



TRITTON RESOURCES PTY LTD

ABN 88 100 095 494

Part 2

**First Forward Program**

for

**ML1280, MPL294, MPL295**

**Murrawombie**

**Copper Mine**



*Prepared by:*

**RWCorkery&co**

**August 2023**



## ACKNOWLEDGEMENT

*R.W. Corkery & Co. acknowledge and pay our respects to the Traditional Custodians of the lands comprising NSW and Australia on which our projects are located. We appreciate the knowledge, advice and involvement of the Elders and extended Aboriginal community that contribute to our Projects and extend our respect to all Aboriginal and Torres Strait Islander peoples.*





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## Part 2

# First Forward Program

for

# ML1280, MPL294 and MPL295 Murrawombie Copper Mine

1 July 2023 to 30 June 2026

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Ref No. 117/57

August 2023



## SUMMARY TABLE

<b>Name of Mine:</b>	Murrawombie Copper Mine		
<b>Forward Program Commencement Date:</b>	1 July 2023		
<b>Forward Program Revision Dates:</b>	<b>Version</b>	<b>Approved by – Date</b>	
	Version 1		
<b>Mining Lease(s):</b>	ML1280	<b>Expiry Date(s):</b>	5 August 2034
<b>Name of Lease Holder(s):</b>	Tritton Resources Pty Ltd		
<b>Date of Submission:</b>	3 August 2023		

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# Part 2 – Forward Program

## 2.1 Three Year Forecast – Surface Disturbance Activities

This document presents the first Forward Program for the Murrawombie Copper Mine (the “Mine”). It covers planned rehabilitation activities during the “Forward Program Period” which includes the period from 1 July 2023 to 30 June 2026. This period has been selected to align with rehabilitation reporting for the Mine. It is intended that the Rehabilitation Report and Forward Program will review rehabilitation progress for the previous 12 months, compare this to the Forward Program, and propose the Forward Program for the next three years.

### 2.1.1 Project Description

The Mine is located approximately 3.5km west of the village of Girilambone within the Bogan Local Government Area (LGA) in central west NSW (**Figure 1**). The Mine is owned and operated by Tritton Resources Pty Ltd (the “Company”), a wholly owned subsidiary of Aeris Resources Limited. Operations at the Mine commenced under Development Application (DA) 1/91 and Mining Lease (ML) 1280 in 1992. DA 1/91 was issued by Bogan Shire Council and does not contain an expiry date. The Mine operates in accordance with the conditions of development consent, the mining lease and Environment Protection Licence (EPL) 4501. For the purpose of this document, the area covered by ML1280 is referred to as the “Mine Site” (**Figure 2**).

The Mine operation comprises of an open cut pit, a box cut decline portal to the Murrawombie underground mine, a heap leach copper extraction circuit and maintenance and administrative activities. The ore extracted from the underground operation is transported to the run of mine (ROM) pad at the surface where it is stored prior to being hauled to the Tritton Mine for processing via Yarrandale Road (**Figure 1**). Open cut operations have ceased in the short term and underground extraction activities are ongoing. The heap leach circuit continues to operate producing copper using the cementation method. The development consent for the Mine includes approval for ore processing activities that were used prior to the commencement of processing at the Tritton Mine. All ore currently mined at Murrawombie is transported to the Tritton Mine for processing.

In 2007, development consent was received for mining by underground methods, which continued until 2008. Underground operations have recommenced and are continuing. On-site recovery of copper from leachate has continued utilising the existing heap leach pads and a newly refurbished copper cementation plant. The existing administration and workshop area have remained in use by the Company including as a base for mining operations at the North East Mine and the Avoca Tank Mine on ML1383.

A further modification to DA 1/91 to permit a change to the location of site infrastructure has been approved. This modification will enable the development of a new ROM Pad, internal roads and operating facilities. No further disturbance of land is proposed for this modification as all works would occur on land previously disturbed for mining or that does not support vegetation.

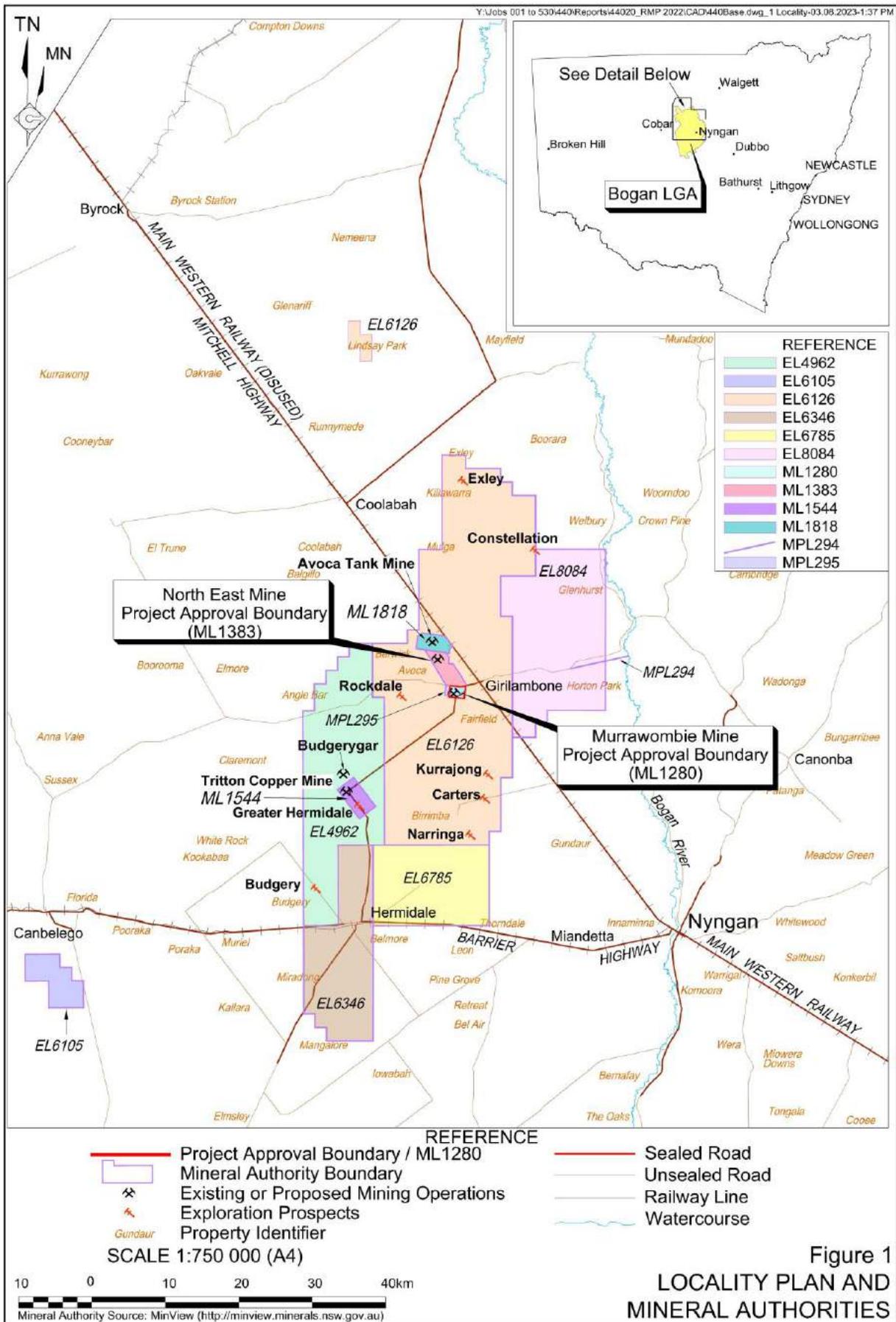


Figure 1  
LOCALITY PLAN AND  
MINERAL AUTHORITIES

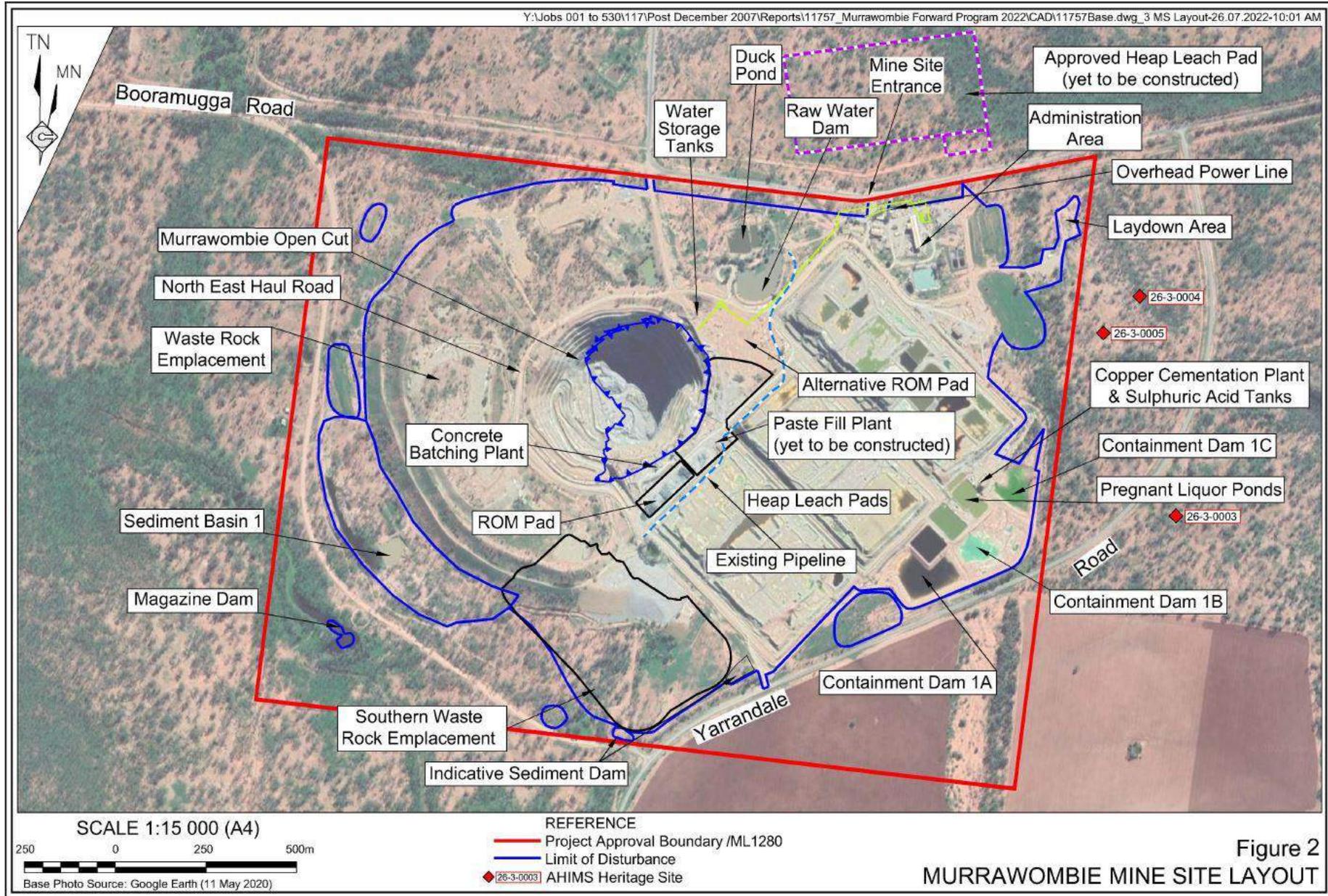


Figure 2  
 MURRAWOMBIE MINE SITE LAYOUT

## 2.1.2 Description of Surface Disturbance Activities

### 2.1.2.1 Exploration Activities

The Company will not undertake surface exploration drilling within ML1280, only underground exploration and infill drilling in the Forward Program Period.

### 2.1.2.2 Construction Activities

No approved construction activities are planned in the Forward Program Period. Additional site infrastructure approved under a recent modification to DA 1/91 would not be constructed during the Forward Program Period.

### 2.1.2.3 Mining Schedule

#### Extraction Sequencing

Open cut mining at the Mine is expected to resume in 2030 as part of the Murrawombie Open Cut Extension. The extension of the open cut will involve the following.

- Extension of the open cut to the north, northeast and southeast
- Deepening of the existing open cut by 45m.
- Extension of the existing Waste Rock Emplacement (southern extension).
- Relocation of the ROM Pad.

Waste rock and ore will be mined using conventional drill and blast methods. Waste rock will be either stored in the Waste Rock Emplacement (WRE), reused for rehabilitation of surface disturbances or transported underground to be used as backfill.

Underground mining will continue at the Mine during the Forward Program Period.

The anticipated material production schedule predicted during the Forward Program Period is presented in **Table 1**.

**Table 1**  
**Material Production Schedule During the Next Three Years**

Material	Unit	Year 1	Year 2	Year 3
Stripped topsoil (if applicable)	m <sup>3</sup>	0	0	0
Rock/overburden	t	0	0	0
Ore	t	301,064	106,459	0
Reject Material	t	0	0	0
Product	t	3,277	1,306	0

## Emplacements

Waste rock stored on the southern extension of the WRE that potentially includes some PAF material is currently being used as backfill in underground workings as needed. PAF waste rock will be used as backfill in underground workings, or temporarily stored on the WRE until cessation of mining, when it will be placed at the base of the open cut or encapsulated (Okane Consultants, 2022<sup>1</sup>).

## Processing Activities

Ore generated from mining operations at the Mine Site will be transported to the Tritton Mine for processing.

The HLPs will remain operational during the Forward Program Period. It should be noted that no material is being actively placed on the heap leach pads. The current operations involve the processing of liquor that leaches from the existing heap leach pads.

## Waste Disposal

The principal wastes that will be generated can be categorised as production and non-production wastes. Production waste includes waste rock / overburden. Non-production wastes may include:

- greases, oils, filters, tyres and batteries from maintenance of vehicles and equipment;
- bulk scrap metal and plastics from discarded equipment;
- general office wastes e.g. paper;
- general waste generated by employees – e.g. food scraps, paper, cardboard, aluminium and steel cans; and
- wastewater from ablution facilities.

All hydrocarbon wastes will be stored in specified areas on site within a bunded area until collected by a licensed contractor. Worn tyres will be temporarily stored and removed from site regularly.

All general waste materials will be stored in covered bins or skip bins and collected regularly by a licenced contractor for disposal. Paper, cardboard, steel and aluminium will be stored separately from non-recyclable wastes.

All wastewater generated on the site will continue to be treated through the approved on-site septic tank system.

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<sup>1</sup> Murrawombie Open Cut Southern WRE Extension Basis of Design, Okane Consultants Pty Ltd, January 2022

## 2.2 Three Year Rehabilitation Forecast

### 2.2.1 Rehabilitation Planning Schedule

#### 2.2.1.1 Stakeholder Consultation

The Company has undertaken consultation with relevant stakeholders during preparation of the *Rehabilitation Management Plan* for the Mine. The following government agencies and community stakeholders were contacted in November 2022.

- Bogan Shire Council
- Nyngan Local Aboriginal Land Council
- Crown Lands
- Environmental Protection Authority
- NSW Resources Regulator
- Department of Planning and Environment
- Department of Planning and Environment – Water
- Department of Regional NSW – Minerals, Exploration and Geoscience
- Heritage NSW
- Department of Planning and Environment - Biodiversity Conservation Division

Where a response has been received from the above stakeholders it has been to indicate that no comments would be provided (EPA and BCD). Feedback received from DPE Water identified priorities for post-closure water management. The DPE Water feedback will be addressed during the preparation of a Post-Closure Water Management Strategy (discussed in more detail in Section 2.2.4). The *Rehabilitation Management Plan* will be updated based on the feedback received during ongoing consultation.

No further stakeholder consultation is planned in relation to rehabilitation planning or scheduling over the Forward Program Period, excluding regular updates presented to the local community at meetings during the period.

#### 2.2.1.2 Rehabilitation Assessment and Methodologies

As part of the preparation of the *Rehabilitation Management Plan* for the Mine, the Company prepared a risk assessment to outline specific risks and controls associated with the rehabilitation of the Mine. This risk assessment is summarised in the *Rehabilitation Management Plan* and available on site or on request.

A Gap Analysis Report prepared by Okane Consultants has identified eight work programs associated with rehabilitation of the Mine Site (and the Company's other operations). This information and the outcomes of a rehabilitation risk assessment have identified a range of actions principally concerning studies and assessment required to inform the preparation of individual Closure Plans for high risk components of the Mine Site. For the Murrawombie Mine these

include the Heap Leach Pads, Waste Rock Emplacement and the final void. This information has been used to inform rehabilitation planning reflected in this Forward Program and within the *Rehabilitation Management Plan* for the Mine.

**Table 2** presents a schedule for rehabilitation planning activities to address knowledge gaps in rehabilitation planning over the Forward Program Period. Before active rehabilitation commences at the Mine Site, the Company is committed to completing the studies outlined in **Table 2** to ensure that rehabilitation outcomes are successful.

**Table 2**  
**Murrawombie Rehabilitation Planning Schedule**

Year	Studies
Year 1	Detailed biennial rehabilitation monitoring campaign Seed Balance and Procurement Strategy Waste Rock Characterisation – geochemical analysis of emplaced waste rock for rehabilitation planning Waste Rock Emplacement Revegetation Works – review of vegetation condition and additional or supplementary planting (ongoing) Hydromulching Study – research program on hydromulching application on waste rock emplacements (completed Year 2) HLP Closure Planning – long term heap leach material consolidation study (completed Year 2) Post Closure Water Management Strategy – site-wide water balance study (completed Year 3)
Year 2	Landform Evolution Modelling - covering high risk landforms at all mine sites (completed Year 2) Hydromulching Study – research program on hydromulching application on waste rock emplacements (completed Year 2) Waste Rock Emplacement Revegetation Works – review of vegetation condition and additional or supplementary planting (ongoing) HLP Closure Planning – detailed design for HLP capping and closure (completed Year 2) Post Closure Water Management Strategy – post-mining surface water management (completed Year 3)
Year 3	Detailed biennial rehabilitation monitoring campaign (completed Year 3) Waste Rock Emplacement Revegetation Works – review of vegetation condition and additional or supplementary planting (ongoing) Post Closure Water Management Strategy – groundwater modelling (completed Year 3)

In summary the following activities are planned during the Forward Program Period.

- Detailed rehabilitation monitoring will be commissioned every two years to inform rehabilitation planning and to measure the success of rehabilitation activities.
- The Company will review available seed stocks and initiate a seed collection program.
- Investigation of identified revegetation failure on portions of the Waste Rock Emplacement will be undertaken to identify the cause of the failure and recommend remedial works, if needed. Any works identified in the investigation would then be initiated. Revegetation works on the Waste Rock Emplacement will be ongoing during the Forward Program Period.

- Closure planning for the HLPs will include a study of the expected long-term consolidation of tailings material. The data collected during this study will inform the detailed design for the HLP cover system and landform design which will be prepared during the Forward Program Period.
- A concept design for the Heap Leach Pad cover system and landform design was prepared by Okane Consultants in 2018<sup>2</sup>. This concept design would be subject to detailed assessment and investigations. This work would be completed prior to closure so that final completion criteria for this Mine component may be approved.
- Landform Evolution Modelling will be undertaken to assess the stability of the completed WRE slopes and ensure adequate profiling of the final landform to limit erosion and support a self-sustaining native vegetation ecosystem. Any remedial works recommended by the modelling would be commenced in Year 3 and continue over the remaining operating period. Further landform evolution modelling may be completed once the cut back of the Open Cut Pit is completed.
- Preparation of a Post-Closure Water Management Strategy will commence in Year 1 through a water balance study across all the Company's mines in the region. The Post-Closure Water Management Strategy will also ensure that surface water management at the Mine Site and final water quality conditions are acceptable. It is expected that additional assessments will be undertaken to inform the Post-Closure Water Management Strategy including groundwater and water balance modelling of the final voids. Groundwater behaviour and long-term rehabilitation risks associated with the Heap Leach Pads will be assessed to determine the long-term strategy to rehabilitate this landform. This work is expected to continue for the duration of the Forward Program Period.

## **2.2.2 Rehabilitation Research and Trials**

Between 2017 and 2020, RGS Environmental Pty Ltd (RGS) completed geochemical assessment work on the Heap Leach Pad (HLP) material. RGS found that there is a wide-ranging concentration and distribution of the metal(loids) and major ions, and in the forms and distribution of acidity in the HLP material. Soda Ash Brine (SAB), an alkaline concentrate, has been shown to have the potential to neutralise the acid of the HLP material and significantly improve the geochemistry of the heap leach material to achieve a geochemically viable final land use.

Laboratory scale tests have shown the Soda Ash Brine (SAB) to be suitable as an alkaline solution to flush the heap leach material and shut down the acid leach process. In August 2021, the Environment Protection Licence (EPL) 4501 was amended to allow for a large-scale trial use of the SAB within the HLPs. The trial commenced in November 2021 and is continuing.

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<sup>2</sup> O'Kane Consulting, 2018. Murrawombie HLF Cover System and Landform Design. Prepared for Aeris Resources 28 August 2018.

The Company will undertake a Hydromulching Study on completed areas of the Waste Rock Emplacement that will examine the opportunities and limits of applying hydromulching in arid environments where topsoil availability is limited. The objectives of the study are to test the application of a hydromulch matrix to bind and fertilise the surface and promote plant growth.

The outcomes of the rehabilitation studies described in Section 2.2.1.2 may include recommendations for rehabilitation-specific trials for research programs.

### 2.2.3 Rehabilitation Maintenance and Corrective Actions

As this is the first Forward Program for the Mine and an Annual Rehabilitation Report has not yet been prepared, no rehabilitation performance issues, or knowledge gaps identified in an Annual Rehabilitation Report are noted. However, the Company is aware of revegetation failures within the waste rock emplacements that would be investigated in Year 1 with a plan for remedial action implemented over the remainder of the Forward Program Period (as described in **Table 2**).

### 2.2.4 Rehabilitation Schedule

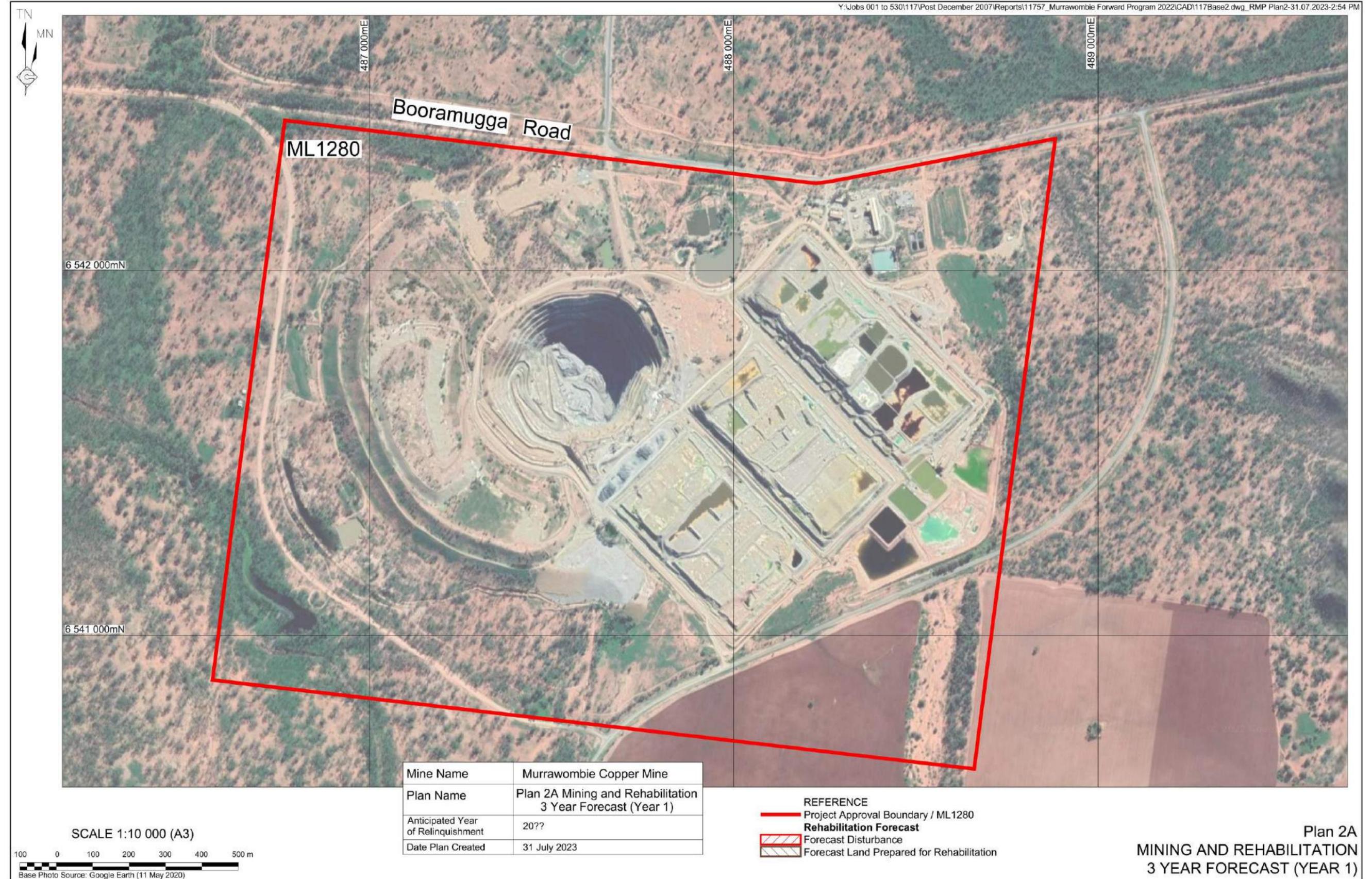
Rehabilitation in the next Forward Program Period will be focused on the completion of the research and studies described in **Table 2** and Section 2.2.2. The WRE will be subject to a remediation investigation to correct revegetation issues identified during monitoring in 2020. As indicated on **Plans 2A to 2C**, the Waste Rock Emplacement has been prepared for rehabilitation with growth medium establishment and ecosystem establishment commenced on these landforms. The Company has labelled these domains as Forecast Land Prepared for Rehabilitation on **Plans 2A to 2C** to outline that remedial works may be required and the appropriate studies are planned to take place.

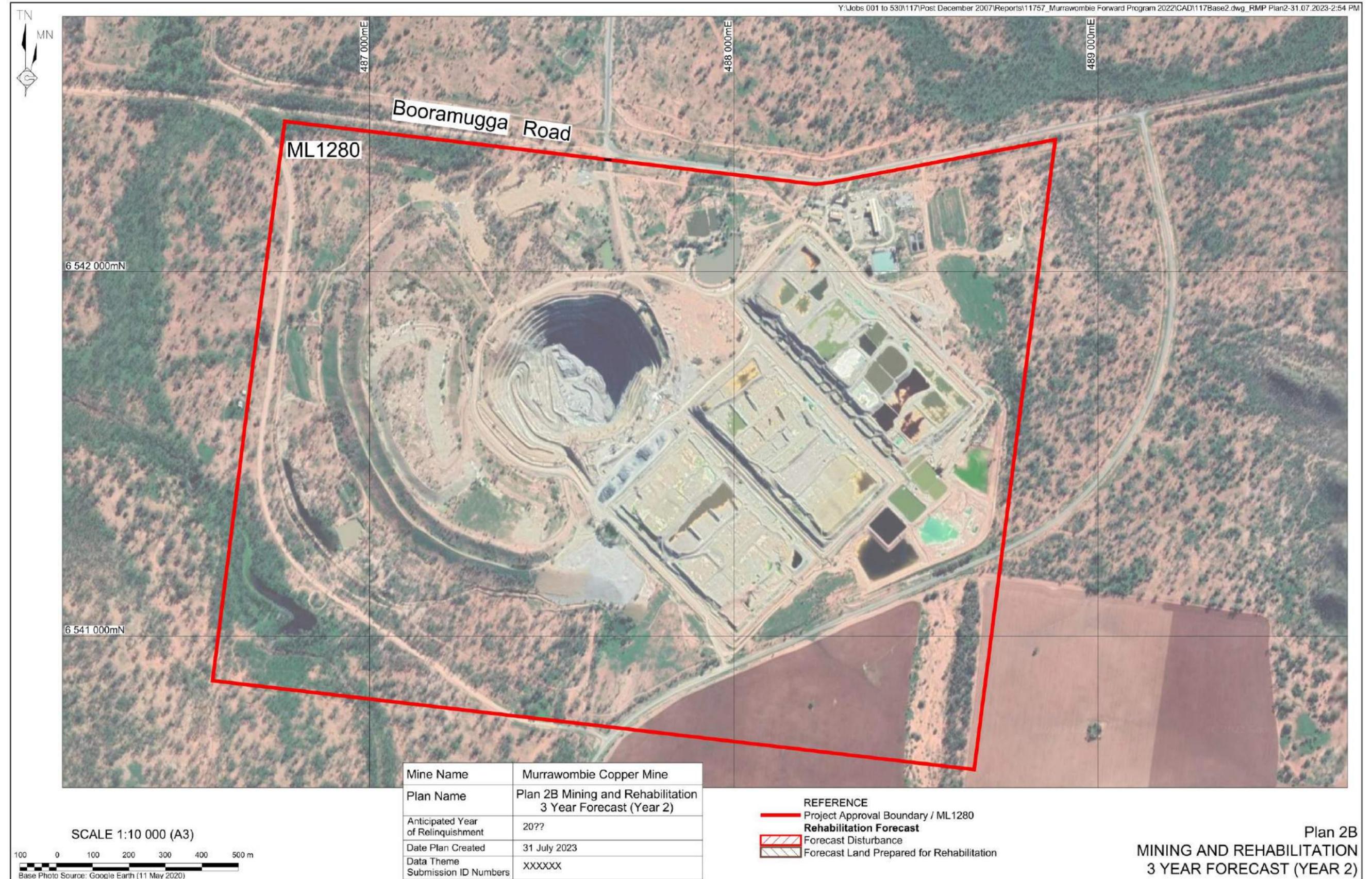
Key mining activities during the next Forward Program Period will focus on planning the open cut extension, continued underground operations and the operation of the Heap Leach Facility. Although it is likely that progressive closure of sections of the Heap Leach Pads will occur in parallel.

### 2.2.5 Subsidence Remediation for Underground Operations

No subsidence monitoring is planned in the next Forward Program Period as no incidences of mine subsidence have been identified as occurring within the Mine Site or as a result of mining operations. All open stopes will be backfilled with PAF material to prevent the occurrence of subsidence. Subsidence represents a low risk to rehabilitation at the Mine Site and as such, no specific subsidence-related management and maintenance programs are required at the Mine.

## 2.3 Plan 2 – Mining and Rehabilitation Three Year Forecast



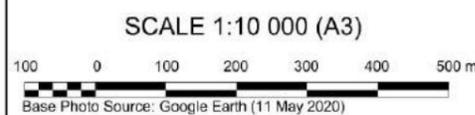


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Mine Name	Murrawombie Copper Mine
Plan Name	Plan 2C Mining and Rehabilitation 3 Year Forecast (Year 3)
Anticipated Year of Relinquishment	20??
Date Plan Created	31 July 2023
Data Theme	XXXXXX
Submission ID Numbers	

- REFERENCE
- Project Approval Boundary / ML1280
  - Rehabilitation Forecast**
  - Forecast Disturbance
  - Forecast Land Prepared for Rehabilitation



Plan 2C  
MINING AND REHABILITATION  
3 YEAR FORECAST (YEAR 3)

## 2.4 Progressive Mining and Rehabilitation Statistics

### 2.4.1 Three Yearly Forecast Cumulative Disturbance and Rehabilitation Progression

**Table 3** presents a summary of the forecast cumulative disturbance and rehabilitation progression during the Forward Program Period.

The cut back of the open cut pit is planned to commence in 2030 and therefore no further land disturbance would occur during the Forward Plan Period.

Land that is subject to rehabilitation would also not change during the Forward Program Period, noting that decommissioning of the Heap Leach Pads is currently planned to commence from 2027 and remaining site infrastructure will be used to support the cut back of the open cut pit.

**Table 3**  
**Predicted Cumulative Disturbance and Rehabilitation Progression during the next Three-Year Term**

	Year 1	Year 2	Year 3
Total disturbance footprint – surface disturbance (ha)	224.13	224.13	224.13
Underground mining area (ha)	14.0	14.0	14.0
Total active disturbance (ha)	191.83	191.83	191.83
Rehabilitation – land preparation (ha)	32.3	32.3	32.3
Ecosystem and land use establishment (ha)	0	0	0

### 2.4.2 Rehabilitation Key Performance Indicators

**Table 4** presents a summary of the progressive rehabilitation key performance indicators for the Forward Program Period. It is not anticipated that the rehabilitation to disturbance ratio will change over the Forward Program Period.

**Table 4**  
**Progressive Rehabilitation Key Performance Indicators during the Next Three-Year Term**

	Year 1	Year 2	Year 3
Total new active disturbance area during reporting period (ha)	0	0	0
Area of land proposed for active rehabilitation during reporting period	0	0	0
Annual Rehabilitation to Disturbance Ratio	0:0	0:0	0:0

## 2.5 Rehabilitation Cost Estimate

In accordance with the *Form and Way – Annual Rehabilitation Report and Forward Program for Large Mines*, an updated Rehabilitation Cost Estimate for the Mine prepared based on the “maximum disturbance within a term” method has been provided to the Resources Regulator separately.