16 General Purpose Tenements G01/1, G01/02 GREENBUSHES WA 6254
Date of Report	29 April 2020
Decision	Licence amendment granted

1 Definitions and interpretation

1.1 Definitions

In this Amendment Report, the terms in Table 1 have the meanings defined.

Table 1 Definitions

Term	Definition
AACR	Annual Audit Compliance Report
ACN	Australian Company Number
Amendment Report	refers to this document
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the <i>Environmental Protection Act 1986</i> Locked Bag 33 Cloisters Square PERTH WA 6850 info@dwer.wa.gov.au
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation
EP Act	<i>Environmental Protection Act 1986</i> (WA)
EP Regulations	<i>Environmental Protection Regulations 1987</i> (WA)
Existing Licence	The licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Review
Licence Holder	Talison Lithium Australia Pty Ltd
m ³	cubic metres
Occupier	has the same meaning given to that term under the EP Act.

Term	Definition
PM	Particulate Matter
PM ₁₀	used to describe particulate matter that is smaller than 10 microns (µm) in diameter.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Amendment Report applies, as specified at the front of this Amendment Report.
Revised Licence	the amended licence issued under Part V, Division 3 of the EP Act, with changes that correspond to the assessment outlined in this Amendment Report.
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>

2 Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (department) has amended licence L4247/1991/13 in accordance with section 59 of the Environmental Protection Act 1986 (EP Act), as set out in this amendment report.

The following guidance statements have informed the assessment and decision outlined in this Amendment Report:

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Decision Making (June 2019)*
- *Guidance Statement: Risk Assessment (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

3 Amendment description

Talison Lithium Australia Pty Ltd (licence holder) submitted an application for a licence amendment to the department on 22 July 2019 for the following:

- upgrade to a new Arsenic Remediation Unit (ARU) located adjacent to the Clear Water Dam (CWD); and
- proposal to discharge contaminated water off premises from Cowan Brook Dam (CBD) to Norilup Brook Dam

A mine expansion for this premises has recently been approved (W6283/2019/1). This licence amendment is not part of the mine expansion works.

This amendment authorises the installation of the new ARU. The amendment alters the location and specifications of the new ARU and sets out additional monitoring requirements for the transition from the current facilities to the new ARU. See section

5.2 for further information.

This amendment does not authorise the offsite discharge of water from CBD. See section 5.3 below for additional details.

3.1 Minor update to conditions

Table 4.2.1 (condition 4.2.1) relating to annual reporting has been updated to clarify the information submitted as part of annual reporting under condition 3.4.3. Table 4.2.1 now specifies that the annual assessment completed under condition 3.4.3 is submitted rather than a summary of surface water flow trends that is applicable to conditions 3.2.1 and 3.3.1.

Updates were undertaken to reflect the decommissioning of Clear Water Pond (CWP), which is transitioned to act as TSF2 decant. The premises boundary has also been updated in this amendment to reflect the mine expansion approved under W6283/2019/1. Operations approved under this licence do not currently occur within the expanded area.

Figures 1 – 4 in the licence were updated to reflect current premises.

3.2 Consolidation of licence

The licence has also been updated to incorporate conditions in Amendment Notices 1, 2 and 3. The incorporation of the Amendment Notices does not change the obligations of Talison Lithium Australia Pty Ltd (licence holder) and no additional risk assessment has been undertaken in consolidating the notices.

This amendment has been informed by the department's Regulatory Framework which is available at <https://dwer.wa.gov.au/regulatory-documents>.

Following Amendment Notices were amalgamated:

- Amendment Notice 1, granted 5 May 2017– improvement completion to raise Tailings Storage Facility 2 (TSF2) and related condition changes; and
- Amendment Notice 2, granted 30 August 2017 – additional crusher and chemical grade plant
- Amendment Notice 3, granted 12 March 2018 – additional crusher, reverse osmosis water treatment plant, new Clear Water Dam

In consolidating the licence, the CEO has:

- updated the format and appearance of the licence;
- deleted the redundant AACR form set out in schedule 1 of the previous licence and advised the licence holder to obtain the form from the department's website;
- revised licence condition numbers, removed any redundant conditions and realigned condition numbers for numerical consistency; and
- corrected clerical mistakes and minor errors.

4 Amendment history

Table 2 provides the amendment history for L4247/1991/13.

Table 2 Licence amendments

Instrument	Issued	Amendment
L4247/1991/13	26 April 2016	DWER initiated amendment to extend the expiry date of the licence from 13 December 2016 to 13 December 2026.
L4247/1991/13	15 July 2016	Amendment to authorise embankment raise to TSF2 to RL 1280 m. New groundwater monitoring program required by Condition 3.4.1. Ambient surface water quality limits set for receptor downstream dam, Norilup Dam. Improvement condition 4.1.1 added to the licence with 7 improvement requirements to improve monitoring and management of contaminants discharged to ambient surface water.
L4247/1991/13	5 May 2017	Amendment Notice 1: Amendment to convert IR1 – IR7 requirements to conditions where appropriate, following receipt of Licensee submissions. Amendments also made to existing conditions 1.3.7, 2.2.1, 5.2.1 and 5.2.3. Additional change made to condition 5.3.1 following comments made by the Department of Parks and Wildlife on the 23 December 2016 draft Amendment Notice. DER administrative change made to condition 5.1.2 following publication of new template for AACRs.
L4247/1991/13	30 August 2017	Amendment Notice 2: Amendment to authorise construction of an additional chemical grade lithium processing plant, including ROM pad and crusher.
L4247/1991/13	12 March 2018	Amendment Notice 3: Amendment to authorise installation of additional 3 stage crushing circuit, reverse osmosis water treatment plant and clear water dam (to replace the existing clear water pond) and associated supporting infrastructure including piping. Amendment to list of groundwater bores to be monitored.
L4247/1991/13	29 April 2020	This amendment: Amendment to authorise installation of new Arsenic Remediation Unit, updating conditions to reflect the installment of Clear Water Dam, and amalgamation of previous Amendment Notices 1-3.

5 Risk assessment

5.1 Receptors

Table 3 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 3 Receptors and distance from activity boundary

Residential and sensitive premises	Distance from Prescribed Premises
Residents downstream from Cowan Brook Dam (CBD). Downstream receptors using water mainly for stock watering, pasture and garden irrigation (Talison WMP 2011)	Located west of the premises, approximately 2.7 km to 4 km from CBD

Table 4 below lists the relevant environmental receptors in the vicinity of the prescribed premises which may be receptors relevant to the proposed amendment. Location of environmental receptors is shown in Figure 1 (sourced from DWER's mapping software *Geocortex*).

Table 4 Environmental receptors and distance from activity boundary

Environmental receptors	Distance from Prescribed Premises
Cowan Brook Dam, Cowan Brook and tributaries leading into Blackwood River	Cowan Brook Dam is located to the west within the premises and is connected to Cowan Brook.
Groundwater	<p>Previous geotechnical investigations undertaken near TSF2 observed groundwater levels within 0.6 m to 1.5 m below ground surface (Talison, 2015)</p> <p>Baseline groundwater quality was characterised by variable chloride concentrations (300-3000 mg/L), pH ranges from 5.5-6.5; lithium concentrations up to 0.2 mg/L, other metals generally below detection limit, with exception of some metals (cobalt, cadmium, nickel, arsenic, manganese, iron, phosphorous) exceeding guidelines (ANZECC) occasionally.</p> <p>Groundwater flow direction is radially outwards from the premises, reflecting the topographic high of the premises location.</p>

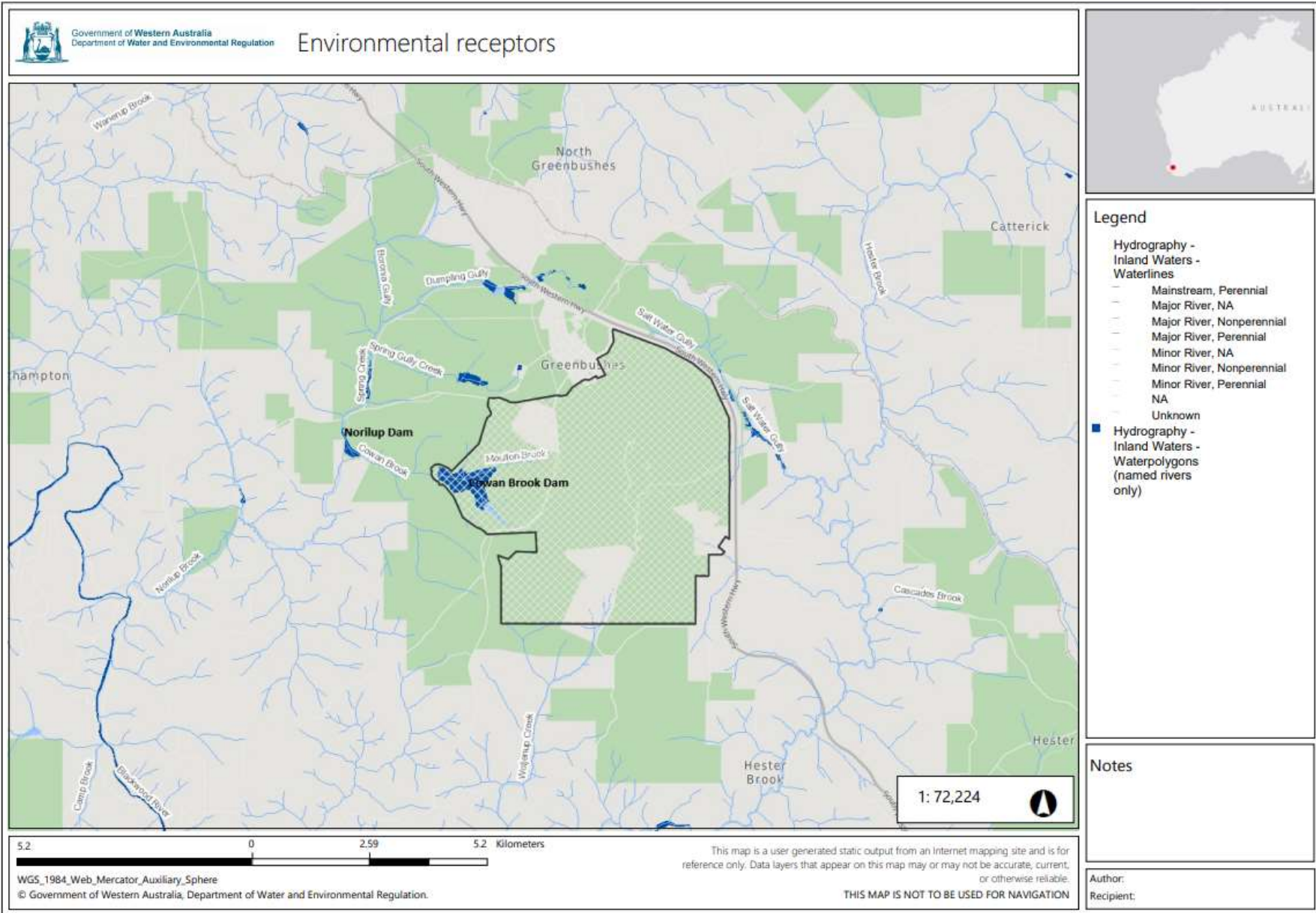


Figure 1: Environmental receptors

5.2 Arsenic Remediation Unit

The proposed new ARU has a higher treatment capacity (400 m³/hr) than the current units and will be located centrally next to the Water Treatment Plant (WTP). Feed water will be sourced CWD, mining pits and other sources requiring arsenic treatment. Refer to Figure 2 for the proposed location of the new ARU.

Proposed infrastructure for the new ARU includes raw water tanks, pumps, pipes, fittings, chemical tanks and media filters. Treatment processes will be unchanged to the current ARUs. The site layout of the ARU is shown in Figure 3

Table 5 and Table 6 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to public health or the environment, requiring regulatory controls. Sensitive receptors are outlined in Section 5.1.

Table 5: Risk assessment for proposed amendments during construction

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
Category 5 Processing or beneficiation of metallic or non-metallic ore New Arsenic Remediation Unit at Clear Water Dam.	Contaminated process water	Contaminated storm water and spillages from pipes and tanks or overflow from seepage pond impacting surrounding area	N/A	Slight	Possible	Low	The new ARU is delivered pre-commissioned to the premises and will be assembled on skids. Minimal construction will take place which includes piping and flow paths from Clear Water Dam into the ARU	Conditions relating to the installment of the ARU have been added to the licence (conditions 1.3.12 and 1.3.13) which have been assessed as posing an acceptable risk to the environment and public health.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Department's *Guidance Statement: Risk Assessments (February 2017)*

Table 6: Risk assessment for proposed amendments during operation

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning Regulatory controls (refer to conditions of the granted instrument)	
Source/ Activities	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
Category 5 Processing or beneficiation of metallic or non-metallic ore New Arsenic Remediation Unit at Clear Water Dam.	Contaminated process water	Contaminated storm water and spillages from pipes and tanks or overflow from seepage pond impacting surrounding area including groundwater and surface water	N/A	Slight	Possible	Low	The ARU is a replacement for the existing ARU. It will be located on a concrete bunded compound. Raw water is contained in two (50 kL) raw water tanks and a chemical dosing system is in a fully enclosed bund. Risk of spillages and contaminated storm water is low and would only occur within the processing site.	Additional monthly process monitoring controls (volume) (Table 3.3.1) to be reported quarterly (Table 4.2.2). Works conditions relating to the installation of the ARU have been added to the licence (conditions 1.3.12 and 1.3.13)

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Department's Guidance Statement: Risk Assessments (February 2017)

5.3 Discharge from Cowan Brook Dam

CBD is located on the western side of the premises and is used as water storage (Figure 4). CBD has a water storage capacity of 3,224 ML and water levels are monitored and managed through pumps.

Conditions in the current licence require ambient monitoring of CBD. The most recent Annual Environmental Report (2019) shows Lithium concentrations up to 6.1 mg/L and Arsenic concentrations up to 0.003 mg/L. Condition 2.2.2 in the licence states:

- *The licence holder is not permitted to discharge off the premises from Southampton Dam or from Cowan Brook Dam.*

The licence holder has sought an amendment to condition 2.2.2 to permit discharges from CBD to prevent unmanaged overflow during winter months. The proposed water circuit is shown in Figure 5.

The off-site discharge from CBD has previously been assessed as part of Amendment Notice 3 (12 March 2018), which rated the risk as high. Due to the accumulation of lithium and metals/metalloids in the mine water circuit, and the connection to TSF2 seepage through the underlying aquifer, the off-site discharge was prohibited in Amendment Notice 3.

No additional information to support the discharge of water off-site from CBD has been provided since Amendment Notice 3 was granted. Therefore, the risk assessment previously undertaken remains valid and off-site discharge from CBD remains unauthorised.

6 Licence Holder's comments

The licence holder was provided with the draft Amendment Notice on [insert date]. Comments received from the Licence Holder have been considered by the Delegated Officer as shown in Appendix 3.

7 Conclusion

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

7.1 Summary of amendments

Table 7 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the revised licence as part of the amendment process.

Table 7 Licence amendments

Condition No.	Amendments
N/A	Definition set updated to include 'RL' and 'TSF'
Table 1.3.1	Remove CWP as it is now functioning as decant for TSF2 Update Material for CWD and Austins Dam Remove note 1 relating to the ARU location (ARU location specified by new condition 1.3.14)
1.3.4	Removed condition which included specifications for availability of Arsenic Remediation Units. All conditions following this removal have been renumbered.
1.3.12 and 1.3.13	New conditions for the construction and compliance for new equipment and/or infrastructure relating to the ARU
Table 3.3.1	Inclusion of monthly process water monitoring at Arsenic Remediation Unit (ARU) outlet stream. (<i>Note: inclusion of the monitoring of the ARU outlet stream is required to be reported under existing condition 4.2.3</i>) Include CWD for monthly process monitoring Remove CWP for process monitoring
Table 3.4.2	Removal of lithium limit of 7 mg/L for Norilup Dam
4.1.1 (c)	Correct of clerical error in numbering
Table 4.2.1	Update to specify the submission of the assessment carried out under the requirements of condition 3.4.3 in the annual environmental report rather than a summary of surface water flow trends.
Schedule 1 – Figure 2	Updated figure to include CWD and correct monitoring locations Removal of emission point and reference from CBD

Condition No.	Amendments
Schedule 1 – Figure 6	Figure to show overview of the Arsenic Remediation Unit

Lauren Fox
A/MANAGER RESOURCE INDUSTRIES
INDUSTRY REGULATION

An officer delegated by the CEO under section 20 of the EP Act

Appendix 1: Maps and Infrastructure

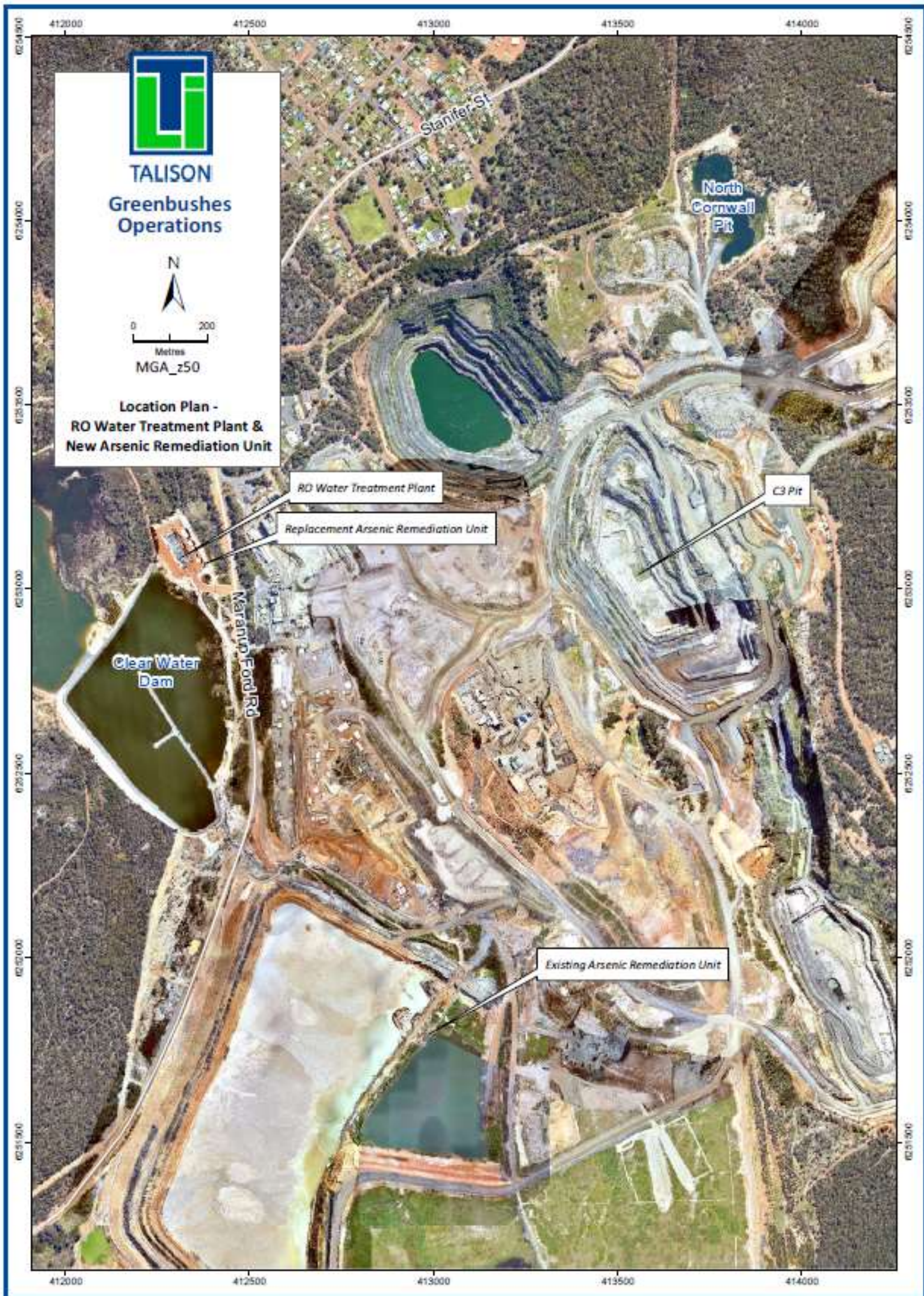


Figure 2: Proposed location for the new ARU

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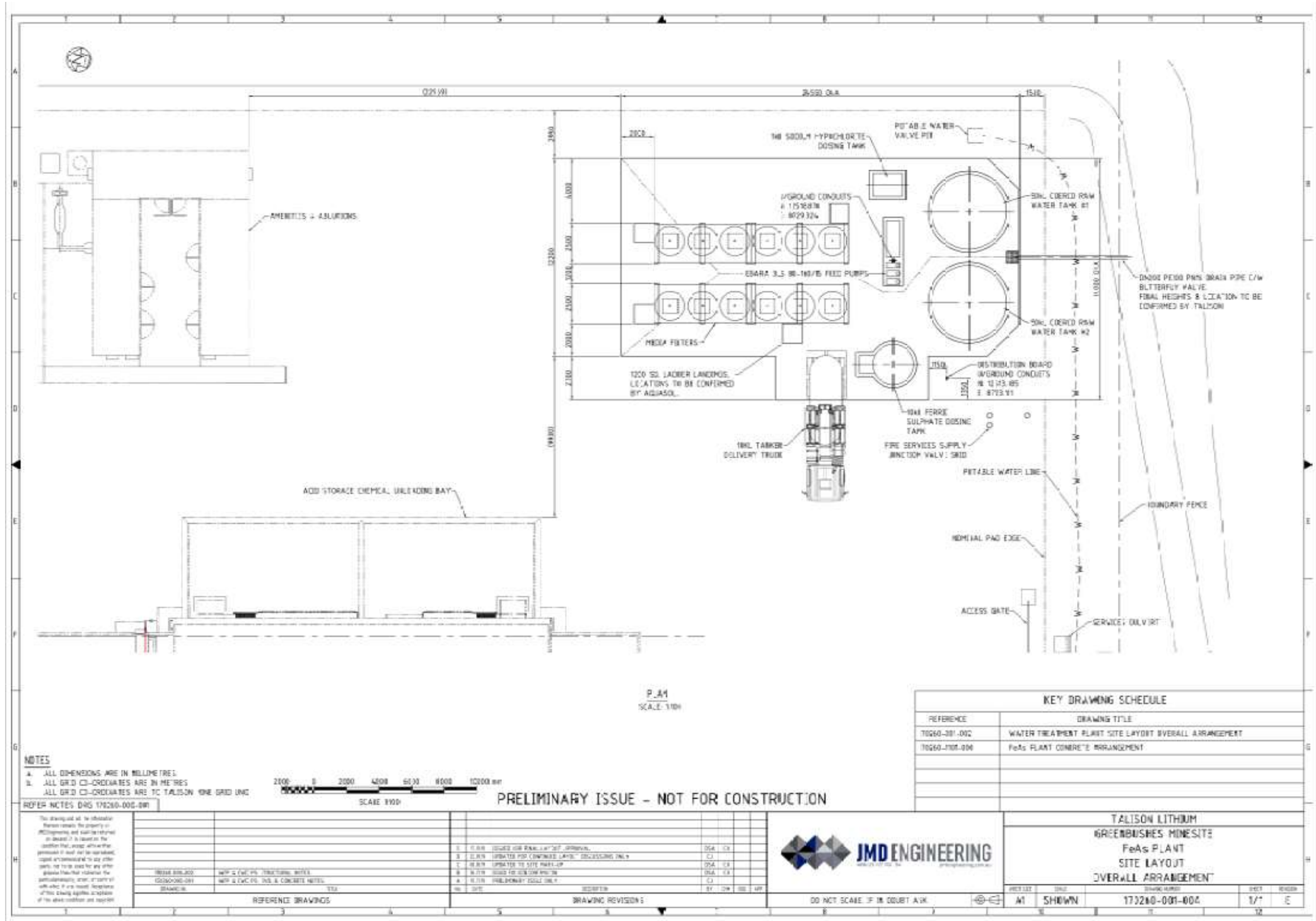
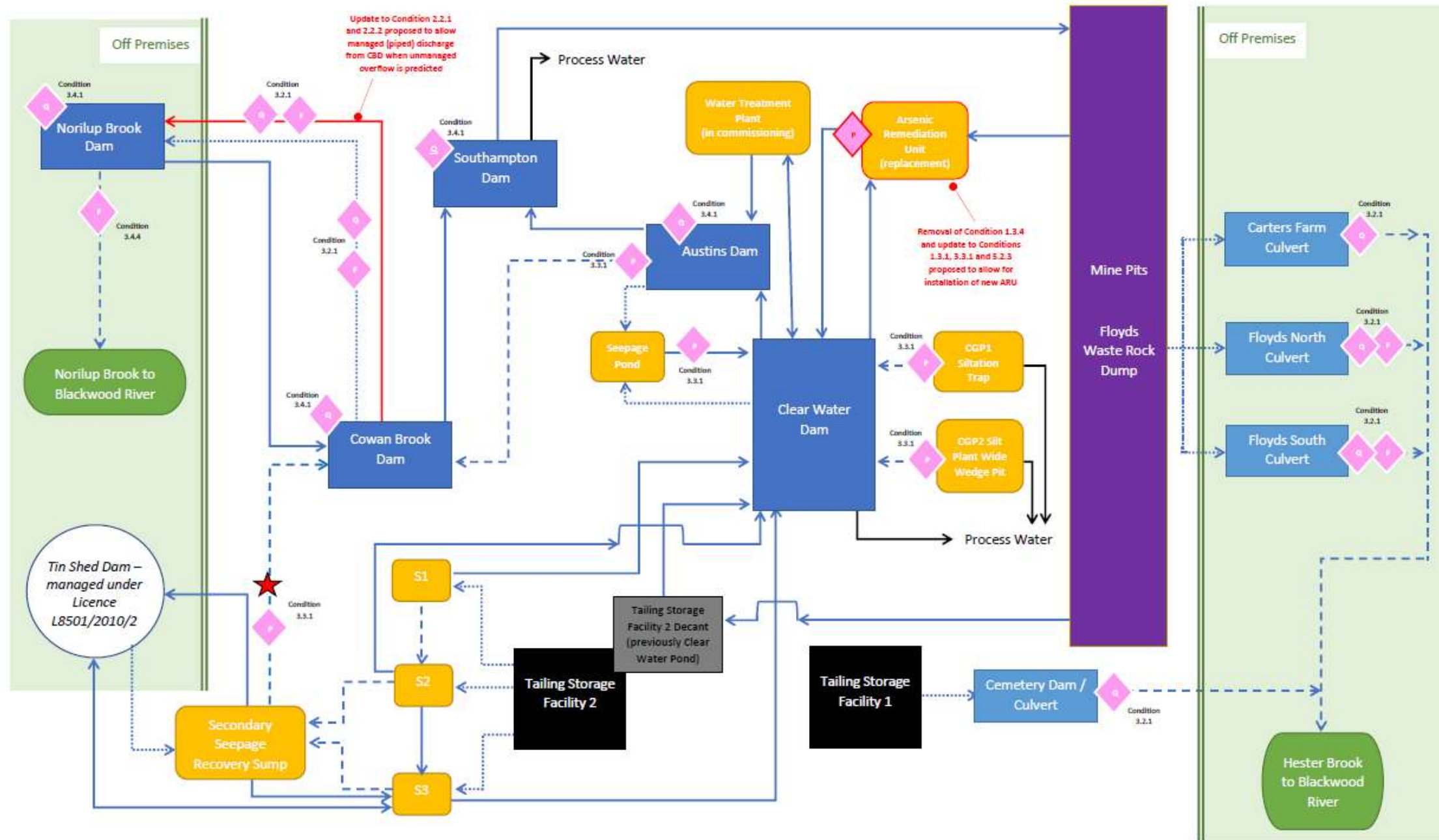


Figure 3: Site layout of the new ARU



Figure 4: Premises boundary and proposed discharge point off site from CBD

Talison Greenbushes Mine Water Circuit as relevant to L4247/1991/13 licence Amendment (October 2019)



LEGEND

- ★ Permitted due to emergency power failure &/or extreme weather event only
- ◆ Monitoring required by L4247/1991/13:
 P= process monitoring (frequency, duration and/or flow volumes)
 F = surface water flow/volume monitoring (ambient or point source)
 Q = surface water quality monitoring (ambient or point source)
- Pollution control processes:
 - Silt recovery (to reduce TSS)
 - Arsenic recovery (to reduce As)
 - Water treatment plant (to reduce Li)
 - Seepage recovery / Sumps / Wedge Pits (to intercept potentially contaminated water and return to water circuit)
- Piped flow
- - - Open channel overflow
- ⋯ Seepage flow

Figure 5: Proposed mine water circuit

Appendix 2: Key documents

	Document title	In text ref	Availability
1	Application to amend licence L4247/1991/13, submitted on 22 July 2019	Application	DWER internal record (DWERDT181314)
2	Amendment Notice 1, issued 05/05/2017	Amendment Notice 1	accessed at www.dwer.wa.gov.au
3	Amendment Notice 2, issued 30/08/2017	Amendment Notice 2	
4	Amendment Notice 3, issued 12/03/2018	Amendment Notice 3	
5	Contaminated Sites Database Parcel ID: 34013	CS Act summary of records	Available at: https://www.dwer.wa.gov.au/your-environment/contaminated-sites (Using 'advanced search' function, query criteria 'suburb', input 'greenbushes'.) DWER internal record (A1874033)
6	Water Management Plan, Talison 2011	Talison WMP 2011	DWER records (WRD146183)
7	2015 Licence Amendment-Supporting documentation	Talison Lithium Australia, 2015	

Appendix 3: Summary of Licence Holder comments

The licence holder was provided with the draft Amendment Report on 3 April 2020 for review and comment. The licence holder responded on 9 April 2020.

Condition	Summary of Licence Holder comment	DWER response
Premises description	Updates to reflect the current operations which have changed through multiple licence amendments.	Text under 'Premises description and licence summary' was updated.
Conditions 1.3.1; 1.3.12; 3.3.1; Figure 2 in Schedule 1	Provision to operate the current ARU at TSF3 decant (former Clear Water Pond) while new ARU (at Clear Water Dam) is commissioned.	Note under condition 1.3.12, Table 1.3.8 was added to permit operation of current ARU until new ARU has been commissioned. Monitoring as set out in Table 3.3.1 applies to old and the new ARU units.
Condition 1.3.2	Minor amendment to reflect the current height of TSF2 and representative freeboard.	Updated text to reflect the current height of TSF2, and corresponding example freeboard of 1269.02 m.
Condition 1.3.4	Request to remove reference in condition to comply upon completion of Sump 02 and 03 as this has been completed.	Condition updated to remove now irrelevant reference as Sumps have been completed.
Former condition 1.3.6 & Table 1.3.4	Note that condition was removed from amalgamated licence, and confirmation of previously approved embankment raise of TSF2.	TSF2 embankment raise requirements are now included under condition 1.3.1 and Table 1.3.1. No changes to the former approved TSF2 embankment raise were undertaken.
Figures	Licence holder provides updated figures and maps of premises	Figure 1 (premises boundary), Figure 2 (ambient monitoring points), Figure 3 (groundwater monitoring), Figure 4 (ambient air and noise monitoring) were replaced with new figures provided by the licence holder.
Condition 3.4.1, Table 3.4.1	Licence holder requests to update the method of the Hi Vol dust monitor to reflect the AS 3580.9.6 instead of referencing internal Talison document.	Method was updated to reflect AS 3580.9.6 instead of 'Talison Lithium Environmental Procedure ENV 2010: Air Quality Monitoring – High Volume Sampler'