



TARONGA MINES PTY LTD

Scoping Report

for the

Taronga Tin Project



Prepared by:

RWCorkery&co

August 2024



ACKNOWLEDGEMENT

R.W. Corkery & Co. acknowledge and pay our respects to the Traditional Custodians of the lands in NSW and Australia on which our projects are located. We value 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.





TARONGA MINES PTY LTD

ABN 81 126 854 288

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for the

Taronga Tin Project

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Acronyms

AHD	Australian Height Datum
ANCOLD	Australian National Council on Large Dams
AQIA	Air Quality Impact Assessment
ATCW	ATC Williams Pty Ltd
BC Act	<i>Biodiversity Conservation Act 2016</i>
BDAR	Biodiversity Development Assessment Report
BHP	Broken Hill Proprietary Limited
CDA	co-disposal area
DECCW	Department of Environment, Climate Change and Water
DPHI	Department of Planning, Housing and Infrastructure
DPIE	Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
EL	Exploration Licence
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2021</i>
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i>
EPL	Environmental Protection Licence
FTAPL	First Tin Australia Pty Ltd
GISTM	Global Industry Standard on Tailings Management
HDPE	high-density polyethylene
IA Strategy	<i>Investment Attraction Strategy</i>
JORC	Joint Ore Reserves Committee
LEP	<i>Local Environmental Plan</i>
LGA	Local Government Area
MDB	Murray Darling Basin
ML	Mining Lease
MLA	Mining Lease Application
NAF	non-acid forming
PAF	potentially acid forming
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
RED Strategy	<i>Regional Economic Development Strategy</i>
RSF	residue storage facility
ROM	Run of Mine
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SSD	State Significant Development
WAL	Water Access Licence

Key Terminology

The Applicant	Taronga Mines Pty Ltd (TMPL)
Project	The Taronga Tin Project
Council	Glen Innes Severn Shire Council
Application Area	The Application Area comprises the Mine Site, Concentrate Transport Route, and Secondary Site Access
Mine Site	The Mine Site includes the entirety of Lot 12 DP1292270, Lot 288 DP753314, Lot 7001 DP92662 and Lot 7317 DP1166299 and partial areas of Lots 83 and 167 DP753314 covering an area of approximately 713ha. The Mine Site is the principal component of the Application Area and incorporates the key components required for the Project including (but not limited to) the following. • Northern and Southern Open Cut Pits (approximately 52ha) • Processing Plant (approximately 4ha) • Eastern and Western Waste Rock Emplacements (approximately 70ha) • Co-disposal Facility (approximately 60ha) • Residue Storage Facility (approximately 3ha) • Administration Area (approximately 0.4ha) • Maintenance Facility (approximately 1.3ha) • Onsite Power Generation Area (approximately 8ha) • Water storage and management infrastructure • Magazine • Internal access and haul roads
Concentrate Transport Route	Grampians Road from the Mine Site boundary to the New England Highway at Deepwater, via Emmaville.
Deposit	The Taronga tin deposit

1. Introduction

1.1 Scope

This Scoping Report has been prepared by R.W. Corkery & Co. Pty Ltd on behalf of Taronga Mines Pty Ltd to describe the proposed Taronga Tin Project (“the Project”) that would extract and process tin ore to produce a saleable tin concentrate. All mining, processing and associated infrastructure would be largely situated within a Mine Site that would be located approximately 7.5 kilometres (km) northwest of Emmaville in northern NSW (refer **Figure 1**). The proposed Mine Site would be situated within the Glen Innes Severn Local Government Area (LGA) on land zoned RU1 – Primary Production under the *Glen Innes Severn Local Environment Plan 2012* (refer **Figure 2**). Open cut mining is permissible with consent on land with this zoning.

The Project-life would be up to approximately 13 years and comprise:

- A site establishment and construction period of approximately two years.
- A mining operations period of up to 10 years; and
- A 2-year period for decommissioning, landform establishment and revegetation period following the cessation of mining operations.

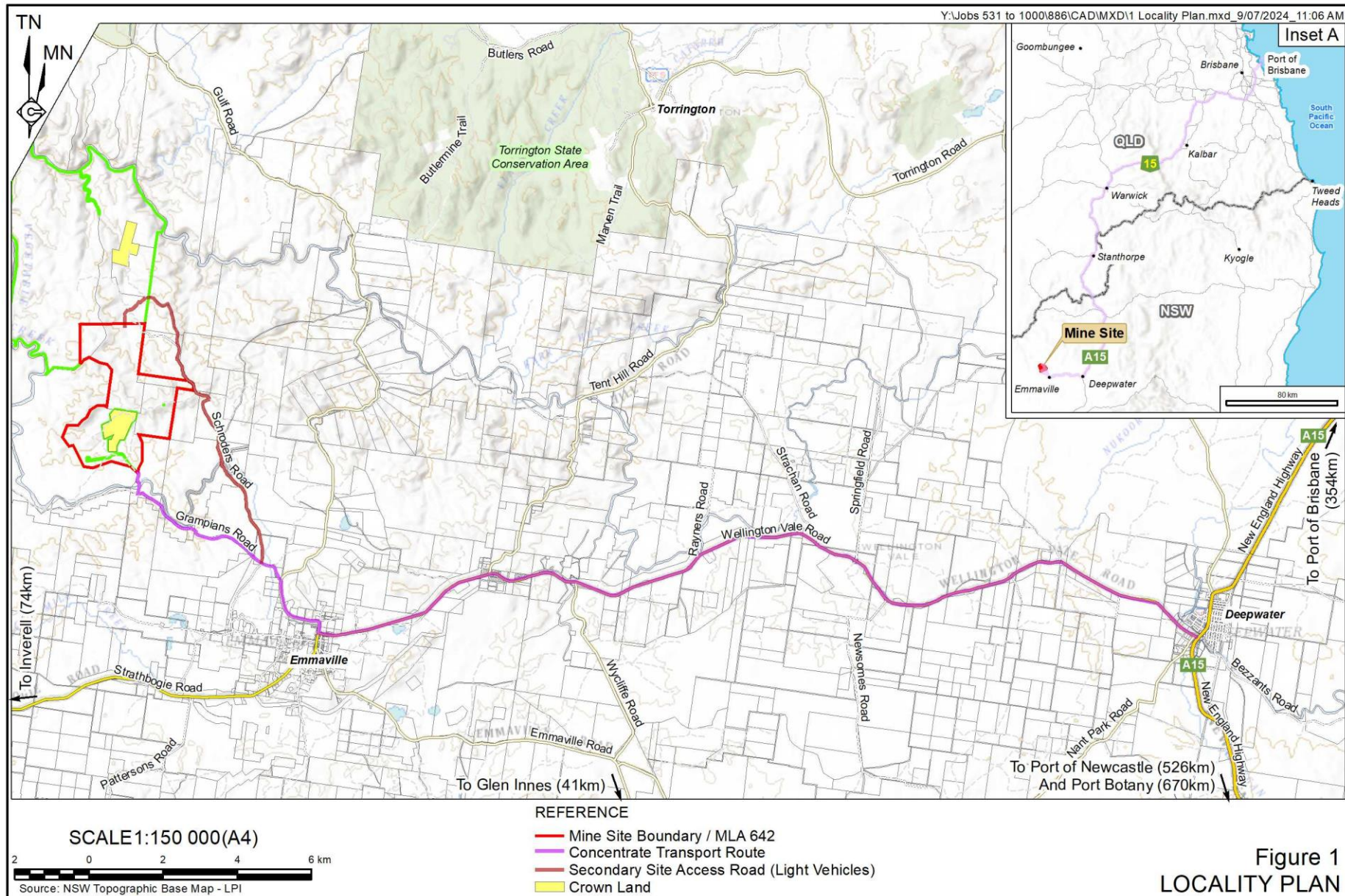
The Project is considered State Significant Development (SSD) as the estimated \$176M capital investment value exceeds the \$30M threshold identified in Schedule 1, Clause 5(1c) of the *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP). Therefore, the Project requires an application for development consent under Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This application will be assessed by the Department of Planning, Housing and Infrastructure (DPHI) with the consent authority being the Minister for Planning and Public Spaces (or their delegate).

This Scoping Report has been prepared generally in accordance with Appendix A of the *State Significant Development Guidelines – Preparing a Scoping Report* (DPIE, 2022). The information presented in this Scoping Report is intended to provide the Department and relevant government agencies with sufficient information for the development and issue of Secretary’s Environmental Assessment Requirements (SEARs) for the Project. These SEARs will be addressed in the Project’s Environmental Impact Statement (EIS) that will be prepared to support its application for development consent.

This Scoping Report is also intended to inform the Glen Innes Severn Council (Council), members of the community and others about the Project to facilitate consultation throughout preparation of the EIS.

1.2 The Applicant

Taronga Mines Pty Ltd (ABN 81 126 854 288 / ACN 126 854 288), hereafter referred to as (“the Applicant”), is a wholly owned, unlisted, subsidiary of First Tin PLC (First Tin), a UK based company that is listed on the London Stock Exchange (Standard Board). First Tin purchased the Applicant from Aus Tin Mining Ltd in April 2022 with the goal of developing the Project to produce tin for use in the manufacture of electric vehicles, renewable energy components and the semi-conductor supply chain.



First Tin has also recently incorporated another 100% owned Australian unlisted company, First Tin Australia Pty Ltd (FTAPL) as an intermediary company that is positioned within the corporate structure between First Tin PLC and the Applicant.

1.3 The Application Area

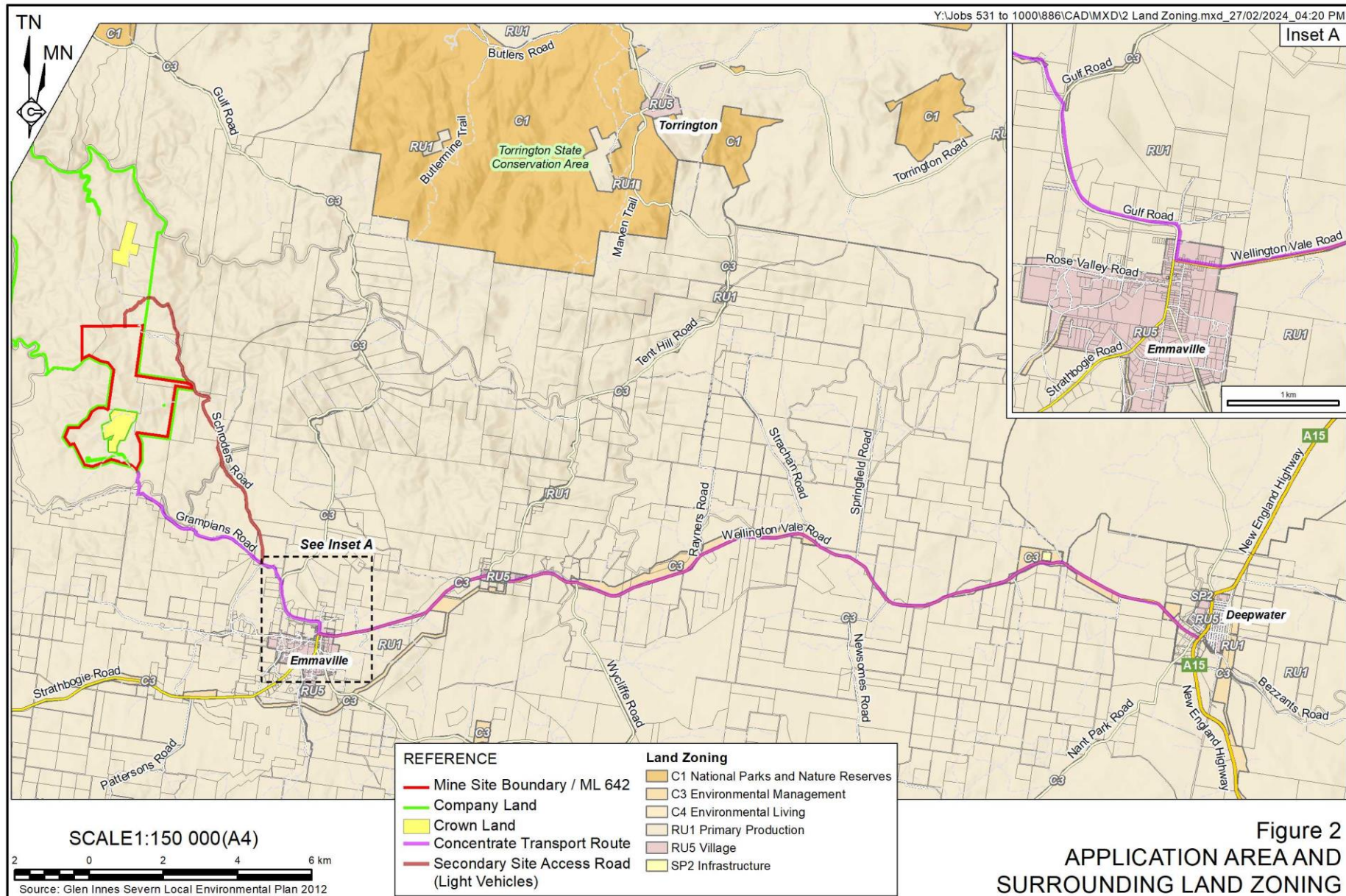
The Application Area is situated within the Glen Innes Severn Council LGA and would comprise the following Project components:

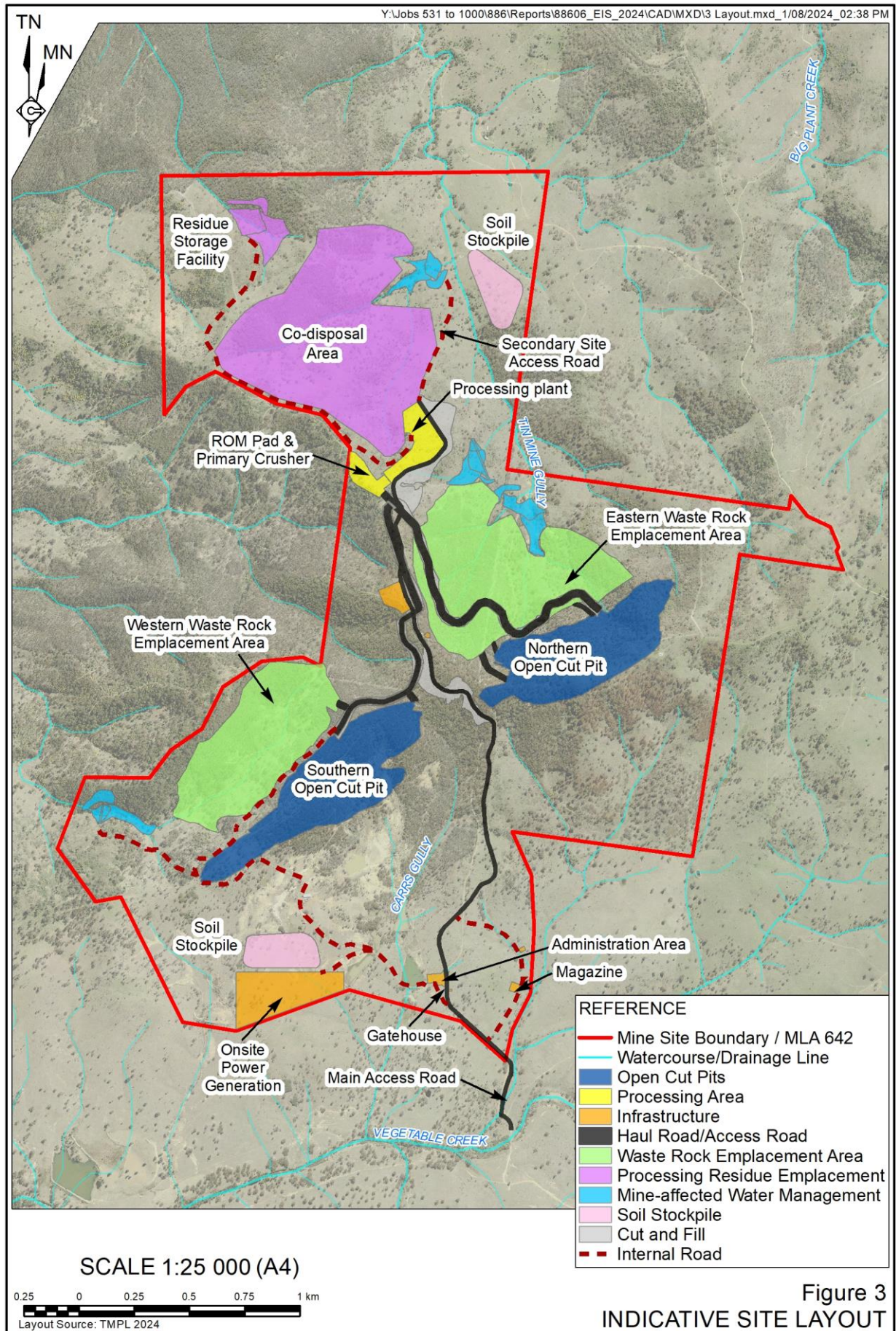
- Mine Site: the principal Project component incorporating the open cut pits, processing plant, co-disposal area, residue storage facility, waste rock emplacements, onsite power generation, a magazine and a range of infrastructure including roads, offices, amenities and services.
- Secondary Site Access: an ancillary Project component to provide emergency Mine Site access (or egress) via Schroders Road.

Table 1 provides the details of all land within the Application Area whilst **Figure 2** shows the respective land zoning within and surrounding the Application Area. **Figure 3** presents the indicative layout of the proposed Mine Site.

Table 1
Project Components and Planning Information

Project Component	Lot	Deposited Plan	Zoning
Principal			
Mine Site	83	753314	RU1 – Primary Production ¹
	167		
	288		
	12	1292270	
	1	1008294	
	2		
	7001	92662	
	7317	1166299	
	None (Crown Road Reserve)		
Ancillary			
Secondary Site Access	167	753314	RU1 – Primary Production ²
	158	820202	
Concentrate Transport Route			
Public Roads	Grampians Road Reserve		RU1 – Primary Production ²
			C3 – Environmental Management ²
	Gulf Road Reserve		RU1 – Primary Production ²
	Moore Street Road Reserve		RU1 – Primary Production ²
			RU5 – Village ¹
	Irby Street Road Reserve		RU5 – Village ¹
	Wellington Vale Road Reserve		C3 – Environmental Management ²
			RU1 – Primary Production ²
			RU5 – Village ¹
Note: 1 Activity associated with component permissible with consent. 2 Activity associated with component permissible without consent.			





The Mine Site adjoins the terminal section of Grampians Road, a Council controlled public road that would form part of the Concentrate Transport Route that is shown on **Figure 4**. To allow for the necessary treatments and upgrades to permit all weather, heavy vehicle access, the Application Area includes the sections of the Concentrate Transport Route on Council controlled public roads until the route's junction with the NSW State controlled New England Highway. All necessary treatments will be identified and described in the EIS.

It is also noted that the Applicant is investigating options for a groundwater supply borefield situated either within the Applicant's landholding or that of a neighbouring landholder. Either option would require a corridor to accommodate the necessary infrastructure and, once confirmed, these corridors would be included in the Application Area that would be submitted with the development application.

In addition, whilst not forming part of the Application Area, the Applicant intends to utilise its adjoining landholding north of the Mine Site, to establish a Biodiversity Offset Area through a Biodiversity Stewardship Agreement.

1.4 Project Summary

Table 2 provides a summary of the Project, including key components and proposed activities with further detail provided in Section 3. Reference is made to **Figure 3** with regard to the location of most key components within the proposed Mine Site layout.

Table 2
Key Project Components and Activities

Page 1 of 2

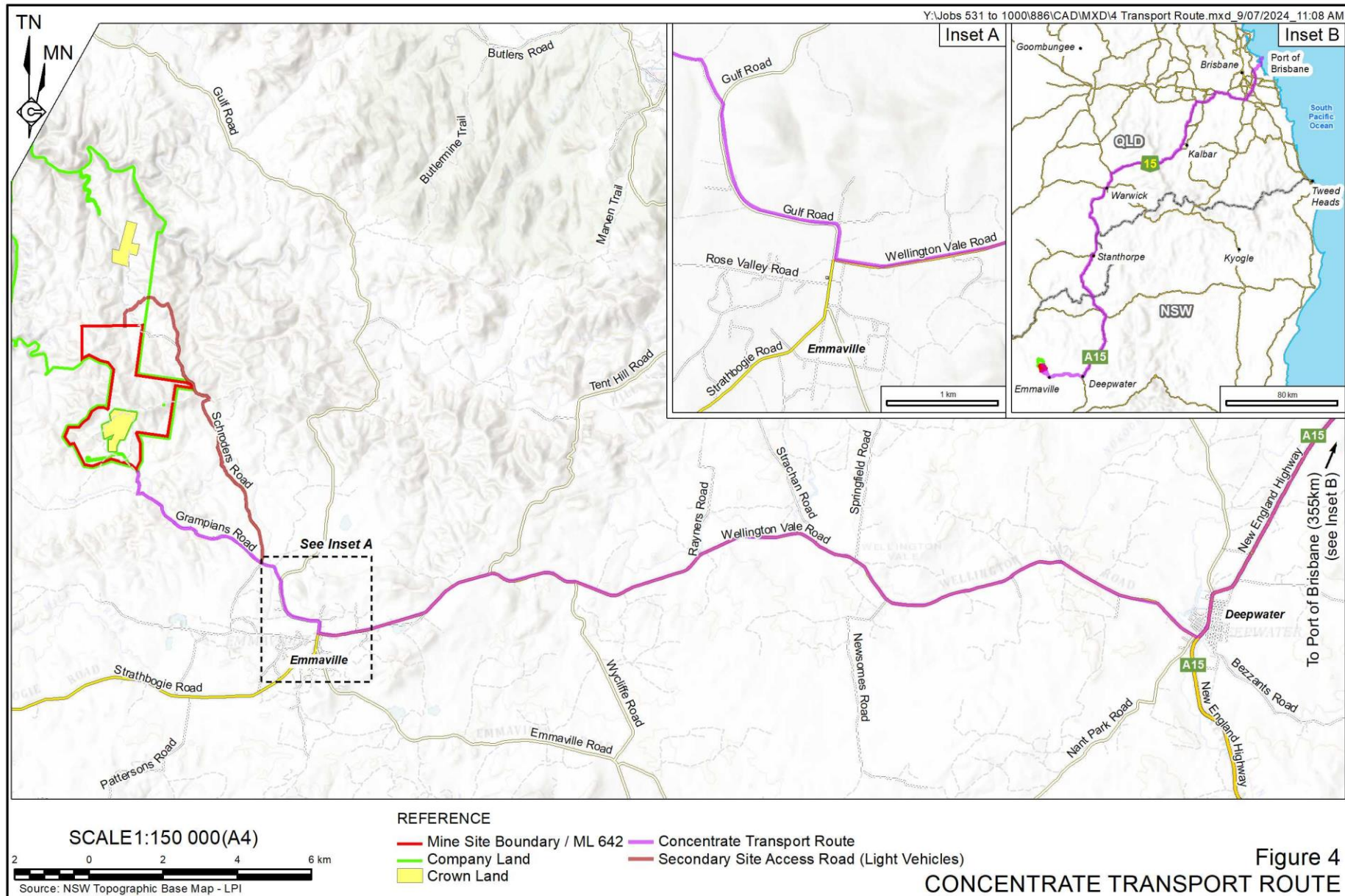
Project Component / Activity	Description
Mine Site	An area of approximately 713ha within which all mining, processing and despatch of produced concentrate would occur. Ancillary infrastructure necessary to support mining operations, such as maintenance facilities, onsite power generation, administration, magazine, internal roads, water management works and suitably designed landforms for the storage of waste rock and processing residues would also be situated within the Mine Site.
Mining Method	Conventional drill, blast, load and haul from two open cut pits.
Total Resource	- Tin deposit comprising two separate zones along an approximately 2.6km long strike and up to 260m wide. - Proved and Probable JORC-compliant Ore Reserve Estimate (March 2024) 40 million tonnes (Mt) at 0.13% tin. - Indicated and Inferred JORC-compliant resource (September 2023) 133Mt at 0.10% tin.
Maximum Extraction Rate	- Up to 10Mt per annum comprising: - Up to 5.1Mt per annum of ore¹; and - Up to 5.8Mt of waste rock per annum¹.
Total Material Extracted (Project-life)	80.3Mt² comprising: 39.7Mt of ore; 40.5Mt of waste rock comprising: 30.0Mt of non-acid forming (NAF) material; and 10.5Mt of potentially acid forming (PAF) material³.

Table 2 (Cont'd)
Key Project Components and Activities

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Project Component / Activity	Description																																					
Maximum Processing Throughput	5.0Mt per annum.																																					
Annual Concentrate Production (at 60% tin)	- Average: approximately 6,100t per annum. - Maximum: approximately 7,300t per annum																																					
Average Annual Processing Residues (% of processing throughput)	- Coarse Reject: 2.31Mt (46%); - Coarse Tailings: 1.34Mt (27%); - Fine Tailings: 1.31Mt (26%); and - Flotation Tailings: 0.03Mt (<1%).																																					
Primary Site Access	Grampians Road: Primary access for all heavy vehicles, employees, contractors and visitors.																																					
Secondary Site Access	Schroders Road: Secondary light vehicle access. Nil heavy vehicle usage. Emergency usage only.																																					
Employment	- Site establishment and construction stage – up to 150 personnel - Operations – approximately 129 personnel																																					
Hours of Operation	<table><tr><th>Activity</th><th>Days</th><th>Hours</th></tr><tr><td colspan="3">Pre-construction and Offsite Roadworks</td></tr><tr><td rowspan="2">These activities are described in Section 3.2 and Section 3.3</td><td>Monday to Friday¹</td><td>7:00am to 6:00pm</td></tr><tr><td>Saturday</td><td>8:00am to 1:00pm</td></tr><tr><td colspan="3">Site Establishment and Construction</td></tr><tr><td rowspan="2">Noise generating (i.e. vegetation clearing, soil stripping and stockpiling, pre-strip, bulk earthworks, onsite construction, deliveries, offsite roadworks and intersection upgrades).</td><td>Monday to Friday¹</td><td>7:00am to 6:00pm</td></tr><tr><td>Saturday</td><td>8:00am to 1:00pm</td></tr><tr><td>Low noise generating (i.e. electrical installation/wiring, plumbing, plant installation, assembly and commissioning).</td><td>7 days¹</td><td>24 hours</td></tr><tr><td colspan="3">Operations</td></tr><tr><td>Crushing (primary, secondary and tertiary)</td><td>7 days</td><td>6:00am to 6:00pm</td></tr><tr><td>Blasting</td><td>Monday to Saturday¹</td><td>9:00am to 5:00pm</td></tr><tr><td>All other</td><td>7 days</td><td>24 hours</td></tr><tr><td colspan="3">Notes: 1 . Public Holidays excluded.</td></tr></table>	Activity	Days	Hours	Pre-construction and Offsite Roadworks			These activities are described in Section 3.2 and Section 3.3	Monday to Friday ¹	7:00am to 6:00pm	Saturday	8:00am to 1:00pm	Site Establishment and Construction			Noise generating (i.e. vegetation clearing, soil stripping and stockpiling, pre-strip, bulk earthworks, onsite construction, deliveries, offsite roadworks and intersection upgrades).	Monday to Friday ¹	7:00am to 6:00pm	Saturday	8:00am to 1:00pm	Low noise generating (i.e. electrical installation/wiring, plumbing, plant installation, assembly and commissioning).	7 days ¹	24 hours	Operations			Crushing (primary, secondary and tertiary)	7 days	6:00am to 6:00pm	Blasting	Monday to Saturday ¹	9:00am to 5:00pm	All other	7 days	24 hours	Notes: 1 . Public Holidays excluded.		
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All other	7 days	24 hours																																				
Notes: 1 . Public Holidays excluded.																																						
Project Life	- Two year site establishment and construction period. 10 year operational period for mining and processing. - Two year decommissioning, landform establishment and revegetation period. - Seven year rehabilitation monitoring period.																																					
Final Landform and Land Use	Stabilised final landform suitable for preservation of native ecosystems and low-intensity grazing.																																					
Note: 1 Maximum annual movement only, not coincident. 2 Mismatched totals due to rounding. 3 Includes 2.4Mt of material classed as “uncertain” and assumed to be PAF for material management purposes.																																						



1.5 Project Objectives

The objectives in developing and operating the Project are to:

- Achieve “nature positive” outcomes for the Project via the establishment of conservation land dedicated to the preservation of native flora and fauna.
- Maintain an open, co-operative and honest relationship with the surrounding community.
- Develop and operate the Project in a manner that is considerate of local land uses and ensures the amenity of the surrounding community is not unduly affected.
- Develop and operate the Project in compliance with all relevant statutory requirements.
- Secure access to a strategically located and long-term mineral resource to produce a high-quality tin concentrate for export to international markets.
- Maximise the efficient recovery of the Taronga tin deposit’s resources.
- Provide stimulus to the local economy and build socio-economic capacity through employment and supply opportunities.
- Achieve the Project’s objectives in a cost-effective manner to ensure security of employment of employees, contractors and service providers.
- Develop and operate the Project in a manner that minimises surface disturbance and impacts to the local environmental setting.
- Develop and implement a range of management and mitigation measures that ensures compliance with appropriate environmental criteria and reasonable community expectations.
- Create a final landform that is suitable for a post-mining land of nature conservation.

1.6 Project Background

1.6.1 Project History

Alluvial tin was discovered in Vegetable Creek, near Emmaville in 1872. This was followed downstream to the vicinity of the Project. Many of the gullies draining into Vegetable Creek from the proposed Mine Site were subsequently worked between 1872 and 1924 with a total recorded tin concentrate production of 481 tonnes.

Exploration across the Taronga tin deposit (hereafter referred to as the “deposit”) was conducted by Broken Hill Proprietary Limited (BHP) in three phases between 1933 and 1964. Early exploration included the construction of shallow surface costeans and percussion drilling. An 82m adit was also developed with the last stage of work involving geophysical survey and further exploration drilling.

Between 1971 and 1978, the area was held by Minerals Recovery (Australia) NL who mined surficial (eluvial) material on the south side of Grampians Ridge using scrapers for processing with trommels and jigs. While records are inconclusive, it appears that around 100t of tin concentrate was produced during this period.

Newmont Holdings Pty Ltd and its Joint Venture Partners (Newmont JV) subsequently acquired the exploration licences covering the deposit in 1978. Exploration undertaken by the Newmont JV during the six year period between 1978 and 1984 included over 33,000 metres (m) of drilling. Bulk sampling and pilot metallurgical programs were also undertaken on 3,000 tonnes (t) of material extracted from three adits.

The Newmont JV completed a Pre-Feasibility Study in 1983 which identified a resource of 37.6Mt of ore at 0.15% tin which contained more than 57,000t of tin metal. However, adverse market conditions during the mid-1980s resulted in the Newmont JV's relinquishment of the prospect.

The Taronga tin deposit and surrounding exploration licences were then acquired by Taronga Mines Pty Limited in 2010. Taronga Mines Pty Limited merged with AusNiCo Limited in 2012 to create Aus Tin Mining Limited (Aus Tin). Aus Tin announced a maiden Mineral Resource (JORC, 2012) in August 2013 that presented a 36.3Mt Indicated and Inferred resource with 57,200t of tin (at 0.16%), 26,400t of copper (at 0.07%) and 4,400,000 ounces of silver (at 3.8 grams per ton)

In April 2014, Aus Tin prepared an updated Pre-Feasibility Study which proposed to extract approximately 2.5Mtpa of ore over a 9 year Mine-life that would be processed to produce approximately 2,600t of tin in concentrate per annum.

First Tin subsequently acquired the Taronga Tin Project via its purchase of the Applicant from Aus Tin in April 2022. Following this acquisition, the Applicant has undertaken further exploration to confirm the resource via a program of reverse circulation drilling (approximately 4,700m in 45 holes) and diamond drilling (1,658m in 13 drillholes). The Applicant has also undertaken a program of bulk sampling, geotechnical drilling investigations, groundwater monitoring bore installation and a range of other investigations to inform a Feasibility Study that has recently been published. This study will form the engineering basis for the development application.

1.6.2 Historic Approvals and Licences

Aus Tin sought and received Development Consent 56/16-17 (DA 56/16-17) from Council in December 2017 for a trial mine (the "Stage 1 Project") to determine whether future stages of development should proceed. DA 56/16-17 approved the extraction of up to 410,000t of ore and waste rock from sections of the Northern Open Cut Pit. The consent authorised onsite processing of extracted ore to produce approximately 1,000t of tin concentrate.

However, Aus Tin opted for a program of further bulk sampling and exploration drilling instead of the approved Stage 1 Project. In June 2021, Aus Tin sought approval to undertake further bulk sampling but did not complete the program prior to First Tin acquiring the Applicant and DA 56/16-17 lapsed in December 2022.

1.6.3 Current Mining Titles, Approvals and Licences

The following section provides an overview of the current mining titles and licences held by the Applicant with their details presented in **Table 3**. The boundaries of the Applicant's Mining Act tenures in the vicinity of the Project and its Mining Lease Application area are shown on **Figure 5**.

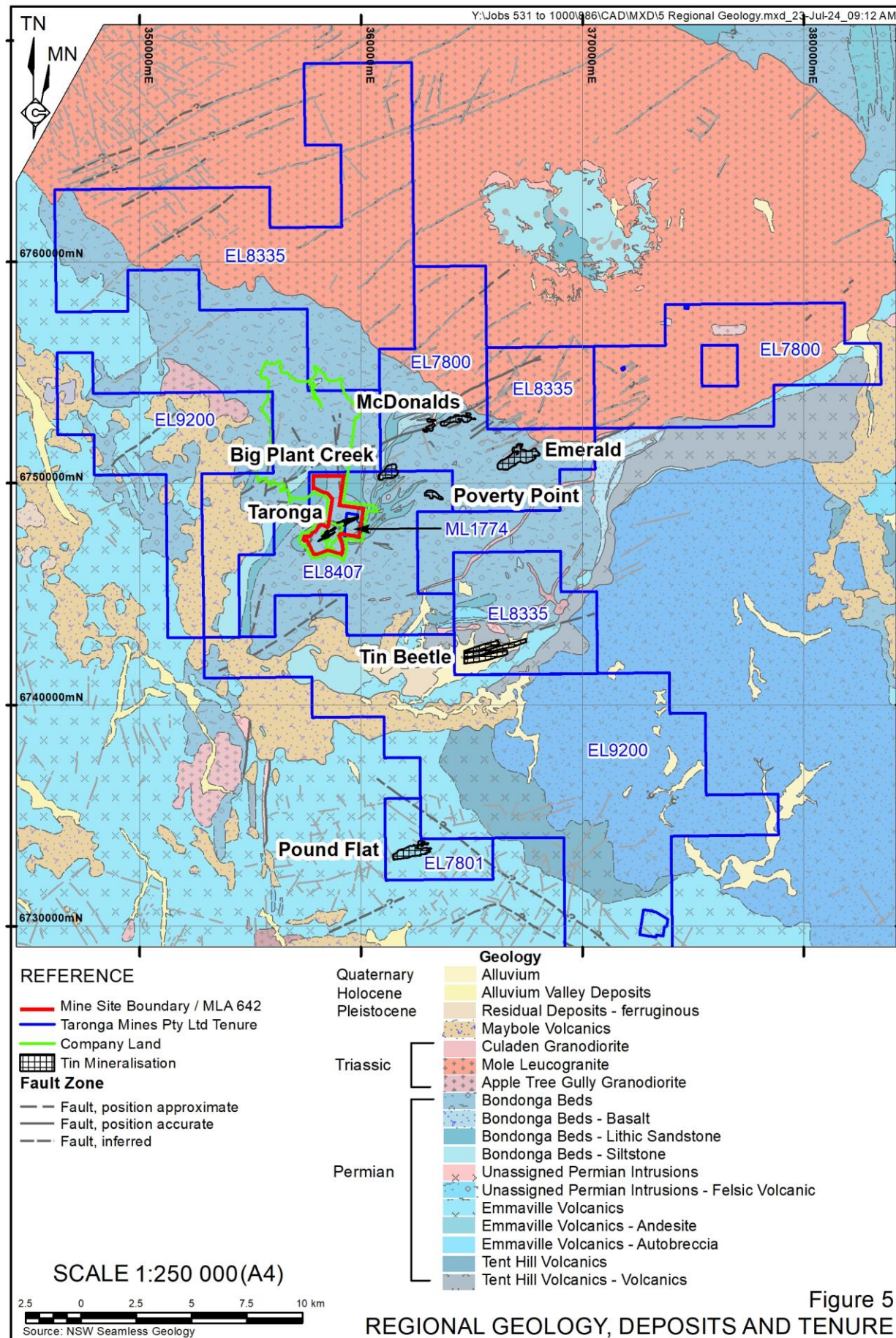
Table 3
Current Mining Titles and Licences

Title/Approval/Licence	Issue Date	Expiry Date	Details
Mining Act 1992			
Exploration Licence (EL) 7800	04/07/2011	04/07/2025	Minerals Exploration for Group 1 minerals
Exploration Licence (EL) 7801	04/07/2011	04/07/2024 ¹	Minerals Exploration for Group 1 minerals
Exploration Licence (EL) 8335	01/05/2015	01/05/2027	Minerals Exploration for Group 1 minerals
Exploration Licence (EL) 8407	04/11/2015	04/11/2028	Minerals Exploration for Group 1 minerals
Exploration Licence (EL) 9200	21/06/2021	21/06/2027	Minerals Exploration for Group 1 minerals
Exploration Licence (EL) 9611	23/10/2023	23/10/2026	Minerals Exploration for Group 1 minerals
Mining Lease (ML) 1774	21/09/2018	21/12/2029	Minerals mining and processing
Mining Lease Application (MLA) 642	19/12/2023 ²	Not Applicable	To be confirmed
Water Management Act 2000			
Water Access Licence (WAL) 44962	17/10/2023	Not Applicable	Entitlement for 636 unit shares of groundwater from the New England Fold Belt MDB Groundwater Source
Water Use and Supply Works Approval 90WA835753	14/01/2019	14/01/2029	Approval to construct and use an earth fill dam on Lot 12 DP 1292270
Protection of the Environment Operations Act 1997			
Environment Protection Licence (EPL) 21160	05/08/2018	N/A	Permitting scheduled activities up to 30,000tpa.
Note:			
1 Under renewal			
2 Date of application			

Mining Act 1992

Following receipt of DA 56/16-17, in September 2018 the Applicant under Aus Tin's then ownership obtained Mining Lease (ML) 1774 that is wholly situated within the boundaries of Exploration Licence (EL) 8407. The Applicant holds four other Exploration Licences (EL 7800, EL 7801, EL 8335 and EL 9200) in the vicinity of the Project and another (EL 9611) approximately 60km southwest. Whilst there are neighbouring exploration licences, there are currently no other operations or developments proposed in the vicinity of the Mine Site.

In December 2023, the Applicant submitted Mining Lease Application (MLA) 642 for an area which encompasses the proposed Mine Site and ML 1774. Should the Project be approved, MLA 642 would be converted to a Mining Lease and the Applicant would surrender ML 1774.



Water Management Act 2000

The Applicant holds Water Access Licence (WAL) 44962 that was granted in October 2023 following a successful controlled allocation application. WAL 44962 entitles the Applicant to 636 unit shares of groundwater from the New England Fold Belt Murray Darling Basin (MDB) Groundwater Source of the NSW MDB Fractured Rock Groundwater Sources. The Applicant intends to use WAL 44962 to account for any predicted inflows to the open cut pits as well as a make-up water supply to meet Project-related demand.

The Applicant also holds a Water Supply Works and Water Use Approval (90WA835753) permitting the construction of an earth fill dam within Lot 12 DP 1292270. This approval was sought by Aus Tin following the grant of DA 56/16-17. However, this dam has not been constructed nor is it associated with a WAL entitlement from the Beardy River Water Source that is managed under the Water Sharing Plan for the NSW Border Rivers Unregulated Water Sources.

Protection of the Environment Operations Act 1997

The Applicant holds Environmental Protection Licence (EPL) 21160 that was issued in December 2018 to permit, up to a maximum of 30,000tpa, the following scheduled activities on Lot 12 DP 1292270:

- Crushing, grinding or separating;
- Mineral processing; and
- Mining for minerals.

Should the Project be approved, the Applicant would submit a request to vary EPL 21160 to the NSW Environment Protection Authority (EPA) to reflect approved, Project-related activities.

1.6.4 Regional Geology

The deposit is located within the southern section of the New England Orogen, the youngest and hence the most easterly orogen of the Tasmanides system which occupies the eastern third of the Australian continent (Rosenbaum, 2018). The New England Orogen is bounded to the west by the Sydney – Gunnedah – Bowen basin system. During the Silurian to Carboniferous periods, the New England Orogen was an active, westward dipping subduction zone that ceased in the middle Permian to Triassic periods.

The southern section of the New England Orogen is separated into two zones by the (generally) northwest to southeast trending, regional scale (650km) Peel-Manning fault system. The western zone, an Upper Silurian to Carboniferous arc and forearc basin sequence, is known as the Tamworth Belt. The eastern zone, within which the deposit is situated, is known as the Tablelands Complex, a Silurian to Lower Carboniferous accretionary complex created by the subducting crust. Large volumes of I- and A-type granites were emplaced into the Tablelands Complex during the middle Permian to Triassic periods, following the cessation of active subduction.

1.6.5 Local Geology

The deposit's geological setting in relation to the Tablelands Complex is shown on **Figure 5** whilst the geology of the Mine Site is presented on **Figure 6**. **Figure 5** identifies the deposit as being hosted by the Permian “Bondonga Beds”, a unit of the Tablelands Complex comprising contact metamorphosed sedimentary rocks (hornfels). These are mainly meta-siltstones and meta-sandstones in the immediate deposit area, apart from a zone of lithic sandstone and basalt that trends through the centre of the deposit (refer **Figure 6**).

As shown on **Figure 5**, the Late Permian “Emmaville Volcanics”, situated south of the Mine Site, also hosts tin mineralisation (Pound Flat). This unit is largely comprised of felsic volcanic and volcanoclastic rocks of rhyolitic to dacitic composition with minor sedimentary interbeds and is in complex fault contact with the “Tent Hill Volcanics”. This latter unit, southwest of the Mine Site, near Emmaville, is of similar composition to the Emmaville Volcanics and also hosts tin mineralisation (Tin Beetle).

As noted in Section 1.6.4, intrusive I- and A-type granites were emplaced within the Tablelands Complex following the cessation of active subduction during the Triassic. The principal Triassic age intrusions that outcrop in the area are shown on **Figure 5** and include the Apple Tree Gully Granodiorite (~252Ma) and the Mole Leucogranite (~246Ma). However, several dykes of granodioritic to monzonitic composition are also present.

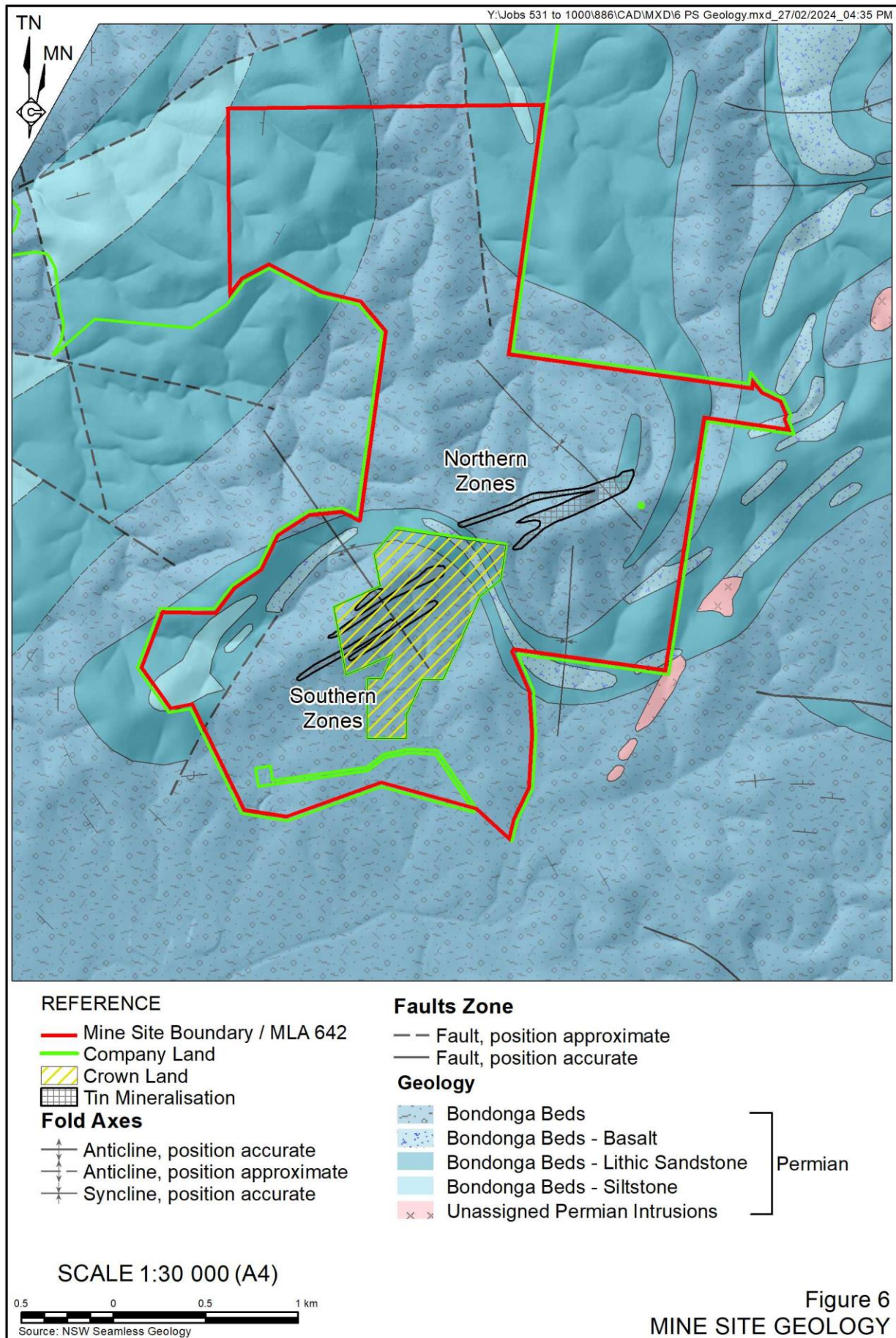
Overlying the Permian and Triassic units are the Eocene (44-33Ma) alkali basalts of the Maybole Volcanic Suite (refer **Figure 5**). These basalts generally flowed along the topographic lows of local drainage systems, although some volcanic cones have been identified. In some areas these basalts preserve palaeo-placer tin deposits which have historically been mined as ‘deep leads’.

Cenozoic (2.58Ma) to recent alluvium has also accumulated in active drainage systems. In places, this alluvium is highly ferruginous (hematitic) and locally referred to as ‘laterite’. This ferruginous material is generally associated with basaltic areas and, historically, the alluvium has hosted the placer deposits that have produced considerable amounts of tin.

The main structural components of note are a series of open folds with axial planes that generally trend northwest to west-northwest. As shown on **Figure 5**, there are also prominent east to east-northeast trending brittle faults and fracture systems that are crosscut by later north-westerly trending brittle faults. These east to east-northeast trending faults and fracture systems appear to be the main controlling structures for tin mineralisation in the district.

1.6.6 Mineralisation

Tin mineralisation at the deposit occurs in a series of sub-vertical, sheeted, quartz-mica-sulphide-cassiterite+/- fluorite-topaz veins that can be traced over at least 2.6km strike and a combined width of up to 260m. This mineral assemblage is consistent with “greisen” style mineralisation that is related to late magmatic fluids becoming enriched in incompatible elements following extensive crystallisation, possibly during several episodes of intrusion at different crustal levels. The Mole Leucogranite, which outcrops approximately 7km to the northeast of the deposit, is interpreted as being the source of the tin mineralising fluids. The Applicant has completed one drillhole that intersected granite at a depth of around 330m beneath the deposit.



The two main parts of the deposit (Southern and Northern) are shown on **Figure 6**. Each of these contains areas of sheeted veining. In the north, several zones tend to merge into a single broad area of mineralisation, whilst in the south there are at least four distinct widely spaced zones. Tin occurs mainly (over 95%) as 0.1mm to 3mm cassiterite grains, occasionally up to several cm. Minor stannite has also been noted in thin sections but is volumetrically insignificant. Coarser cassiterite grain size is observed in the Southern Zone, along with greater vein widths and closer vein spacing. Cassiterite predominantly occurs in veins and joint planes between 0.5mm and 10mm (occasionally up to 50mm) in width. Less than 5% of tin occurs outside of these veins and joints. The veins hosting the mineralisation have a significantly lower rock strength than the host hornfels and, as such, the rock tends to break along these veins when crushed, thus liberating most of the cassiterite at the relatively coarse crush size of 100% passing 12mm.

1.6.7 Mineral Resources and Reserve

The Applicant commissioned H&S Consultants Pty Ltd to prepare a Mineral Resource Estimate (MRE) for the Project that was compliant with the reporting requirements of the Joint Ore Reserves Committee (JORC 2012). This estimate, based on a 0.05% tin cutoff grade and H&S' review of the Applicants resource database, resulted in the Mineral Resource Estimate (H&S 2023), presented in **Table 4** that First Tin released to the London Stock Exchange on 14 September 2023.

Table 4
Mineral Resource Estimate for the Taronga Tin Project

Category	Million tonnes (Mt)	Percent Tin (Sn%)	Tin (Thousand tonnes [kt])	Density (tonnes per cubic metre [t/m ³])
Measured	33.0	0.13	44.2	2.75
Indicated	38.9	0.11	42.0	2.75
Inferred	61.1	0.09	51.9	2.75
Total	133.0	0.10	138.3	2.75

Source: H&S (2023), Table 11-14

It is noted that the H&S (2023) MRE represents an 81.1kt increase in contained tin to Aus Tin's 2013 MRE noted in Section 1.6.1.

1.7 Key Mitigation Strategies

The following key mitigation strategies have been incorporated into the design of the Project to avoid or minimise the impacts of the proposed activities.

- The Mine Site layout has considered and incorporated all feasible design alternatives to preserve existing local amenity (i.e. noise, air quality and visibility) to the extent practical.
- Processing operations have been configured to preserve existing local amenity, including limiting primary, secondary and tertiary crushing to daylight hours.

- The Mine Site layout has considered and incorporated all feasible design alternatives to avoid and minimise environmental impacts to the extent practical.
- The Project's footprint has been minimised to the extent practicable to reduce disturbance and avoid unnecessary biodiversity impact.
- The Project would establish an onsite Biodiversity Offset Area through a Biodiversity Stewardship Agreement to preserve, in perpetuity, adjacent Company-owned land for the purpose of nature conservation.
- Consultation with surrounding landholders, community members, Council and government agencies will continue to be undertaken during the preparation of the EIS to ensure that key issues raised are addressed at the planning stage.
- A highly skilled and qualified team of Specialist Consultants has been assembled to undertake detailed assessments of the anticipated environmental aspects of the Project and ensure that likely Project-related impacts are accurately identified and mitigated throughout the preparation of the EIS.

2. Strategic Context

2.1 Project Justification

2.1.1 Introduction

The Commonwealth and NSW Governments have published a range of documents that collectively provide the basis for State and Federal government strategic planning in NSW. Central to many of these documents is the recognition that the mining, agriculture and transport industries provide essential employment and economic activity for regional areas of NSW and that each of these industries must be developed in a manner that supports the communities and environment within which those industries operate. The planning documents that are relevant to the Project and a brief description of how each of those documents provides strategic support to the Project are outlined in the following subsections. Additional discussion of each of these documents will be provided in the EIS.

2.1.2 Commonwealth Legislation and Strategic Plans

2.1.2.1 Climate Change Act 2022

The Commonwealth *Climate Change Act 2022* seeks to legislate Australia's greenhouse gas emissions reduction target of:

- 43% below 2005 levels by 2030; and
- Net zero emissions by 2050.

The Project would contribute to these targets as follows.

- By providing a critical high technology metal that, as a Commonwealth identified Strategic Material, is essential to the development and manufacture of low carbon emissions technology.
- By installing sufficient onsite generation capacity to reduce carbon dioxide (CO₂) emissions associated with power generation by approximately 15,000tpa compared with grid power.
- By committing to regularly review the Project's greenhouse gas emissions and potentially increasing the onsite renewable generation and energy storage capacity as technology develops and economic circumstances change.

2.1.3 Strategic Plans

2.1.3.1 Critical Minerals and High-Tech Metals Strategy

The NSW *Critical Minerals and High-tech Metals Strategy* (Critical Minerals Strategy) outlines the NSW Government's vision to build on and position NSW as a major global supplier and processor of critical minerals and high-tech metals well into the future. The Critical Minerals

Strategy identifies the importance of high-tech metals developing technologies and decarbonisation, with demand for these minerals expected to surge in the coming decades. Tin is identified as a high-tech metal, and the Project has been awarded a Grant as a Critical Minerals Project by the NSW Government.

2.1.3.2 Northern New England High Country Regional Economic Development Strategy 2018 – 2022

The *Northern New England High Country Regional Economic Development Strategy 2018 – 2022* (RED Strategy) sets out a long-term economic vision and associated core strategies for the functional economic region encompassing the Glen Innes Severn, Tenterfield Shire and Southern Downs Regional Council LGAs.

The RED Strategy recognises mining as a key sector, and that the region contains the largest undeveloped hard rock tin deposit within Australia. Tin metal has applications in the electronics and renewable energy sectors and the Project, if approved, would support these sectors, particularly into the future considering supply from traditional international sources is forecast to decline as resources are depleted.

The *Northern New England High Country Regional Economic Development Strategy - 2023 Update* affirmed that the key endowments stated in the RED Strategy, including the undeveloped hard rock tin deposit, remain valid.

2.1.3.3 20-Year Economic Vision for Regional NSW

The *20-Year Economic Vision for Regional NSW* (the Vision), published by the NSW Government in February 2021, aims to drive sustainable, long-term economic growth in regional NSW and unlock the significant economic potential of the regional areas in NSW. The Vision aims to add 180,000 residents and 64,000 jobs to regional areas in NSW over the next 20 years. Mining is identified as one of the seven “engines” of the regional NSW. The Vision describes several priority actions for regional economic development. The *Regional NSW Investment Attraction Strategy 2022 - 2027* (the IA Strategy), was subsequently released by the NSW Government in October 2022 to document the means (enablers) to achieve the Vision.

The following identifies how the Project is consistent with the Vision’s priority actions and the enablers of the IA Strategy (in brackets).

- Principle 2 (Enabler 3) - Improved travel between regional centres and from regional centres to international gateways
The Project would improve transport linkages between the Mine Site, Emmaville and the New England Highway via upgrades to sections of the Concentrate Transport Route.
- Principle 5 (Enabler 1) - A skilled labour force for current and future needs of the regions.
The Project would enable the Applicant to continue to employ and train regionally-based employees, including young people and members of the Aboriginal community.

2.1.3.4 Glen Innes Severn Council Local Strategic Planning Statement

The *Glen Innes Severn Council Local Strategic Planning Statement* (the Statement) sets out the economic, social and environmental land use needs for the Glen Innes Severn community to 2040. The Statement provides clear planning priorities and identifies the framework to maximise opportunities for employment and economic development within the Glen Innes Severn LGA.

Whilst mining is not specifically identified in the Statement, the Project would support the following priorities:

- Priority 6 - Continue to develop service and logistics infrastructure on appropriate sites and encourage new industry opportunities.

Whilst the Project represents the return of an historical economic activity, it can be considered a new industry opportunity for the current generation of residents. The Project would be situated on land where mining is permissible (with consent) and result in upgrades to sections of local roads, including Grampians and Wellington Vale Roads with improved safety features and flood protection.

- Priority 10 - Promote and support the transition to renewable energy.
The Project would produce high quality tin concentrate that is a critical metal for the energy transition and includes the development of on-site power generation capacity from renewable sources to support operations that may, in future, be connected to the electricity distribution network.

2.1.4 Planning Instruments

A range of statutory planning instruments apply to the Project. The Applicant will ensure that the Project would be consistent with the requirements of each of these instruments that will also be addressed in EIS. These instruments include, but are not limited to, the following.

- *State Environmental Planning Policy (Planning Systems) 2021.*
- *State Environmental Planning Policy (Biodiversity and Conservation) 2021.*
- *State Environmental Planning Policy (Resources and Energy) 2021.*
- *State Environmental Planning Policy (Resilience and Hazards) 2021.*
- *State Environmental Planning Policy (Primary Production) 2021.*
- *Water Sharing Plan for the NSW Murray Darling Basin Fractured Rock Groundwater Sources Order 2020.*
- *Water Sharing Plan for the NSW Border Rivers Unregulated Rivers Water Sources 2012.*
- *Glen Innes Severn Local Environmental Plan 2012.*

2.1.5 Policy Documents and Guidelines

The Applicant will ensure that the Project would, to the extent practicable, be consistent with the requirements of each of the following policies and guidelines that were current at the time of preparing this Scoping Report.

- *Aquifer Interference Policy.*
- *Guidelines for Controlled Activities.*
- *Noise Policy for Industry.*
- *NSW Road Noise Policy.*
- *Interim Construction Noise Guideline.*
- *Biodiversity Assessment Method.*
- *Biodiversity Offsets Scheme.*
- *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010.*
- *Code of Practice for Archaeological Investigations of Objects in NSW.*
- *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW.*
- *Guide to Traffic Generating Developments.*
- *Hazardous and Offensive Development Application Guidelines – Applying SEPP 33.*
- *Waste Classification Guidelines.*

2.1.6 Project Justification

The Project would provide for the extraction of a regionally significant tin resource for the benefit of the residents of the Glen Innes Severn LGA, the Northern New England High Country Region and the State of NSW. In addition, the Project would also provide social and economic opportunities for the Applicant's current and future employees as well as suppliers and stakeholders. More broadly however, the Project represents an opportunity to develop a tin resource with identified strategic implications for both the Commonwealth and the State of NSW as it would support meeting the demand requirements of the energy transition, both locally and internationally.

The Project would be consistent or compliant with all relevant components of the Strategic Plans, Planning Instruments and Policy Documents.

2.2 Key Features of the Mine Site and Surrounds

2.2.1 Introduction

The Applicant is seeking development consent to permit mining operations and the construction and operation of a range of components that are shown on **Figure 3**. Whilst the location of the proposed Mine Site is determined principally by the location and accessibility of the mineral resource, TMPL adopted an iterative approach to positioning the principal components of the Mine Site.

This approach aimed at using, to the extent practical, local topographic features to preserve amenity for near-neighbours and residents of Emmaville. This means the proposed Mine Site layout maximises operational efficiency whilst advantageously using topography to naturally attenuate Project-generated impacts. This has resulted in key noise and dust generating activities being situated in the valley of Little Plant Creek, north of Grampians Ridge and away from residences.

The existing topography also shields much of the Mine Site from the view of most neighbouring residences and further afield (e.g. Emmaville).

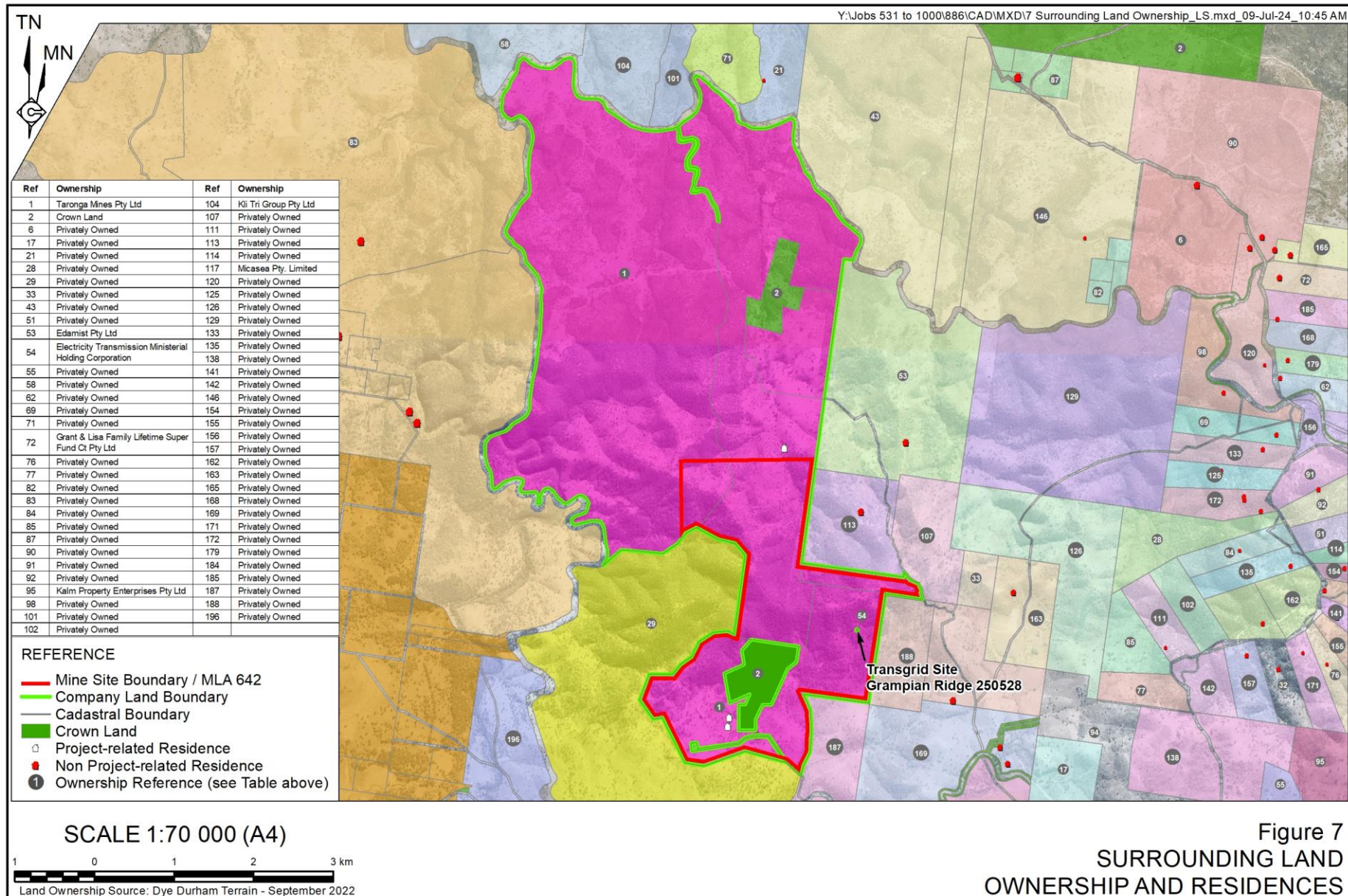
As shown on **Figure 2**, all land within the proposed Mine Site is zoned RU1 – Primary Production under the *Glen Innes Severn Local Environmental Plan 2012* (Glen Innes Severn LEP). Open cut mining is permissible with development consent on land zoned RU1. **Table 1** provides the details of all land within the proposed Mine Site boundary.

The key features surrounding the Mine Site that could affect, or be affected by, the Project include the local and regional community, surrounding land uses and land ownership, and surrounding natural and built features.

2.2.2 Local and Regional Community

The Applicant, through current and previous owners, has been intimately involved with the surrounding community since 2014 when community consultation and scoping for the “Stage 1 Project” commenced. In summary, the communities surrounding the Mine Site include the following.

- Surrounding rural residents (near neighbours)
The area surrounding the Mine Site is a rural area with sparsely located agricultural properties, with one or two houses on each property (**Figure 7**). These are typically occupied by residents who rely on the respective property’s agricultural operations for some or all their income or tenants.
- Residents of the town of Emmaville
The Applicant understands there is approximately 350 residents living within Emmaville. With tourist destinations within and in the vicinity of the township such as the Emmaville Mining Museum and the historic Ottery Arsenic Mine, Emmaville was, and is, closely associated with mining.



- Surrounding villages and towns

Situated within the broader locality of the Mine Site are other villages and towns that include the following (refer **Figure 1**).

- Torrington: located approximately 15km to the northeast of the Mine Site.
- Deepwater: located approximately 30km to the east of the Mine Site.
- Glen Innes: located approximately 40km to the southeast of the Mine Site.
- Inverell: located approximately 60km to the southwest of the Mine Site.

It is anticipated that the Applicant's employees would either reside within Emmaville or the above villages, towns and surrounding areas or, where required, accommodated at Applicant managed facilities in Glen Innes.

2.2.3 Land Ownership

Figure 7 displays the land ownership within and surrounding the Mine Site which identifies the land on which the proposed Mine Site would be situated is either owned by the Applicant, the State of NSW (managed by NSW Crown Lands) or the NSW Electricity Transmission Ministerial Holding Corporation or the State of NSW (managed by NSW Crown Lands).

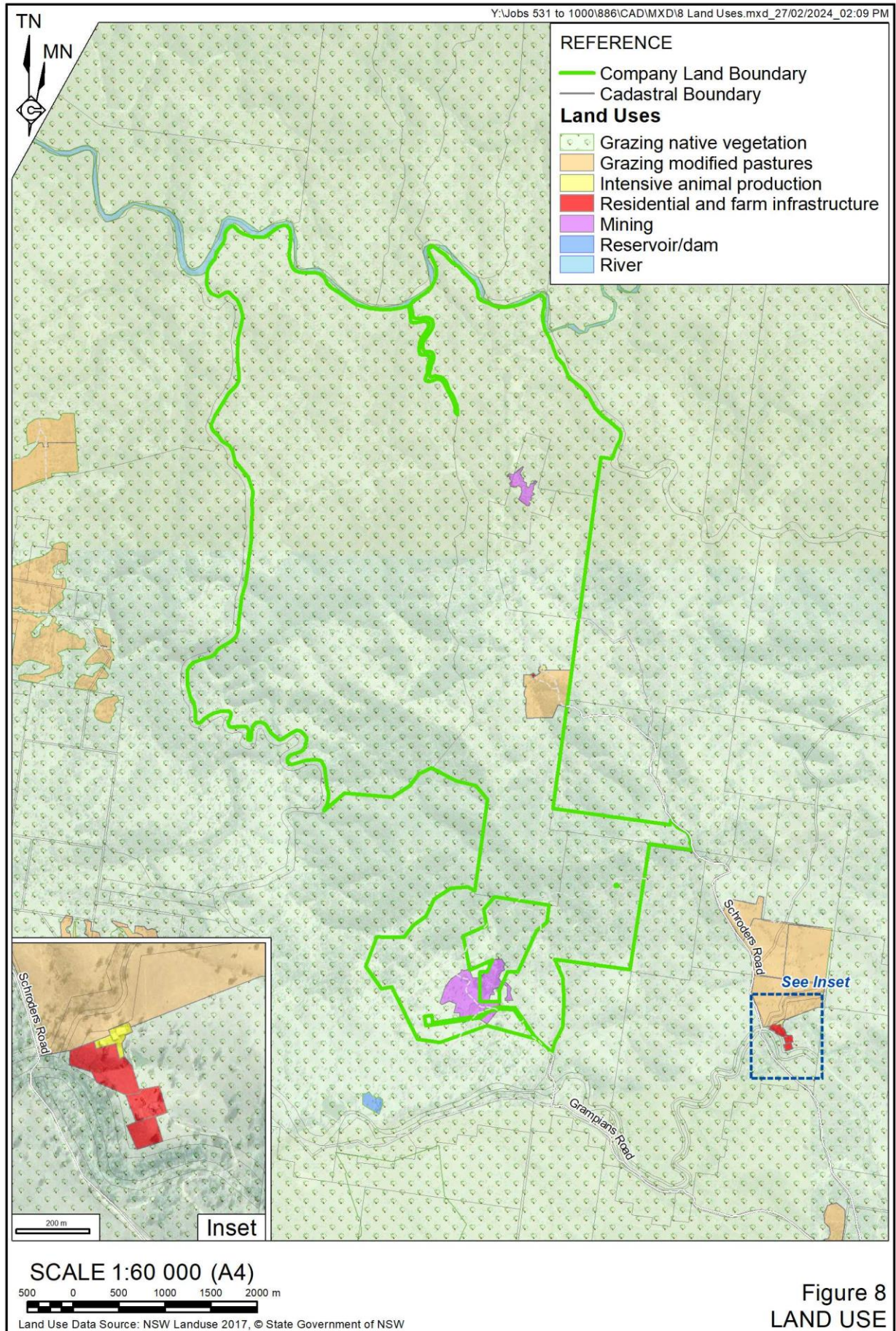
The principal access to the Mine Site would be via Grampians Road, a Council controlled road which terminates at the Mine Site boundary. As shown on **Figure 3**, some sections of key Mine Site components, including the internal Mine Site access road, haul road, Southern open cut pit, Solar Farm and Administration Area are situated within Crown Land. All other sections of the Mine Site are within freehold land owned by the Applicant.

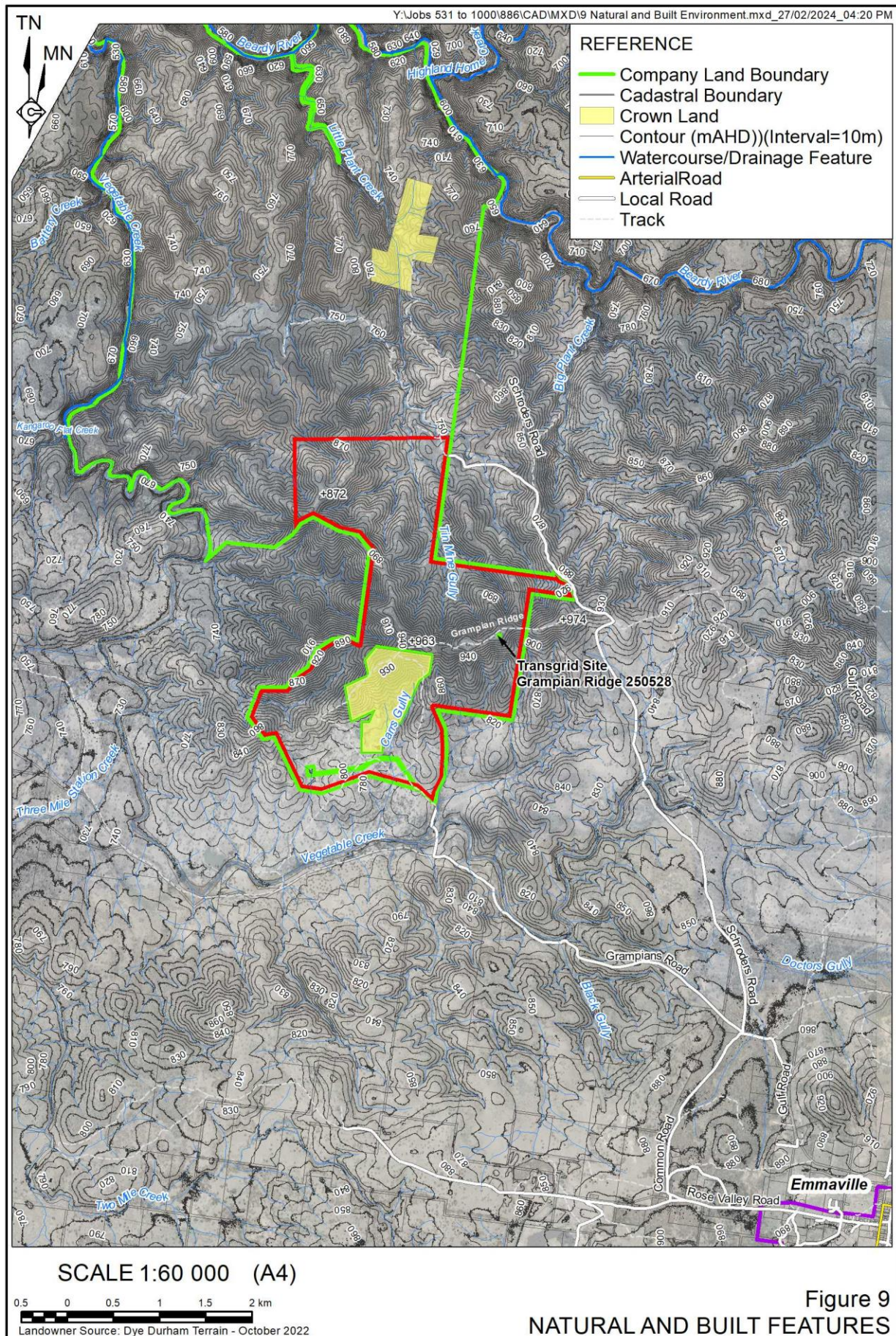
2.2.4 Surrounding Land Uses

Figure 8 presents land uses within and surrounding the Mine Site, as defined by the NSW Land Use and Management database. In summary, the principal land use within the Mine Site is "Grazing native vegetation" with an area in the southern section also identified as being for "Mining". Minor areas surrounding the Mine Site are also identified as being "Grazing modified pasture". **Figure 8** does not identify any land within the Mine Site as being used for the purposes of "Intensive animal production".

Lot 1 DP 1008294, owned by the NSW Electricity Transmission Ministerial Holding Corporation, is sub-leased to Transgrid and its wholly owned subsidiary, Lumea. A section of the Applicant-owned Lot 2 DP 1008294 is sub-leased to the NSW Telecommunications Authority (NSW TA). Situated within these lands, collectively known as Transgrid Site Grampian Ridge 250528 (refer **Figure 9**), are the following telecommunications equipment and associated infrastructure.

- 28.0m lattice tower (Transgrid/Lumea).
- 30.0m monopole tower (Transgrid/Lumea).
- Equipment Shelters (Transgrid/Lumea, NSW TA and NSW Rural Fire Service).
- Antennae (Transgrid/Lumea, NSW TA and NSW Rural Fire Service).
- Solar arrays (Transgrid/Lumea and NSW TA).





2.2.5 Natural and Built Features

Figure 9 presents natural and built features within and surrounding the Mine Site. Natural features include the following.

- Topographically, the Mine Site incorporates sections of a prominent local feature known as Grampian Ridge (refer **Figure 9**). Other incised erosional features that form narrow valleys are also present within the Mine Site. Grampian Ridge forms two limbs, as follows:
 - a northeast to southwest limb with elevations between approximately 850m AHD¹ and 970m AHD. As this limb hosts the deposit, the Northern and Southern Open Cut Pits (refer **Figure 3**) would be situated along its crest; and
 - a southeast to north-northwest limb with elevations between approximately 850m AHD and 950m AHD. The ROM pad, processing plant and workshop would be situated on the flanks of this limb whilst the internal Mine Site access road would be generally situated along the limb crest (refer **Figure 3**).
- Within the Mine Site, the slopes flanking Grampian Ridge are generally steep, between 20% to 30% but increasing to 40% and 50% in some sections. These slopes are scree covered, with little to no soil, and principally vegetated by woody species. These slopes have been cut by access tracks attributed to legacy mining, fossicking and minerals exploration. Within the narrow valleys, slopes are also steep (between 10% and 20%).
- The regional drainage setting for the Mine Site is the Beardy River, which flows into the Dumaresq River approximately 27km northwest of the Mine Site. A major tributary of the Beardy River, the fourth order Vegetable Creek generally flows in a westerly direction south of the Mine Site before switching to a northerly flow direction southwest of the Mine Site. Vegetable Creek then maintains a northerly flowpath, west of the Mine Site until it joins the Beardy River approximately 5km northwest of the Mine Site.
- Locally, Grampian Ridge and the incised topography forms multiple sub-catchments that are drained by either 1st, 2nd or 3rd order watercourses. Within the Mine Site, many of these sub-catchments are minor headwaters that would be undisturbed by Project-related activities. However, both limbs of Grampian Ridge form a sub-catchment divide that directs drainage either towards Vegetable Creek or the Beardy River. The largest sub-catchments within the Mine Site and the mining components that would be situated within each, are as follows.
 - Little Plant Creek: a northward draining sub-catchment whose principal drainage feature is a 3rd order watercourse that receives flow from multiple unnamed 1st and 2nd order watercourses before discharging into the Beardy River. This sub-catchment contains historic dams that were constructed to support agricultural or alluvial mining activities. Key Mine Site components within this sub-catchment include sections of the Northern and Southern open cut pits, the ROM pad, processing plant, co-disposal area, Eastern waste rock emplacement and the residue storage facility (refer **Figure 3**).

¹ Australian Height Datum

- Carrs Gully: a sub-catchment draining toward the south which contains the 2nd order Carrs Gully and other unnamed 1st and 2nd order watercourses that separately discharge into the fourth order Vegetable Creek. This sub-catchment also contains historic dams that were constructed to support agricultural or alluvial mining activities. Key Mine Site components within this sub-catchment include sections of the Southern open cut pit, onsite power generation facilities and the administration area (refer **Figure 3**).
- Southwestern: a minor sub-catchment that is drained by a 2nd order watercourse which flows towards the southwest before discharging into Vegetable Creek. Key Mine Site components situated within this sub-catchment would be the Southern open cut pit and the Western waste rock emplacement (refer **Figure 3**).
- Southeastern: a sub-catchment that is drained by unnamed 1st and 2nd order watercourses which flow towards the south before discharging into Vegetable Creek. Sections of Mine Site components, such as the Northern open cut pit and the magazine, would be situated within this sub-catchment (refer **Figure 3**).
- Western: a minor, westward flowing sub-catchment that is drained by a 3rd order watercourse which discharges into Vegetable Creek. Key Mine Site components situated within this sub-catchment would be sections of the Southern open cut pit and haul road, the ROM pad and the maintenance facility (refer **Figure 3**).

Built features within and surrounding the Mine Site include the following.

- Telecommunications equipment and infrastructure associated with Transgrid Site Grampian Ridge 250528 (refer **Figure 9**).
- Regional roads, including Emmaville and Wellington Vale Roads (refer **Figure 4**).
- Local roads, including Grampians, Gulf and Schrodgers Roads (refer **Figure 9**).
- Unnamed access tracks (refer **Figure 9**).
- The township of Emmaville, including residences, a general store, a hotel, motel and other infrastructure.
- Agricultural infrastructure, including farm residences, shed, fences, silos and pastoral land.

2.2.6 Risks and Hazards

An environmental risk assessment for the Project will be undertaken and presented in the EIS. However, key risks and hazards associated with the Project include the following.

- Traffic and transportation, including upgrades to sections of local and regional roads along the Concentrate Transport Route (i.e. Grampians and Wellington Vale Roads) including improvements to waterway crossings (Vegetable Creek) to reduce flood risk.

- Surface water, erosion and sediment control, including diversion of surface water around the active sections of the Mine Site and into natural drainage.
- Surface water quality, including release of mine-affected runoff generated from catchments and landforms within which processing operations occur or where processing residues or waste rock would be stored.
- Final landform and land use, including the establishment of acceptable final landforms and rehabilitation of those landforms.
- Visual amenity, including design of acceptable active and final landforms.
- Soils, land capability and agriculture, including disturbance and re-establishment of equivalent land.
- Biodiversity, including disturbance of areas of native vegetation.
- Aboriginal and historic heritage, including disturbance of areas which may be of heritage significance.
- Noise, vibration and air quality, particularly for Transgrid Site Grampian Ridge 250528 and residences neighbouring the Mine Site.
- Amenity and social impacts, including impacts to the social and community fabric of residents within Emmaville and occupants of rural residences in the vicinity of the Mine Site.

The following environmental aspects are not anticipated to be significant risks or hazards for the Project for the following reasons.

- Flooding - The proposed open cut pits and principal mining components are situated in elevated catchment headwater settings which suggest that flooding, and any resulting flood risk, is considered low.
- Groundwater – the nature and occurrence of the target resource within the continuation of hard silicified metasediments at depth results in limited groundwater being present. Furthermore, groundwater abstraction for the purpose of Project-related water supply would only occur in areas where a sustainable supply can be assured and impacts to existing users are acceptable. Notwithstanding, a detailed hydrogeological assessment, in accordance with the NSW Aquifer Interference Policy will be presented within the EIS.
- Social and Economic – the anticipated impacts would likely be positive for the township of Emmaville and surrounds. Notwithstanding, separate Social Impact and Economic Assessments will be presented within the EIS.

These key risks would be addressed using the management and mitigation measures that will be detailed throughout the EIS.

2.3 Cumulative Impacts

Cumulative impacts from the Project will be addressed in the EIS. In summary, the cumulative impact from the Project is expected to be negligible due to the relatively isolated nature of the Mine Site and the absence of mining or extraction operations in the vicinity.

2.4 Agreements

It is anticipated that the Applicant will enter into a Planning Agreement with Council. This agreement would address the maintenance of local roads utilised by the Applicant and any other relevant matter, as agreed with Council.

Consultation with the surrounding community has commenced and will be ongoing throughout the preparation of the EIS, as well as during operation of the Project. The Applicant anticipates that, where required, agreements with surrounding landholders will be negotiated based on individual circumstances and anticipated impacts on their property.

The Applicant has engaged Registered Aboriginal Parties to participate in field surveys for the Aboriginal Cultural Heritage Assessment. The Applicant has also sought wider engagement with the local Aboriginal Community to gauge interest in partnerships that promote employment and training opportunities.

The EIS will include further details of any agreements and initiatives between the Applicant and relevant stakeholders.

3. Project Description

3.1 Introduction

This section provides an overview of the Project in sufficient detail to enable the reader to understand the type and scale of activities proposed. A more detailed description of the Project will be included in the EIS. It is noted that during the preparation of the EIS, further work may result in minor modifications to the Mine Site layout and the mining components presented throughout this document.

3.2 Pre-construction

The Applicant will initially undertake a range of pre-construction works and activities to improve and control site access, complete detailed engineering investigations and prepare the Mine Site for construction. These activities would include the following.

- Survey and marking to ensure clear delineation of disturbance areas and those of retained vegetation or continuing agricultural use. All survey points would be recorded and marked on construction plans and documents.
- Suitable fencing, including warning signs, would be established to separate active construction/disturbance areas from those of retained vegetation and agricultural purposes and/or passive biodiversity conservation.
- Investigative and/or geotechnical drilling or excavation to validate/confirm design assumptions.
- Minor vegetation clearing and development of minor internal roads to support construction.
- Existing infrastructure within the disturbance area would be progressively demolished and/or relocated.
- Minor adjustments to services/utilities, including relocation (if required) to isolate relevant areas to provide safe access for construction.
- Offsite roadworks to improve Grampians Road and its intersection with Gulf Road prior to construction and heavy vehicle deliveries (refer Section 3.2.3).

3.3 Roadworks

As noted in Section 2.2.6, the Project would require upgrades to sections of Grampians Road, including the Vegetable Creek crossing, as well as the Grampians Road - Gulf Road intersection.

Concept designs for the proposed upgrades and associated works would be provided to Transport for NSW and Glen Innes Severn Council once finalised, and consultation with each agency would be ongoing.

3.4 Site Establishment and Construction

The Applicant anticipates the Project would require a two year site establishment and construction period that would involve the following activities:

- Construction and installation of temporary and permanent erosion and sediment control measures, including sediment basins, clean water diversion structures and dirty water collection drains.
- Construction of the internal Access Road and associated subordinate roads linking the component construction areas within the Mine Site.
- Construction laydown and equipment parking areas, as well as temporary site office/amenity buildings would be established.
- Vegetation clearing followed by stripping and stockpiling of soil would be undertaken.
- Borrow pits would be established within the footprint of the principal water management infrastructure components, waste rock emplacements and the facilities for managing processing residues for the supply of construction materials.
- Bulk earthworks, including drill, blast, cut and fill to prepare suitable areas and pads for the construction, installation and operation of mining components.
- Initial grade control drilling and marking of ore zones in the footprints of the open cut pits.
- Drill and blast of overburden within the footprints of the open cut pits for the supply of NAF construction materials.
- Construction and/or installation of the ROM pad, crushing circuit, processing plant, administration area (including offices, workshops, diesel store, equipment parking, vehicle washdown bay, etc), internal site roads, hard stands, explosives magazines, water storages, and other site infrastructure.
- Corridors and infrastructure allowing the offsite connection of services including powerlines and pipelines would be established where and as required.
- Delivery of materials, mobile and fixed plant by road vehicles (heavy, oversize/overmass) to support site establishment and construction activities.

3.5 Mining Operations

Mining operations would utilise conventional drill and blast, load and haul methods for the development of two separate open cut pits (Northern and Southern) that would be situated on Grampians Ridge. At full development, the Northern open cut pit would be approximately 190m deep whilst the Southern open cut pit would be approximately 150m deep. As mining operations progress, permanent access to each open cut pit would be via dual-lane haul roads that would be supplemented by temporary single-lane haul roads for access to the uppermost benches of the respective starter pits.

3.5.1 Extraction

The removal of near surface material (i.e. soil, colluvium) would be undertaken using conventional free dig, load and haul techniques. This material would be stockpiled for use in rehabilitation activities.

Once more competent material is exposed, it would be extracted using conventional drill, blast, load and haul techniques.

3.5.2 Open Cut Pit Development

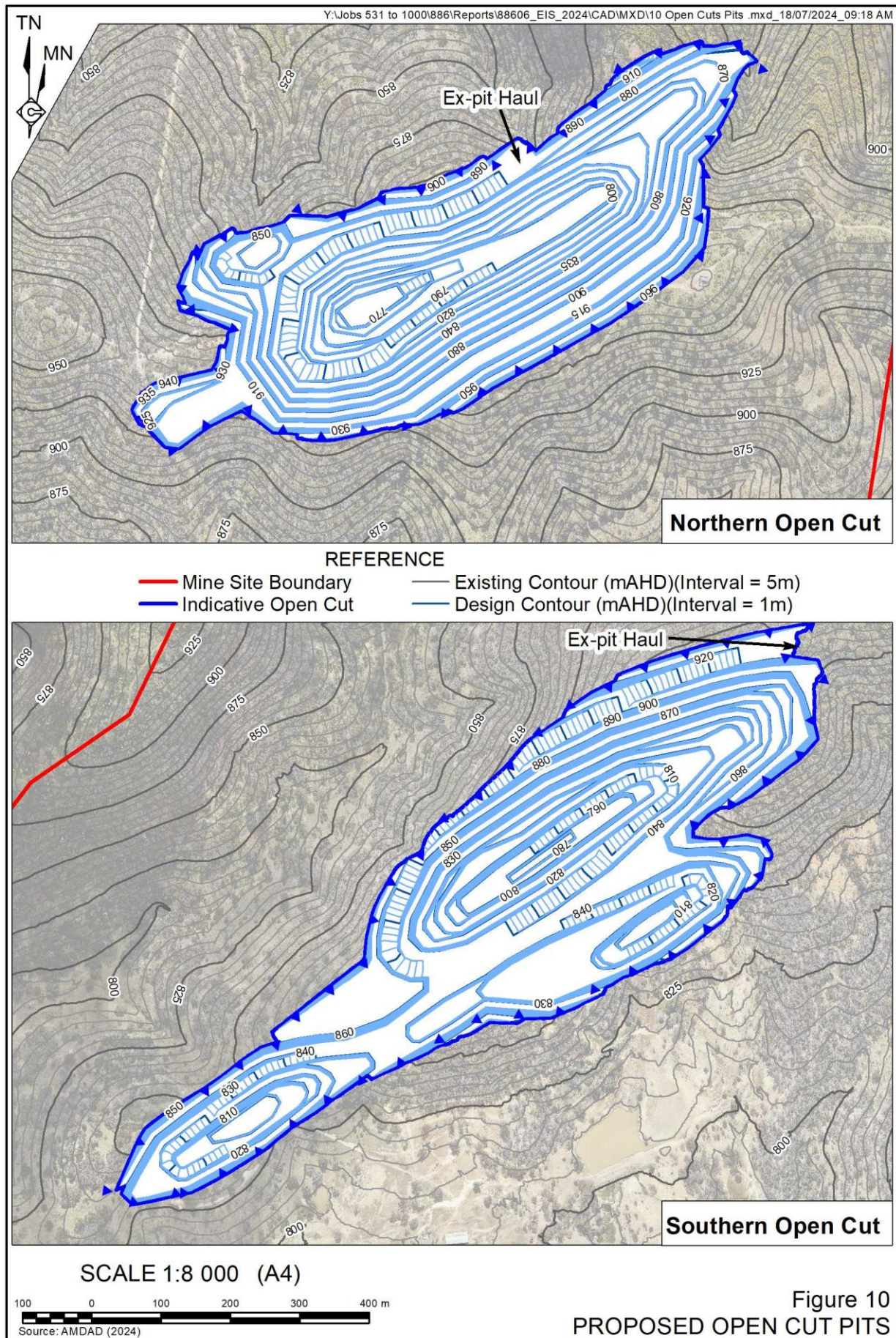
Open cut mining operations would commence with a starter pit in the central section of the Northern open cut pit. Mining operations would then progressively develop the Northern open cut pit to a floor depth of 770m AHD. This would occur by expanding the starter pit to the north, east, south and west until the pit reaches approximately 1,000m (northeast/southwest) and 300m (northwest/southeast). A permanent pit entrance for the haulage of ROM ore and waste rock would be established on the pit's north wall at 870m AHD.

Development of the Southern open cut pit would commence approximately 6 months after commencement of the Northern open cut's starter pit. This would involve a starter pit in the central section of Southern open cut pit's overall footprint. The Southern open cut pit would then be progressively developed to the north (70m), 160m (south), 240m (east) and 600m (west) until reaching its proposed floor of 775m AHD. As pit development progresses, a permanent pit entrance for the haulage of ROM ore and waste rock would be established on its northeastern boundary at 920m AHD.

Table 5 presents the indicative parameters adopted for the design of the Northern and Southern open cut pits. **Figure 10** presents the indicative design of the Northern and Southern open cut pits at full development, including internal haul roads, benches and permanent pit access points for ROM ore and waste rock haul.

Table 5
Indicative Open Cut Pit Design Parameters

Parameter	Value
Extraction Floor Elevation(s)	770m AHD (Northern open cut pit) 775m AHD (Southern open cut pit)
Bench Face Angle(s)	60° (weathered material) 65° to 75° (unweathered material)
Bench Height	10m (weathered material) 20m (unweathered material)
Bench Width	8m (weathered material) 9m (unweathered material)
Maximum Haul Road Gradient	1:10
Haul Road Width(s)	24m (permanent) 14m (temporary)
Source: TMPL 2024	



3.5.3 Load and Haul

Mobile fleet would be utilised for the load and haul of up to 10Mtpa of blasted waste rock and ROM ore. ROM ore would be hauled to the ROM pad (refer **Figure 3**) for stockpiling or direct feed into the crushing circuit

Waste rock would be hauled for storage in either the Eastern or Western waste rock emplacements that are positioned immediately north of the open cut pits. Generally, waste rock extracted from the Northern open cut pit would be hauled to the Eastern waste rock emplacement whilst that from the Southern open cut pit would be hauled to the Western waste rock emplacement.

The locations of haul roads (temporary and permanent) are shown on **Figure 3**. Haul roads would be maintained by a grader with the suppression of wheel generated dust occurring via a water truck.

Table 6 presents a summary of the Project's indicative annual material (ROM ore and waste rock) movement.

Table 6
Indicative Annual Material Movement Summary

Material Movement	Million tonnes (Mt)	Total	Mining Year									
			0	1	2	3	4	5	6	7	8	9
ROM Ore	Mt	39.7	0.2	3.8	5.1	5.0	4.9	5.1	4.9	5.0	3.9	1.8
Waste Rock	Mt	40.5	0.4	3.2	4.9	5.0	5.1	5.0	5.1	4.9	5.2	1.8
TOTAL	Mt	80.3	0.6	7.0	10.0	10.0	10.0	10.0	10.0	9.9	9.1	3.6
Source: TMPL 2024												

3.6 Waste Rock Management

3.6.1 Material Classification

To inform the Project's Feasibility Study, samples of waste rock have been subjected to a program of static testing and acid base accounting to classify the material according to its acid forming, and acid consumption potential. A kinetic testing program remains ongoing to quantify the geochemical behaviour of exposed waste rock over time.

The material classification was used as input to the Project's indicative mining schedule that identifies mining operations would extract up to 40.5Mt of waste rock, of which:

- 74% (30.0Mt) is considered non-acid forming (NAF);
- 20% (8.1Mt) is considered potentially acid forming² (PAF); and
- 6% (2.4Mt) is considered uncertain.

² The waste rock classification scheme adopted for the mining schedule utilized total sulfur assay data obtained from exploration drilling to assign mining blocks. For conservatism, this schedule assumes that, where total sulfur assay data is unavailable, the mining block is PAF. Therefore, it is possible that the proportion of PAF is lower than estimated.

Table 7 presents a summary of the Project’s indicative annual waste rock material movement by type and origin (i.e. Northern or Southern open cut pit).

Table 7
Indicative Annual Waste Rock Movement by Class Summary

Open Cut Pit	Class	Million tonnes (Mt)	Total	Mining Year									
				0	1	2	3	4	5	6	7	8	9
Southern	NAF	Mt	20.5	0.0	0.1	1.0	1.4	0.7	2.6	3.9	4.0	5.1	1.8
	UNC	Mt	1.0	0.0	0.0	0.0	0.1	0.3	0.3	0.1	0.2	0.0	0.0
	PAF	Mt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Northern	NAF	Mt	9.4	0.1	1.4	1.5	1.6	2.2	1.4	0.7	0.4	0.0	0.0
	UNC	Mt	1.4	0.0	0.1	0.2	0.3	0.5	0.2	0.1	0.1	0.0	0.0
	PAF	Mt	8.1	0.3	1.6	2.2	1.6	1.4	0.5	0.2	0.2	0.1	0.0
Source: TMPL 2024													

As shown in **Table 7**, approximately 95% of waste rock from the Southern open cut pit and 50% from the Northern open cut pit is classed as NAF. The remainder of the Southern open cut pit’s waste rock is classed “uncertain”, as is 7.3% of the Northern open cut pit’s waste rock. All PAF waste rock would be generated in the Northern open cut pit.

3.6.2 Utilisation

Where required, non-acid forming waste rock material would initially be used for site establishment operations, including construction of site water management dam embankments and bulk earthworks (i.e. fill). Subsequently, waste rock would be transported to either the Eastern or Western waste rock emplacements for storage in these facilities that would remain in the final landform.

3.6.3 Storage

The Applicant commissioned ATC Williams Pty Ltd (ATCW) to prepare nominal designs for the waste rock emplacements and is proposing to develop two waste rock emplacements that would be situated immediately adjacent to the open cut pits (refer **Figure 3**), as follows:

- Eastern waste rock emplacement for the storage of NAF and PAF material extracted from the Northern open cut pit; and
- Western waste rock emplacements for the storage of NAF material extracted from the Southern open cut pit.

The proposed Eastern waste rock emplacement would provide for the storage of PAF material in a cell that would be developed via “bottom-up” construction methods in 10 metre lifts. Each PAF lift would be covered by an advective barrier of NAF material to limit oxidation and encapsulate the placed PAF material.

All NAF material not required for encapsulating PAF would be end tipped and dozed downslope in 1 metre layers. Once the developed landform of the Western waste rock emplacement reaches the natural surface of the valley crest, placement of NAF would occur in 10 metre lifts.

Prior to the placement of waste rock, the footprint of each waste rock emplacement would be stripped to refusal (i.e. loose and organic material is removed). The exposed in situ material would then be permeability tested and, where required, low permeability material placed and compacted to limit seepage from the waste rock emplacement. Basal drains, utilising existing topography (gullies) would be installed to collect and convey seepage to runoff dams that would be constructed downslope. Basal drains underlying the PAF cell would be fitted with siphons at their outlet to prevent oxygen ingress into the overlying PAF material.

Table 8 presents a summary of the proposed waste rock emplacements.

Table 8
Nominal Waste Rock Emplacement Design

Nominal Design Parameter	Waste Rock Emplacement	
	Eastern	Western
Storage Capacity (Mm ³) ¹	9.63	12.63
Embankment Profile	1V:3H	1V:3H
Area (ha)	39.6	30.7
Crest Elevation (m AHD)	965.0	918.6
Maximum Height (m)	160	122
Note: 1 Assumes waste rock density of 2.75t/m ³ and 50% swell factor (for conservatism)		
Source: ATCW 2024		

Following the cessation of mining operations, the waste rock emplacements would be capped with growth medium to form a water shedding, store and release cover system. This cover system would then be revegetated as part of rehabilitation activities to achieve the post mining land use of “native ecosystem”.

3.7 Processing Operations

The Applicant proposes to construct and operate a processing plant in the northern section of the Mine Site. This plant would have the capacity to process up to 5Mtpa of ROM ore to produce up to 7,300tpa of concentrate at 60% tin via crushing, pre-concentration, gravity concentration and dressing circuits. A conceptual flow chart of processing operations is provided as **Figure 11**.

Processing operations would commence via a three stage (tertiary) crushing and screening circuit to produce crushed ore for subsequent processing. The proposed tertiary crushing circuit has been designed to maintain the maximum processing plant throughput at 10 hours a day utilisation (i.e. daytime operations).

ROM ore would either be tipped directly into the primary crusher or stockpiled within the ROM pad for later feed via wheel loader. Tertiary crushing and screening would produce crushed ore that would be stockpiled for reclaim and entry to the pre-concentration circuit.



Pre-concentration would initially involve screening and a single pass through the vertical shaft impact crushers. Re-crushed ore material would be re-screened, oversize material (coarse reject) would be transferred to the CDA. The Applicant anticipates that, at 5Mtpa, coarse reject represents approximately 46% (2.31Mtpa) of all processing plant feed.

The second stage of pre-concentration would utilise jigs (rougher and cleaner) for the second stage of pre-concentration. Approximately 27% (1.34Mtpa) of total throughput would be rejected at this stage as “coarse tailings” that would be dewatered prior to placement in the CDA.

Gravity concentration would then occur via spirals and shaker tables which produce a concentrate that is then batch dressed via low intensity magnetic separation, upgraded using sulfide flotation and subjected to final cleaning (shaking tables). Once cleaned, concentrate would be thickened, filtered and bagged. At 5Mtpa throughput, processing operations would produce up to 7,300tpa of concentrate at plus 60% tin for despatch via road to port for overseas export.

As part of the gravity concentration process, material would undergo progressive grinding (ball milling, re-grind), screening and desliming. Slimes removed by the cyclones would be thickened, filtered to remove any remaining water, and sent for placement in the CDA as “fine tailings” that would represent approximately 26% (1.31Mtpa) of total throughput.

Approximately 0.03Mtpa of wet tailings generated from flotation would be pumped to a dedicated residue storage facility (RSF) for disposal.

3.8 Processing Residue Management

3.8.1 Material Classification

To inform the Project’s Feasibility Study, samples of coarse reject, coarse tailings and fine tailings have been subjected to a program of static testing and acid base accounting to classify the material according to its acid forming, and acid consumption potential. A kinetic testing program remains ongoing to quantify the geochemical behaviour of these materials over time.

This static testing program identified that:

- Coarse reject, with slightly elevated sulfide concentrations but sufficient acid neutralising capacity is considered uncertain but unlikely to PAF; and
- Coarse and fine tailings, with slightly elevated sulfide concentrations and low acid neutralising capacity is considered PAF (low capacity).

Whilst no geochemical testing of flotation tailings has been undertaken, the preliminary design of the RSF assumes this material is PAF and applicable design criteria adopted.

3.8.2 Storage

The Applicant commissioned ATCW to prepare nominal designs for the proposed development of a co-disposal area (CDA) for the combined storage of coarse reject, coarse tailings and fine tailings and the RSF for the storage of flotation tailings. The CDA would be situated immediately adjacent to the processing plant whilst the RSF would be located northwest of the CDA (refer **Figure 3**).

Further details on the nominal design considerations, construction, operational development and final landform for the CDA and RSF is provided below.

3.8.2.1 Co-disposal Area (CDA)

Prior to the placement of coarse rejects, coarse tailings and fine tailings, the CDA footprint would be stripped to refusal (i.e. loose and organic material is removed). The exposed in situ material would then be permeability tested and, where required, low permeability material placed and compacted to limit seepage from the CDA. Basal drains, utilising existing topography (gullies) would be installed to intercept seepage. These basal drains would be fitted with siphons at their outlet to prevent oxygen ingress into the overlying material. Seepage and surface water runoff from the CDA would then be conveyed via toe and perimeter drains to a runoff dam that would be constructed downslope of the CDA.

Coarse rejects, coarse tailings and fine tailings would be transferred from the processing plant to the CDA via a single conveyor and stockpiled using a stacker. Stockpiled material would then be pushed and compacted into an approximately 1 metre thick layer using a bulldozer. The CDA landform would then be progressively developed using this layering method until reaching its full extent.

Progressive rehabilitation, with a final cover system, would occur once an area has reached its design elevation and profile. This cover system would incorporate growth medium to form a water shedding, store and release cover for revegetating to achieve the post mining land use of “native ecosystem”.

3.8.2.2 Residue Storage Facility (RSF)

Flotation tailings would be pumped from the process plant via a pipeline running adjacent to the RSF access road for discharge via spigots positioned on the embankment. Any tailings bleed water (decant) accumulating at the base of the tailings beach would be pumped to the processing plant for reuse.

The RSF would comprise a cross-valley embankment (single raise), that would be located approximately 1.5 kilometres northwest of the processing plant (refer **Figure 3**). The upstream face of the embankment and entire tailings impoundment area would be underlain by a high-density polyethylene (HDPE) geomembrane liner that would be installed during construction. This liner would be 2mm thick and have a maximum hydraulic conductivity of 1×10^{-14} m/second.

Preliminary design of the RSF was undertaken by ATCW in accordance with the methodologies of Dam Safety NSW, the Australian National Council on Large Dams (ANCOLD, 2019) and the Global Industry Standard on Tailings Management (ICMM, 2020). This assessment identified the RSF would be a “Declared Dam” under the NSW Dam Safety Act 2015 with design criteria informed by ANCOLD (2019).

Table 9 provides an overview of the preliminary design parameters for the proposed RSF.

Table 9
Preliminary RSF Design Considerations

Parameter	Design
Tailings Volume (total)	183,000m ³
Solids Content	34.5%
Embankment Crest Elevation	836.24m AHD
Storage Capacity (total)	203.5 megalitres
Embankment Height	34.5m
Liner (upstream embankment and tailings impoundment)	2mm HDPE
Source: ATCW 2024	

Following the cessation of processing operations, the deposited tailings would be allowed to consolidate prior to rehabilitation and revegetation. Rehabilitation activities would commence with the installation of an enhanced store and release cover system that would be revegetated to achieve the post mining land use of “native ecosystem”.

3.9 Water Management

3.9.1 Overview

The existing surface water setting is described in Section 2.2.5 with this section used to introduce the Project’s proposed water management system and its principal components which are shown on **Figure 3**.

The objective of the Project’s proposed water management system is to manage the volumes of potentially mine-affected runoff via the construction and operation of suitably designed infrastructure. Captured runoff would be used in processing operations to reduce risk of discharge to the receiving environment. ATCW developed a preliminary water balance model using catchments (and runoff) that were classified according to the disturbance type, namely:

- Clean water: runoff from catchments unaffected by Project-related activities, including runoff from undisturbed and/or fully rehabilitated areas. Runoff from these catchments would be allowed to either freely discharge or, where collected under the harvestable rights provisions of the Water Management Act 2000, used for Project-related activities.
- Sediment-laden water: runoff from catchments with surface disturbance due to Project-related activities such as internal access roads, soil stockpiles and those under rehabilitation/revegetation. Runoff collected from these catchments would be treated to remove sediment and discharged, provided water quality meets the specific requirements of the EPL or development consent.
- Mine-affected water: runoff, seepage and/or groundwater that has potentially interacted with mineralised material, processing residues or waste rock, haul roads, hardstand areas (i.e. ROM pad) and the processing plant. Runoff from these catchments would be collected for recycling and/or re-use in Project-related activities.

3.9.2 Mine-affected Runoff Management

The Project's geochemical testing program indicates that surface runoff and seepage from mine-affected catchments containing mineralised material, processing residues or waste rock may pose a potential risk to downstream surface water quality. Therefore, the Project's principal water management infrastructure, including the RSF, would be designed and operated to reduce the risk of discharge from these catchments.

The locations of mine-affected water management infrastructure are shown in **Figure 3** whilst **Table 10** provides a summary of their respective nominal design details.

Table 10
Nominal Design Configuration: Principal Water Management Components

Parameter	Mine Water Dam	Runoff Dam		
		CDA	Eastern Waste Rock Emplacement	Western Waste Rock Emplacement
Embankment crest (m AHD)	814.6	764.8	805.1	794.4
Embankment height (m)	23.7	17.2	19.0	18.3
Maximum Capacity (megalitres)	50.5	92.9	85.7	85.3
Source: ATCW 2024				

The Applicant would hydraulically connect the mine-affected water management infrastructure via pumps and pipes to facilitate water transfers within the Mine Site to manage stored volumes, reduce spill risk and supply the processing plant.

The mine-affected water management infrastructure identified in **Table 10** and the RSF would be constructed and operated as "excluded works" under Section 3, Schedule 1 of the Water Management (General) Regulation 2018. Therefore, all water collected from mine-affected catchments and re-used for Project-related activities would be exempt from licensing, in accordance with Section 39 of the Water Management (General) Regulation 2018.

3.9.3 Water Supply

As identified above, the Applicant proposes to use the mine-affected water management infrastructure for the collection, capture and storage of runoff for transfer and use in processing operations. The Applicant may also choose to draw additional water from harvestable rights dams for use in Project-related activities.

In addition, and to ensure water supply reliability, the Applicant is proposing to develop a production borefield either to the north or south of the Mine Site. All groundwater would be extracted under the Applicant's existing WAL (44962), that provides for up to 636 megalitres per year from the New England Fold Belt Groundwater Source that is managed under the Water Sharing Plan for the NSW Murray Darling Basin Fractured Rock Groundwater Sources 2020.

3.10 Transportation Operations

As noted in Section 3.7, processing operations would generate up to 7,300tpa of tin concentrate. Produced tin concentrate would be placed in 25t containers for transport via road registered trucks using the proposed Concentrate Transport Route that is shown on **Figure 4**. Depending on origin, the delivery of consumables and equipment to the Mine Site in support of site establishment, construction and/or mining operations (i.e. diesel, gas and spare parts, etc.) would utilise the existing public road network, provided the roads used are approved for the vehicle configuration.

Deliveries to the Mine Site using oversize/overmass vehicles would also be required over the Project-life, principally during site establishment and construction but also potentially during mining operations.

All heavy vehicles would access the Mine Site via Gulf and Grampians Roads with no Project-related heavy vehicles using the Secondary Site Access Road that would be reserved for light vehicle traffic only.

To reduce light vehicle traffic and manage fatigue, the Applicant is proposing to charter buses from local providers to transport personnel to and from the Mine Site. However, it is recognised that this may not occur during site establishment and construction, nor may it be appropriate for all operational personnel.

The Applicant anticipates that, during mining operations, the Project would generate up to 18 heavy vehicle trips per day (i.e. three trucks and six buses). Heavy vehicle movements during site establishment and construction would vary, depending upon the needs of the Project's construction schedule. However, the Applicant anticipates a maximum of 20 heavy vehicle trips per day during peak construction periods.

3.11 Onsite Power Generation

The major equipment for processing operations, including crushing, would have an estimated power demand of 5.3 megawatts (MW) during daytime periods and 2.6MW at night. The Applicant anticipates that, on average, annual daytime energy demand would be approximately 19,500MW hours and 13,300MW hours at night.

To meet the Project's energy requirements, the Applicant is proposing to construct a 10MW solar farm in the southern section of the Mine Site (refer **Figure 3**). This solar farm, with inverter and a 2MW battery energy storage system, is expected to generate up to 17,400MW hours of electricity to meet processing demand.

The approximately 2,000MW hours annual deficit in daytime power supply would be met by four 2MW capacity gas generators that would be installed within the proposed footprint of the onsite power generation area shown on **Figure 3**. These gas generators, fuelled by liquefied natural gas (LNG) would also be utilised to provide power for nighttime operations and during periods of low solar irradiance and/or high electricity demand. The Applicant anticipates that during nighttime operations, two gas generators would be operated below full generating capacity and, as demand increases at the start of the day shift, either the same two engines or another pair of engines would be utilised near their maximum generating capacity.

The Applicant is also proposing to install a 2MW diesel generator as a backup power source. This would be situated adjacent to the gas generators.

The Applicant anticipates that by installing and operating an onsite power supply, the Project's carbon dioxide emissions would be reduced by 14,780t per year, when compared with sourcing electricity from the grid.

The gas generators would require approximately 9.2t per day of LNG that would be supplied by onsite storage facilities. These storage facilities, located adjacent to the generators, would be comprised of three 30t capacity tanks. Based on the daily LNG usage, the Applicant anticipates the Project would require between one and two LNG deliveries per week via road transport.

The location of the proposed LNG storage facilities would be approximately 650m from the boundary of Applicant-owned land and approximately 900m from the administration area. Review of the *Hazardous and Offensive Development Application Guidelines Applying SEPP 33* (DoP 2011), identifies that neither the distance or transport screening thresholds for LNG are exceeded and a Preliminary Hazards Analysis under the *State Environmental Planning Policy No.33 – Hazardous and Offensive Development*, is not required.

3.12 Hours of Operation and Project Life

The Project would operate 24 hours, 7 days per week.

It is anticipated that a total of approximately 39.7Mt of ore and 40.5Mt of waste rock would be mined and processed over approximately 10 years.

Total Project-life, including site establishment, construction, mining and processing operations as well as a decommissioning, landform establishment and revegetation period, would occur over 13 years. This period would then be followed by a further 7 year period of rehabilitation monitoring.

3.13 Final Landform, Land Use, Rehabilitation and Mine Closure

The proposed final landform would include the following (**Figures 3 and 12**).

- Two bunded and fenced final voids, namely the proposed Northern and Southern open cut pits.
- Two rehabilitated waste rock emplacements, namely the proposed Eastern and Western waste rock emplacements.
- Two rehabilitated landforms for the internment of processing residues, namely the proposed CDA and RSF.
- Water management structures (where required).
- Internal access roads (where required).

All infrastructure not required for the final land use would be removed or reduced in size, indicatively including the following.

- Haul roads would be removed.
- The main access road would be reduced in size to facilitate ongoing management of the land post-mining.
- The administration area would be largely removed, with those structures suitable for the final land use retained. This may include sheds and limited hardstand areas.
- The on-site power generation area, magazines, mine infrastructure area, processing plant and other infrastructure would all be removed.

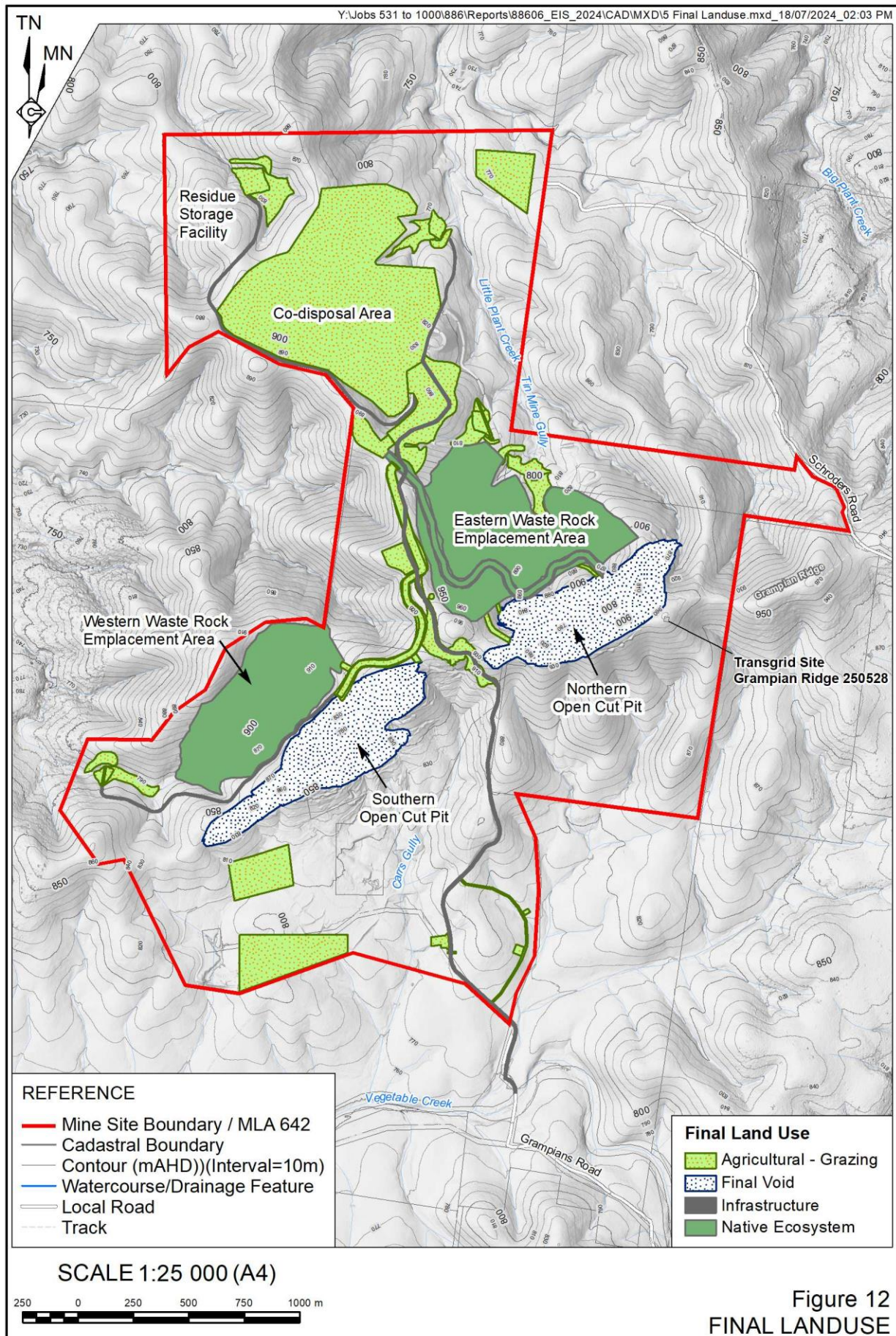
The final land use would comprise a mixture of retained infrastructure, agriculture (grazing) and native ecosystem.

A *Rehabilitation Management Plan* describing the proposed rehabilitation operations and providing detailed completion criteria would be prepared in accordance with relevant and applicable guidelines relevant at the time.

Following completion of all rehabilitation operations and confirmation that the relevant completion criteria have been achieved, the Applicant would relinquish the Mining Lease.

3.14 Alternatives Considered

During the preliminary planning of the Project, a range of alternatives have been considered principally with respect to the power supply, crushing operations, the location of processing equipment, waste rock emplacements and facilities for the internment of processing residues. It is noted that the final location of Mine Site components will be determined during the preparation of the EIS to ensure potential impacts are minimised.



Electricity Supply

The Applicant considered construction of a powerline and associated infrastructure to connect the Mine Site with the external power network via either:

- Connection with Essential Energy's 66kV transmission line approximately 7km south of the Mine Site; or
- Connection with Transgrid's 330kV Armidale to Dumaresq transmission line approximately 11km west of the Mine Site.

The Applicant selected the proposed onsite power generation option as it would result in reduced Project-related disturbance of native vegetation and/or privately-owned land as well as preserving the existing amenity of the local community.

Crushing Operations

The Applicant considered a range of tertiary crushing plant options to maintain optimal processing plant throughput. The adopted tertiary crushing plant option was selected to sustain processing operations at a feasible economic rate whilst preserving existing environmental amenity to the extent practical through daytime crushing only. This option was also selected as it coincidentally times the Project's maximum electricity demand with its maximum renewable power generation via the proposed 10MW solar farm.

Location of Processing Plant

Various configurations and locations of the processing plant and supporting infrastructure have been considered during the feasibility planning phase. The proposed location places key noise and dust generating processing activities in the northern section of the Mine Site. This area was selected to utilise topographic shielding to preserve existing environmental and visual amenity of near neighbours and Emmaville residents.

This location also reduces the required distances for the transfer of processing residues (i.e. the CDA and RSF), thus preserving local amenity with regards to noise, dust and visibility.

Location of Waste Rock Emplacements

Various locations for the waste rock emplacements were considered with the proposed locations selected to place noise generating activities (i.e. haul, tip and compaction) in topographically shielded, valley areas. In addition, the shorter haul distances (from open cut pit to waste rock emplacement) would reduce dust generation and exhaust emissions. However, some NAF waste rock extracted from the Northern open cut pit would be hauled to the Western waste rock emplacement in later years of mining operations.

Biodiversity Offsetting

The Applicant considered options for retiring the Project's biodiversity offsetting requirements via either the Credit Supply Register or direct payment into the Biodiversity Conservation Fund. However, as the Applicant has a substantial landholding adjoining the Mine Site that contains similar native vegetation and species habitat, it has elected to establish an onsite Biodiversity Offset Area through a Biodiversity Stewardship Agreement. This is a "nature positive" outcome for the management of the Project's biodiversity impacts as it represents "like for like" offsetting in the same bioregion within which the proposed impact would occur.

4. Statutory Context

Tables 11 to 13 present an overview of the key statutory requirements, preconditions and mandatory considerations for the Project. Each of these matters will be addressed in the EIS.

Table 11
Key Statutory Requirements

Page 1 of 2

Matter	Project Relevance
Power to grant consent	With an estimated capital investment value greater than \$30M, the Project is classified as SSD under Section 5(1c) of Schedule 1 of the <i>State Environmental Planning Policy (Planning Systems) 2021</i> (Planning Systems SEPP) and requires an application for development consent under Division 4.7 of the <i>Environmental Planning and Assessment Act 1979</i> (EP&A Act). As SSD, the consent authority will be the Minister for Planning and Public Spaces. In practice, it is understood that the Minister has delegated his/her authority to determine such applications to a senior officer of the Department of Planning and Environment. Alternatively, under Section 2.7 of the Planning Systems SEPP, the Independent Planning Commission will be the consent authority should any of the following criteria be met: • Council provides a submission objecting to the Project. • There are more than 50 individual, unique submissions objecting to the Project. • The Applicant has made a reportable political donation.
Permissibility	The Application Area is situated on land that is zoned either RU1 (Primary Production), C3 (Environmental Management)¹ or RU5 (Village)¹ under the <i>Glen Innes Severn Local Environmental Plan 2012</i> (Glen Innes Severn LEP). The Glen Innes Severn LEP identifies that open cut mining is permissible with consent within Zone RU1. If required, activities such as road upgrades within C3 and RU5 zoned lands are also permissible under the Glen Innes Severn LEP.
Note: 1 Land with this zoning within the Application Area is associated with public roads of the Concentrate Transport route	
Other approvals (Consistent Approvals)	Section 4.42 of the EP&A Act identifies a range of approvals that must be applied consistently to any SSD consent granted. The following approvals will be required for the Project and are covered by this requirement. • A mining lease issued under Part 5 of the Mining Act 1992 to permit mining of minerals. • An Environment Protection Licence under Chapter 3 the <i>Protection of the Environment Operations Act 1997</i> (POEO Act) to permit mining for minerals as the Project would exceed the 4ha disturbance threshold under Clause 29(2) of Schedule 1 of the POEO Act. • A consent issued under Section 138 of the <i>Roads Act 1993</i> by: – Transport for NSW for works within the Wellington Vale Road reserve (if required); and – Glen Innes Severn Council for works within Council controlled road reserves (where required).
Other approvals (EPBC Act Approvals)	Approval under the Commonwealth Government's Environment Protection and Biodiversity Conservation Act 1999 may be required as preliminary biodiversity assessments indicate that the Project would require clearing of land containing threatened flora species (<i>Acacia pubifolia</i>). The Applicant intends to submit an EPBC Act referral for the Project concurrently with the EIS.
Other approvals (Not integrated into the SSD Assessment)	Other approvals that would be required for the Project but are not covered by the provisions of Sections 4.41 (see below) or 4.42 of the EP&A Act are as follows. • Water Access Licences issued under the <i>Water Sharing Plan for the NSW Murray Darling Basin Fractured Rock Groundwater Sources 2020</i> to account for groundwater inflows to the open cut pit, associated losses (operations and evaporative) and groundwater extraction to support processing activities. The Applicant holds WAL 44962 that entitles it to 636 unit shares. • An aquifer interference approval under section 91 of the <i>Water Management Act 2000</i>. • All necessary approvals from Glen Innes Severn Council for construction, erection and/or placement of buildings, structures and appropriate sewage treatment systems for the Project.

Table 11 (Cont'd)
Key Statutory Requirements

Page 2 of 2

Matter	Project Relevance
Other approvals (Not required)	Section 4.41 of the EP&A Act identifies that if development consent is granted for SSD the following relevant authorisations that would otherwise have been required for the Project are not required. • An Aboriginal Heritage Impact Permit under section 90 of the <i>National Parks and Wildlife Act 1974</i>. • A water use approval under section 89 of the <i>Water Management Act 2000</i>. • A water management work approval under section 90 of the <i>Water Management Act 2000</i>. • An activity approval (other than for aquifer interference) under section 91 of the <i>Water Management Act 2000</i>.

Table 12
Pre-Conditions to Granting Approval

Page 1 of 7

Statutory Reference	Pre-condition	Relevance
Biodiversity Conservation Act 2016 (BC Act)		
Section 7.16(3)	If the Minister for Planning is of the opinion that a proposed SSD is likely to have serious or irreversible impacts on biodiversity values, the Minister: a) is required to take those impacts into consideration, and b) is required to determine whether there are any additional and appropriate measures that will minimise those impacts if consent or approval is granted.	The Project would result in removal of native vegetation and, as a result, a Biodiversity Development Assessment Report will be prepared to assess the anticipated Project-related impacts.
Glen Innes Severn Local Environmental Plan (LEP) 2012		
Clause 2.3(2) (Zoning)	The consent authority must have regard to the objectives for development in a zone when determining a development application in respect of land within the zone.	Open cut mining is permissible on land zoned as RU1.
Clause 7.3	Development consent must not be granted to development unless the consent authority is satisfied that any of the following services that are essential for the development are available or that adequate arrangements have been made to make them available when required— a) the supply of water, b) the supply of electricity, c) the disposal and management of sewage, d) stormwater drainage or on-site conservation, e) suitable road access.	The Project would require essential services. The matters identified in this Clause will be addressed in the EIS.
Clause 7.7(3)	In deciding whether to grant development consent on land to which this clause applies, the consent authority must consider— a) whether the development is likely to have an adverse impact on the following— i) the water quality and water flows within the watercourse, ii) aquatic and riparian species, habitats and ecosystems of the watercourse, iii) the stability of the bed and banks of the watercourse, iv) the free passages of fish and other aquatic organisms within or along the watercourse, v) the future rehabilitation of the watercourse and riparian areas, and b) whether the development is likely to increase water extraction from the watercourse, and c) appropriate measures to avoid, minimise or mitigate the impacts of the development.	One watercourse within the Mine Site is identified as a “riparian land and watercourse” within the Glen Innes Severn LEP and this clause will be addressed in the EIS.

Table 12 (Cont'd)
Pre-Conditions to Granting Approval

Page 2 of 7

Statutory Reference	Pre-condition	Relevance
State Environmental Planning Policy (Resources and Energy) 2021 (Resources and Energy SEPP)		
Section 2.9(1)(b)(i)	Development for any of the following purposes may be carried out only with development consent - mining carried out - - on land where development for the purposes of agriculture or industry may be carried out (with or without development consent)	Glen Innes Severn LEP permits mining on land zoned RU1.
Section 2.16	2) The matters set out in this clause are identified as non-discretionary development standards for the purposes of section 4.15(2) and (3) of the Act in relation to the carrying out of development for the purposes of mining. Note - The development standards do not prevent a consent authority from imposing conditions to regulate project-related noise, air quality, blasting or ground vibration impacts that are not the subject of the development standards. 3) Cumulative noise level The development does not result in a cumulative amenity noise level greater than the recommended amenity noise levels, as determined in accordance with Table 2.2 of the Noise Policy for Industry, for residences that are private dwellings. 4) Cumulative air quality level The development does not result in a cumulative annual average level greater than 25µg/m³ of PM₁₀ or 8µg/m³ of PM_{2.5} for private dwellings. 5) Airblast overpressure Airblast overpressure caused by the development does not exceed— a) 120dB (Lin Peak) at any time, and b) 115dB (Lin Peak) for more than 5% of the total number of blasts over any period of 12 months, measured at any private dwelling or sensitive receiver. 6) Ground vibration Ground vibration caused by the development does not exceed— a) 10mm/sec (peak particle velocity) at any time, and b) 5mm/sec (peak particle velocity) for more than 5% of the total number of blasts over any period of 12 months, measured at any private dwelling or sensitive receiver. 7) Aquifer interference Any interference with an aquifer caused by the development does not exceed the respective water table, water pressure and water quality requirements specified for item 1 in columns 2, 3 and 4 of Table 1 of the Aquifer Interference Policy for each relevant water source listed in column 1 of that Table.	Each of these matters will be addressed in the EIS.

Table 12 (Cont'd)
Pre-Conditions to Granting Approval

Page 3 of 7

Statutory Reference	Pre-condition	Relevance
State Environmental Planning Policy (Resources and Energy) 2021 (Resources and Energy SEPP) (Cont'd)		
Section 2.17	Before determining an application for consent for development for the purposes of mining the consent authority must: a) consider: i) the existing uses and approved uses of land in the vicinity of the development, and ii) whether or not the development is likely to have a significant impact on the uses that, in the opinion of the consent authority having regard to land use trends, are likely to be the preferred uses if land in the vicinity of the development, and iii) any ways in which the development may be incompatible with any of those existing, approved or likely preferred uses, and b) evaluate and compare the respective public benefits of the development and the land uses referred to above, and c) evaluate any measure proposed by the applicant to avoid or minimise any incompatibility.	The Mine Site is principally surrounded by agricultural land. The matters identified in this Clause will be addressed in the EIS. However, it is considered that, with the implementation of appropriate management measures, the Project would be compatible with the surrounding land uses.
Section 2.18	Before determining an application for consent for SSD for the purposes of mining, the consent authority must consider any applicable provisions of the voluntary land acquisition and mitigation policy, and, in particular: a) any applicable provisions of the policy for the mitigation or avoidance of noise or particulate matter impacts outside the land on which the development is to be carried out, and b) any applicable provisions of the policy relating to the developer making an offer to acquire land affected by those impacts.	The Project's Air Quality Impact Assessment and Noise Impact Assessment will identify if the voluntary land acquisition and mitigation policy applies to the Project.
Section 2.19(2)	Before determining an application to which this clause applies, the consent authority must: a) consider: i) the existing uses and approved uses of land in the vicinity of the development, and ii) whether or not the development is likely to have a significant impact on current or future extraction or recovery of minerals, petroleum or extractive materials (including by limiting access to, or impeding assessment of, those resources), and iii) any ways in which the development may be incompatible with any of those existing or approved uses or that current or future extraction or recovery, and b) evaluate and compare the respective public benefits of the development and the uses, extraction and recovery referred to above, and c) evaluate any measures proposed by the applicant to avoid or minimise any incompatibility.	The Project would not be incompatible with surrounding land uses and would result in substantial additional public benefit when compared with the existing and potential future public benefit that may be obtained from the existing uses. Notwithstanding, the matters identified in this Clause will be further addressed in the EIS.

Table 12 (Cont'd)
Pre-Conditions to Granting Approval

Page 4 of 7

Statutory Reference	Pre-condition	Relevance
State Environmental Planning Policy (Resources and Energy) 2021 (Resources and Energy SEPP) (Cont'd)		
Section 2.20(1)	Before granting consent for development for the purposes of mining, the consent authority must consider whether or not the consent should be issued subject to conditions aimed at ensuring that the development is undertaken in an environmentally responsible manner, including conditions to ensure the following: a) that impacts on significant water resources, including surface and groundwater resources, are avoided, or are minimised to the greatest extent practicable, b) that impacts on threatened species and biodiversity, are avoided, or are minimised to the greatest extent practicable, c) that greenhouse gas emissions are minimised to the greatest extent practicable.	The preliminary design work completed to date has taken the minimisation of impacts upon these matters into consideration. The EIS will include an assessment of water resources, threatened species and biodiversity and greenhouse gas emissions.
Section 2.20(2)	In determining a development application for development for the purposes mining, the consent authority must consider an assessment of the greenhouse gas emissions (including downstream emissions) of the development, and must do so having regard to any applicable State or national policies, programs or guidelines concerning greenhouse gas emissions.	The EIS will include an assessment of greenhouse gas emissions.
Section 2.21(1)	Before granting consent for development for the purposes of mining, the consent authority must consider the efficiency or otherwise of the development in terms of resource recovery.	The preliminary design work completed to date has considered the most efficient recovery of resource possible given the environmental setting. The EIS will include an assessment of the efficiency of the recovery of the resource and reuse of materials.
Section 2.21(2)	Before granting consent for the development, the consent authority must consider whether or not the consent should be issued subject to conditions aimed at optimising the efficiency of resource recovery and the reuse or recycling of material.	
Section 2.21(3)	The consent authority may refuse to grant consent to development if it is not satisfied that the development will be carried out in such a way to optimise the efficiency of recovery of minerals, petroleum or extractive materials and to minimise the creation of waste in association with the extraction, recovery or processing of minerals, petroleum or extractive materials.	
Section 2.22(1)	Before granting consent for development for the purposes of mining that involves the transport of materials, the consent authority must consider whether or not the consent should be issued subject to conditions that do any one or more of the following: a) require that some or all of the transport of materials in connection with the development is not to be by public road, b) limit or preclude truck movements, in connection with the development, that occur on roads in residential areas or on roads near to schools, c) require the preparation and implementation, in relation to the development, of a code of conduct relating to the transport of materials on public roads.	The preliminary design work has considered all potential road transportation routes. The Project would despatch produced tin concentrate, receive deliveries and transport personnel via the public road network and as such, a Traffic Impact Assessment will be prepared to assess the anticipated Project-related impacts. A Driver's Code of Conduct would be prepared for the Project.

Table 12 (Cont'd)
Pre-Conditions to Granting Approval

Page 5 of 7

Statutory Reference	Pre-condition	Relevance
State Environmental Planning Policy (Resources and Energy) 2021 (Resources and Energy SEPP) (Cont'd)		
Section 2.23(1)	Before granting consent for development for the purposes of mining, the consent authority must consider whether or not the consent should be issued subject to conditions aimed at ensuring the rehabilitation of land that will be affected by the development.	The Applicant would rehabilitate the Mine Site to provide landforms suitable for the proposed post-mining land uses. Rehabilitation will be further addressed as part of the EIS. The Project would require the preparation of a Rehabilitation Management Plan and associated rehabilitation security) in accordance with the conditional requirements of a Mining Lease issued under the <i>Mining Act 1992</i> .
Section 2.23(2)	In particular, the consent authority must consider whether conditions of the consent should: a) require the preparation of a plan that identifies the proposed end use and landform of the land once rehabilitated, or b) require waste generated by the development or the rehabilitation to be dealt with appropriately, or c) require any soil contaminated as a result of the development to be remediated in accordance with relevant guidelines (including guidelines under clause 3 of Schedule 6 to the Act and the <i>Contaminated Land Management Act 1997</i>), or d) require steps to be taken to ensure that the state of the land, while being rehabilitated and at the completion of the rehabilitation, does not jeopardize public safety.	
State Environmental Planning Policy Resilience and Hazards (Resilience and Hazards SEPP)		
Section 3.12	In determining an application to carry out development to which this Part applies, the consent authority must consider (in addition to any other matters specified in the Act or in an environmental planning instrument applying to the development): a) current circulars or guidelines published by the Department of Planning relating to hazardous or offensive development, and b) whether any public authority should be consulted concerning any environmental and land use safety requirements with which the development should comply, and c) in the case of development for the purpose of a potentially hazardous industry—a preliminary hazard analysis prepared by or on behalf of the applicant, and d) any feasible alternatives to the carrying out of the development and the reasons for choosing the development the subject of the application (including any feasible alternatives for the location of the development and the reasons for choosing the location the subject of the application), and e) any likely future use of the land surrounding the development.	The Project does not constitute a hazardous industry. Notwithstanding, potential hazards relating to water management infrastructure will be considered in the context of the <i>Dams Safety Act 2015</i> and relevant design and management criteria adopted. All other matters relating to potential hazards will be assessed to the extent required and a review of feasible alternatives will be presented within the EIS.

Table 12 (Cont'd)
Pre-Conditions to Granting Approval

Page 6 of 7

Statutory Reference	Pre-condition	Relevance
State Environmental Planning Policy Resilience and Hazards (Resilience and Hazards SEPP) (Cont'd)		
Section 4.6	A consent authority must not consent to the carrying out of any development on land unless: a) it has considered whether the land is contaminated, and b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.	The Project would not be situated on contaminated land and contamination levels within the Mine Site would be compatible with the final land uses of agriculture and nature conservation.
State Environmental Planning Policy (Biodiversity and Conservation) 2021 (Biodiversity and Conservation SEPP)		
Section 4.9	2) Before a council may grant consent to a development application for consent to carry out development on the land, the council must assess whether the development is likely to have any impact on koalas or koala habitat. 3) If the council is satisfied that the development is likely to have low or no impact on koalas or koala habitat, the council may grant consent to the development application. 4) If the council is satisfied that the development is likely to have a higher level of impact on koalas or koala habitat, the council must, in deciding whether to grant consent to the development application, take into account a koala assessment report for the development.	The EIS will include an assessment of Project-related impacts on Koala. Based on survey to date, there would be no impacts upon Koala.
Section 13.11(3)	Development consent must not be granted for the clearing of native vegetation unless the consent authority is satisfied: a) sufficient measures have been taken, or will be taken: i) to avoid or minimise the impact of the development on biodiversity values, and ii) to protect or enhance the biodiversity values and ecological integrity of the land, and b) there is no reasonable alternative available to the disturbance of the native vegetation caused by clearing, and c) the loss of native vegetation caused by the disturbance will be compensated by: i) revegetation on the land on which the development is carried out of an amount equivalent to a ratio of at least 1:1, or ii) a condition imposed on the development consent, under the <i>Biodiversity and Conservation Act 2016</i>, section 7.13(3), requiring the applicant to retire biodiversity credits, and d) the clearing of native vegetation is unlikely to cause or increase soil erosion, salination, land slip, flooding, pollution or other adverse land or water impacts.	Extensive work has been undertaken during the preliminary design stages of the Project to avoid and minimise impacts upon biodiversity to greatest extent possible whilst providing for the economically feasible extraction and recovery of the tin resource. The Applicant is also proposing to establish an onsite Biodiversity Offset Area through a Biodiversity Stewardship Agreement. Notwithstanding, a Biodiversity Development Assessment Report (BDAR) will be prepared to assess Project-related impacts to biodiversity and quantify the measures taken to avoid or minimise those impacts.

Table 12 (Cont'd)
Pre-Conditions to Granting Approval

Page 7 of 7

Statutory Reference	Pre-condition	Relevance
State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP)		
Section 2.48(2)	Before determining a development application (or an application for modification of a consent) for development to which this clause applies, the consent authority must— a) give written notice to the electricity supply authority for the area in which the development is to be carried out, inviting comments about potential safety risks, and b) take into consideration any response to the notice that is received within 21 days after the notice is given.	No electricity transmission infrastructure is located proximal to the Mine Site and the Project would generate its own power. As a result, this clause is not applicable.
Section 2.119(2)	The consent authority must not grant consent to development on land that has a frontage to a classified road unless it is satisfied that— a) where practicable and safe, vehicular access to the land is provided by a road other than the classified road, and b) the safety, efficiency and ongoing operation of the classified road will not be adversely affected by the development as a result of — the design of the vehicular access to the land, or the emission of smoke or dust from the development, or the nature, volume or frequency of vehicles using the classified road to gain access to the land.	Grampians Road, which would be used to directly access the Mine Site, is not a classified road. Notwithstanding, the EIS will include a Traffic Impact Assessment to assess the anticipated Project-related impacts.
Section 2.122(4)	Before determining a development application for development to which this clause applies, the consent authority must— a) give written notice of the application to TfNSW within 7 days after the application is made, and b) take into consideration— i) any submission that RMS provides in response to that notice within 21 days after the notice was given (unless, before the 21 days have passed, TfNSW advises that it will not be making a submission), and ii) the accessibility of the site concerned, including— a) the efficiency of movement of people and freight to and from the site and the extent of multi-purpose trips, and b) the potential to minimise the need for travel by car and to maximise movement of freight in containers or bulk freight by rail, and iii) any potential traffic safety, road congestion or parking implications of the development.	This is a matter for the consent authority.

Table 13
Mandatory Matters for Consideration

Statutory Reference	Mandatory Consideration
Considerations under the EP&A Act	
Section 1.3	Relevant objects of the Act: - to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources, - to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment, - to promote the orderly and economic use and development of land, - to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats, - to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage), - to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State - to provide increased opportunity for community participation in environmental planning and assessment.
Section 4.15	Relevant environmental planning instruments. The <i>Environmental Planning and Assessment Regulation 2021</i> (EP&A Regulation) – to the extent that it prescribes matters for the purposes of Section 4.15(1)(a)(iv) of the EP&A Act. The likely impacts of the development, including environmental impacts on both the natural and built environment, and social and economic impacts in the locality. The suitability of the site for the development. Any submissions made in accordance with the EP&A Act or the regulations. The public interest.
Considerations under the EP&A Regulations	
Clause 78	A development consent may only be granted subject to a condition referred to in Section 4.17(4A) or (4B) of the Act if the development is SSD.
Considerations under Environmental Planning Instruments	
Glen Innes Severn LEP	
Part 2	Objectives and land uses for zones RU1, C3 and RU5.
Other	Other relevant LEP sections.
State Environmental Planning Policies (SEPPs)	
Planning Systems SEPP	Sections 5(1) of Schedule 1 and 2.7.
Resources and Energy SEPP	Sections 2.9, 2.16, 2.17, 2.18, 2.19, 2.20, 2.21, 2.22 and 2.23.
Resilience and Hazards SEPP	Sections 4.6 and 13.2.
Biodiversity and Conservation SEPP	Section 11
Transport and Infrastructure SEPP	Sections 2.48(2), 2.119(2) and 2.122(4).

5. Engagement

5.1 Government Agency

The principal government agency consultation to date has been with the (then) Department of Regional NSW through the Mine Development Panel process, and with DPHI through an initial Scoping Meeting.

A range of feedback was received during this consultation, principally relating to the following.

- The ongoing consultation and assessment processes, including need for further consultation with NSW Resources' Rehabilitation and Security Panel and Resource and Economic Assessment Team. These processes are required prior exhibition of the Environmental Impact Statement.
- The need for an initial site inspection by DPHI and relevant NSW Government agencies (as determined by DPHI) prior to the preparation of SEARs.
- The role of Investment NSW in seeking to develop opportunities for tin in the South Korean and Japanese markets.
- The role of the NSW Critical Minerals Activation Fund in seeking to develop value-add opportunities for produced tin.
- Ensuring proper consideration of traffic, air and noise.
- Need to consult with Council in relation to transport, roads and accommodation of mining personnel.

Additional individual consultation is proposed for each of the above as well as the following agencies throughout preparation of the EIS.

- Department of Climate Change, Energy and the Environment - Water.
- Department of Climate Change, Energy and the Environment - Biodiversity, Conservation and Science
- Crown Lands NSW.

5.2 Glen Innes Severn Shire Council

The Applicant held an initial meeting with Council on 28 July 2022 who indicated general support for the Project provided the needs of residents were adequately considered and addressed. The Applicant continues to regularly consult with Council on a range of matters as needed.

5.3 Transgrid/Lumea

The Applicant has been actively consulting with Transgrid's wholly owned subsidiary in relation to Transgrid Site Grampian Ridge 250528. Consultation to date has involved meetings and email communication to establish the relevant assessments and criteria for the continued operation of the telecommunications equipment and associated infrastructure positioned within the Transgrid/Lumea site.

Following completion of the relevant assessments, and prior to EIS submission, the Applicant will provide draft copies of each assessment for the consideration of Transgrid/Lumea and hold a meeting to discuss the outcomes.

5.4 Community and Stakeholder

The Applicant has developed a comprehensive engagement plan that includes detailed analysis of the local and regional community. Under this plan, the Applicant commenced a program of engagement including an initial community meeting held at Emmaville on 27 July 2022. Outcomes from this initial meeting indicated majority support for the Project from the local community with a strong desire to see local skills and suppliers preferentially utilised.

Table 14 presents an overview of the community and stakeholder consultation carried out to date. For privacy purposes, the outcomes of consultation have been aggregated by Community Group/Classification.

In addition to the range of consultation methods adopted by the Applicant (and shown in **Table 14**), the Applicant maintains a community phone number that is promoted and monitored by its Community Relations Officer.

Table 14
Summary of Community and Stakeholder Engagement

Page 1 of 2

Community Group/Classification	Method of Engagement
Near neighbours – residents and farmers in the immediate vicinity of the Mine Site	- Focus groups to discuss potential impacts, concerns, the draft Mine Site layout and EIS timing. - One on one visits from the Applicant's management team and geologists to discuss access arrangements and any individual issues raised during the exploration phase. - Hand delivery of notifications related to exploration. - E-mail updates. - Community newsletter. - Survey on communication needs and project awareness.
Emmaville residents	- Open invite (town hall) meetings to discuss plans, draft Mine Site layout, EIS preparation and process, community aspirations and potential impacts. "Open door" policy for drop-in questions at the Applicant's exploration depot in Emmaville. - Community newsletter. - Survey on communication needs and Project awareness - Posters with links to survey. - Fact Sheets and website updates - Promotional presence at community events such as the Emmaville fete (sponsors) and Anzac Day events. - Database of potential employees promoted and managed.
Surrounding Local Government Area residents	Community newsletter.

Table 14 (Cont'd)
Summary of Community and Stakeholder Engagement

Page 2 of 2

Community Group/Classification	Method of Engagement
First Nations – Nggorabul People	- Community Meeting in Glen Innes with Tenterfield, Glen Innes and Inverell LACs with an online video link provided. - Correspondence via e-mail and newsletters. - Informal meetings at Glen Innes LAC. - Meetings with individuals on request.
Local businesses	- Workshop to scope capacity for servicing the Project and general economic issues. - Informal one on one discussions. - Community newsletter
Local community facilities (i.e. school, hospital, emergency services, sporting clubs).	- Workshop to scope capacity for servicing workforce associated with the Project, and general capacity issues. - Community Newsletter.

5.5 Community and Stakeholder Engagement Outcomes

Table 15 presents a summary of the key matters identified during the community and stakeholder consultation carried out to date.

Table 15
Key Findings of Preliminary Community and Stakeholder Engagement

Page 1 of 2

Matter Raised / Discussed
Strategic Context
- Worldwide tin shortage and its role in the transfer to green energy. - Emmaville is a “mining town”: seeking to recapture the energy and economic impetus of mining. - Strategic fit with regional planning strategies for employment growth.
The Project and Key Alternatives
- Mine Site layout options discussed with near neighbours. - Near neighbour’s desire input to mine closure planning. - Many Emmaville locals are seeking input to the location of the mine camp. While not a part of this application, it is a high priority for the community.
Statutory Issues
Discussions involving fauna and flora protection
Community Engagement
Critical and emerging issues that are most significant: - Social infrastructure and service capacity to deal with the incoming employees in an already stretched remote location. - Lack of appropriate accommodation for key service workers. - Inadequate accommodation in Emmaville in general for visitors and potential workers – town seeking growth. - Emergency services response times.

Table 15 (Cont'd)
Key Findings of Preliminary Community and Stakeholder Engagement

Page 2 of 2

Matter Raised / Discussed
Community Engagement (Cont'd)
• Business competition for local contracts and transparent processes for contract issue. • Existing poor condition of local road network. • Strong support for the Project and the need for Emmaville's revitalisation – a tendency to place a lot of hope in the Project's potential before it is even approved. • Near neighbour concerns about amenity, health and lifestyle impacts. • Concern for post mining land use. • Varying perspectives around Indigenous traditional owners and inputs to the Heritage Study. Enthusiasm for employment and business opportunities and at the same time repeated calls for culturally appropriate practices. • Environmental impacts particularly water, dust, flora and fauna. • High interest in employment for locals. • Some frustration around the timeframe for the EIS and wanting to proceed more quickly.
Key Issues to be Addressed for the EIS
• Visual, health and amenity considerations for near neighbours. • Transport routes and road safety. • Local service system capacity. • Location of mine camp and supporting accommodation options. • Post mine land use planning – clarifying the approach. • Lowering the carbon footprint. • Biodiversity and impacts on ground water. • Implementing a "locals first" policy. • Employment.

5.6 Engagement to be Carried Out

Table 16 presents the community engagement to be carried out throughout preparation of the EIS, including indicative timing for each of the proposed engagement activities. As it has done to date, the Applicant will maintain a consultation log and will actively seek feedback on the Project. That feedback will be recorded in the consultation log, with anonymised results presented in the EIS.

Table 16
Engagement to be Carried Out

Page 1 of 2

Stakeholder Group/ Classification	Potential Engagement Methodology	Indicative Timing
Near neighbours	• Individual meetings/discussions. • Email updates. • Fact sheets/newsletters – hand deliver / letterbox drop / email.	• Ongoing during EIS preparation. • At completion of impact assessment (pre-exhibition). • During exhibition and pre-determination.
	• Site tours	• Considered on request.

Table 16 (Cont'd)
Engagement to be Carried Out

Page 2 of 2

Stakeholder Group/ Classification	Potential Engagement Methodology	Indicative Timing
Emmaville residents	• Town hall meeting. • Fact sheets/newsletters - letterbox drop. • Individual meetings/discussions.	• Ongoing during EIS preparation. • At completion of impact assessment (pre-exhibition). • During exhibition and pre-determination.
Surrounding Local Government Area residents	• Local media/websites/fact sheets.	• Pre-exhibition. • During exhibition.
First Nations – Nggorabul People	• Participation and input to the Aboriginal cultural heritage assessment for the Project. • Individual meetings/discussions.	• Pre-exhibition. • During exhibition.
Local businesses	• Individual meetings/discussions. • Email updates. • Fact sheets/newsletters - hand deliver / email.	• Ongoing during EIS preparation. • At completion of impact assessment (pre-exhibition). • During exhibition and pre-determination.
	• Site tours	• Considered on request.
Local community facilities	• Individual meetings/discussions. • Email updates. • Fact sheets/newsletters – hand deliver / letterbox drop / email.	• Ongoing during EIS preparation. • At completion of impact assessment (pre-exhibition). • During exhibition and pre-determination.
	• Site tours	• Considered on request.

6. Proposed Assessment of Impacts

Table 17 presents a summary of specific matters to be assessed in the EIS. The relevant legislation, guidelines and policies associated with each matter are presented in the Scoping Summary provided as **Appendix 1**.

Table 17
Proposed Assessment of Impacts

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Issue	Existing Environment	Further Investigations	Potential Impacts	Proposed Assessment
Access to property	Principal entry to the Mine Site for heavy vehicles and personnel would be via Grampians Road. Secondary Site Access, for light vehicles only, would occur via Schrodgers Road when required.	Levels of service and performance would be assessed on Grampians Road and along the proposed transport route. These assessments would include investigations regarding appropriate intersection design and any upgrades to the local road network which may be required.	It is anticipated that the existing state and local roads could support the proposed traffic volumes, however there may be some impact on the local road through increased vehicle traffic. There may also be some impacts on other local road users through increased volumes and vehicle sizes.	A Traffic Impact Assessment will be undertaken by an appropriately qualified consultant to document the potential impacts on the surrounding road network.
Traffic and Parking Road and Rail Facilities	The Project's proposed Concentrate Transport Route would be via Grampians Road, Gulf Road, Moore Street, Irby Street, Wellington Vale Road before joining the New England Highway.			
Air - Particulate Matter	The Mine Site lies within a predominantly rural area with land uses principally comprising grazing and rural residential living. An Air Quality Impact Assessment (AQIA) was prepared by Kalestone Environmental Pty Ltd during preparation of the Stage 1 Taronga Tin Project EIS, which concluded that predicted concentrations of PM ₁₀ and PM _{2.5} at sensitive receptor locations were well below the relevant assessment criteria, and that the adverse impact on air quality as a result of the then Stage 1 Proposal would be negligible.	Updated dispersion modelling would be undertaken to assess potential impacts.	The Project may result in an increase in particulates and emissions received in areas surrounding the Mine Site. The potential impacts would relate to particulates of various size fractions. However, assessments determined the adverse impact on air quality as a result of the previous Stage 1 Proposal would be negligible.	An AQIA will be undertaken by a suitably qualified consultant. The assessment will include modelling of the potential for emissions of airborne particulates under a range of operational scenarios and under prevailing meteorological conditions. Potential greenhouse gas emissions would also be assessed.
Air - Gases	The Mine Site lies within a predominantly rural area with land uses principally comprising grazing and rural residential living.	Assessment of greenhouse gas emissions to demonstrate potential impacts.	Emissions of greenhouse gases associated with the Project, in particular transportation and the operation of diesel-powered equipment as well as gas-fired power generation.	
Amenity - Blasting	The Mine Site lies within a predominantly rural area with land uses principally comprising grazing and rural residences.	The Applicant is planning a test blast to collect data on airblast overpressure and vibration.	Blasting to support mining operations may result in impacts being experienced at sensitive receivers.	A Blasting Assessment will be undertaken by an appropriately qualified consultant to predict the airblast overpressure, peak particle velocities and potential flyrock impacts. A range of design and operational safeguards will be incorporated into the Project to achieve compliance with applicable blasting criteria.
Amenity - Noise	The Mine Site lies within a predominantly rural area with land uses principally comprising grazing and rural residences with the principal noise sources being Grampians Road and Gulf Road.	Background noise survey to assist in quantifying the existing noise environment.	Activities within the indicative Mine Site may result in increased received noise levels at surrounding residences under certain meteorological conditions.	A Noise Impact Assessment will be undertaken by an appropriately qualified consultant to predict the received noise levels under different operational scenarios and under prevailing meteorological conditions. A range of design and operational safeguards will be incorporated into the Project to achieve compliance with applicable noise criteria.
Amenity - Visual	The Mine Site is largely shielded by local topography and vegetation towards the east, west and south. However, preliminary visual analysis indicates that sections of some components may be locally visible to sensitive receivers. Distant glimpses of the Mine Site may also be available from the northwest and southeast.	Further analyses are planned to assess potential visual amenity impacts.	There is a low potential for the Project to impact on sensitive receivers due to the Project's location.	A visual amenity assessment will be undertaken to identify the visual catchment of the Project which will be supported by photographs of the Mine Site, cross-sections from key surrounding vantage points and photo montages.
Biodiversity - Terrestrial Flora and Fauna	Ecological surveys completed to date have identified the presence of one native vegetation community; Western New England Box-Tumbledown Gum Grassy Forest. Vegetation within the study area is not consistent with the characteristics of any <i>Biodiversity Conservation Act 2016</i> (BC Act) or <i>Environmental Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) listed threatened ecological communities. However, 19 threatened species, listed under either the BC Act and/or the EPBC Act were recorded within the Mine Site.	The Applicant plans to commission further ecological surveys to quantify offset credit availability in the proposed onsite Biodiversity Offset Area under the applicable NSW biodiversity assessment methodology and will also submit a referral to the Commonwealth Department of Climate Change, Energy, the Environment and Water.	Impacts would principally arise from the clearing of approximately 310 hectares of native vegetation and removing both individual plants and habitat areas. The potential significance of these impacts will be assessed and presented in the EIS.	A Biodiversity Development Assessment Report (BDAR) will be completed to identify the Project's offsetting obligations.
Built Environment - Private Property	There are six privately-owned residences within 3km of the proposed Mine Site boundary. An increasing number of residences are located from approximately 6km to the south/southeast as the township of Emmaville is approached.	Assessment of potential air quality, noise and visual amenity impacts.	Increased amenity impacts at sensitive receiver locations.	A noise assessment, air quality and greenhouse gas assessment and a visual impact assessment will be prepared to consider potential amenity impacts to sensitive receivers.
Built Environment - Public Land	Two substantial portions of Crown Land are also located within EL8407, one of which encompasses the Southern Open Cut.			

Table 17 (Cont'd)
Proposed Assessment of Impacts

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Issue	Existing Environment	Further Investigations	Potential Impacts	Proposed Assessment
Built Environment - Public Infrastructure	Public roads.	Levels of service and performance would be assessed on Grampians Road, Schrodgers Road and along the proposed transport routes. These assessments would include investigations regarding appropriate intersection design and any upgrades to the local road network which may be required.	It is anticipated that the existing state and local roads could support the proposed traffic volumes, however there may be some impact on the local road through increased vehicle traffic. There may also be some impacts on other local road users through increased volumes and vehicle sizes.	A traffic assessment will be undertaken by an appropriately qualified consultant to document the potential impacts on the surrounding road network.
	Transgrid Site Grampian Ridge 250528	Assessment of potential air quality and potential blasting impacts.	It is anticipated that blasting impacts can be managed during mining operations within proximal sections of the Northern open cut. Mitigation measures to address potential particulate matter deposition are also considered feasible.	A blasting assessment considering potential airblast overpressure, ground vibration and flyrock impacts will be undertaken by an appropriately qualified consultant to document the potential impacts to infrastructure located at Transgrid Site Grampian Ridge 250528.
Economic - Natural Resource Use	Extraction of a regionally significant resource.	The Feasibility Study has confirmed market need for the Project.	The potential impacts of the Project would include use of a regionally significant resource and potential sterilisation of unidentified resources.	An Economic Impact Assessment will be undertaken by an appropriately qualified consultant to determine the potential economic impacts the Project may have on the surrounding local community.
Economic - Livelihood	The Project would provide expanded employment opportunities for the local community and flow-on-effects through capital expenditure in the region.		The potential impacts of the Project would include additional direct and indirect employment opportunities to the local and regional area that would assist in increasing current levels of economic activity and benefits to the broader community.	
Economic - Opportunity Cost	No Biophysical Strategic Agricultural Land is located within the Mine Site or surrounding existing agricultural operations.			
Hazards and risks – Bushfire	The Mine Site is located on Bushfire Prone Land.	Further investigations are proposed to identify the vegetation classes within the Mine Site.	The Project may increase the risk of fire on the Mine Site without the proper management and mitigation measures. Project components may also be subject to bush fire attack.	An assessment of bush fire risk will be completed for the Project.
Hazards and risks – Flooding	There are no identified flooding risks within the Mine Site. Sections of Grampians Road may require upgrades to improve flood immunity.	No further investigations are required in relation to flood planning. Proposed upgrades will be informed by hydrologic and hydraulic modelling to determine conveyance and velocity.	There are no identified flooding risks.	No further assessment of flooding is required for the Project.
Hazards and risks – Dam Safety	No private residences or property is located within the failure path of any proposed water management infrastructure that may be considered a “Declared Dam” under the <i>Dams Safety Act 2015</i> .	Preliminary and detailed design of proposed water management infrastructure would be undertaken with and adopt design criteria in accordance with approved methodologies	Without proper management and mitigation measures, seepage, rare or infrequent rainfall events may cause the release of mine-affected runoff to downstream environments.	Separate assessments of potential impacts to surface water and groundwater resources will be completed for the Project.
Hazards and risks – Waste	Non-production wastes are expected to be comprised of general wastes, recyclables, and sewage. Their quantities and methods of disposal will be recorded in compliance with EPA requirements. Based upon the material characterisation program undertaken to date for the Project, it is it is understood approximately 74% of waste rock material is classified as non-acid forming (NAF), 20% considered potentially acid forming (PAF) and 6% uncertain. Of the processing residues, material placed in the CDA is either unlikely to be PAF or low-capacity PAF. Material placed in the RSF is assumed to be PAF.	Investigations are ongoing to identify the geochemical behaviour of waste rock and processing residues.	Release of potentially mine-affected seepage or runoff from waste rock and processing residue storage facilities/emplacements. Long-term geochemical stability of interred waste rock and processing residues.	Waste quantities will be calculated, and appropriate management and mitigation measures put in place to ensure all waste generated is managed appropriately. A waste-rock characterisation assessment will also be prepared. Preliminary design of waste rock and processing residue management infrastructure has incorporated design and construction measures to manage potential impacts from seepage and runoff and ensure the long-term geochemical stability of placed materials. Separate assessments of potential impacts to surface water and groundwater resources will be completed for the Project.
Heritage - Aboriginal	Field surveys, undertaken with Aboriginal representatives, identified one Aboriginal cultural heritage site, comprising one item of Aboriginal cultural heritage significance within the Mine Site. This item, an isolated stone artefact, is considered to have high cultural significance and low scientific, educational and aesthetic significance.	Investigations, involving field survey, are being undertaken with the participation of Aboriginal stakeholders.	The identified Aboriginal cultural heritage site is situated beyond any area of Project-related disturbance.	An Aboriginal Cultural Heritage Assessment of the proposed disturbance footprint will be undertaken in accordance with the <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW</i> (DECCW, 2010a) and the <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents</i> (DECCW, 2010b).
Heritage - Historic	Taronga homestead, within the Mine Site, has been identified. However, this site has been assessed as having low-moderate significance.	Investigations, involving field survey, have been undertaken by a qualified archaeologist.	The identified historic heritage site is situated beyond any area of Project-related disturbance.	Consideration of potential historic heritage impacts will be included within the Aboriginal Cultural Heritage Assessment.

Table 17 (Cont'd)
Proposed Assessment of Impacts

Page 3 of 3

Issue	Existing Environment	Further Investigations	Potential Impacts	Proposed Assessment
Land – Stability	The existing landforms of the Mine Site are consistent with the surrounding area, with some sections covered by remnant native vegetation.	Further investigations are proposed to identify suitable vegetation for use in rehabilitation activities.	Potential negative effects include rehabilitation that is not in keeping with the existing landscape and a reduction in suitable habitat for native fauna.	The proposed progressive and final rehabilitation of the Mine Site would be presented in the EIS with an objective to minimise the visual intrusiveness of the operations and progressively generate a final landform which, to the extent practical, reflects the surrounding landforms and landscape. Revegetation activities will focus on creating suitable habitat for native species. The Project would require the preparation of a Rehabilitation Management Plan and associated rehabilitation security) in accordance with the conditional requirements of a Mining Lease issued under the <i>Mining Act 1992</i> .
Land – Soil and Land Capability	Land and soil capability mapping identifies most of the Mine Site as Class 6 (very severe limitations). The soils of the Mine Site have been investigated via a test pit program which identified rudosols, tenosols, dermosols, ferrosols and sodosols present. Topsoils are relatively shallow (i.e. <0.2m) and the sparse occurrence of subsoils is also relatively shallow, where present.	Preparation of a comprehensive Soil and Landscape Capability Assessment.	Soil resources are limited within the disturbance area however, the extraction operations would involve the removal and transfer/storage of as much topsoil and selected subsoil from this area as possible.	A land and soils assessment will be undertaken for the Project.
Social - Way of Life, Community	Rural agricultural and village community, with a number of residents likely to be much closer to mining operations than was previously the case.	The Applicant will undertake ongoing community consultation and prepare a Social Impact Assessment for the Project.	Reduced social amenity and cohesion. It is noted that potential negative impacts will be identified through consultation as part of the Social Impact Assessment process.	A Social Impact Assessment will be prepared for the Project.
Surface Water	The Mine Site is situated in the Border Rivers Catchment. The main waterways within or adjacent to the Mine Site are Vegetable Creek and Little Plant Creek which discharge into the Beardy River. The Mine Site incorporates several first order and one second order watercourses which ultimately drain to Vegetable Creek. Surface water is only present in these watercourses after a significant rainfall event. The closest licensed users are located approximately 25km northwest of the Mine Site,	Assessment of potential runoff volumes requiring management from Project-related disturbance areas (e.g. stockpiling and loading areas). A program of surface water quality monitoring remains ongoing and will be used to inform the assessment of potential impacts. A Water Balance will be included in the EIS to establish the Project's water supply reliability and potential impacts to downstream flows.	Reduction in water quality of downstream watercourses as a consequence of the discharge of mine-affected water or sediment laden runoff. It is noted that mitigation measures would be implemented to avoid any such discharges.	A surface water impact assessment will be undertaken for the Project including erosion and sediment controls and water balance. The assessment will include the relevant design criteria of the water management infrastructure and required design and operational safeguards.
Groundwater	The nature and occurrence of the target resource with the continuation of hard silicified metasediments at depth results in limited groundwater being present. Groundwater levels within the Mine Site reflect topography with depths to water up to 30 metres below ground. Whilst groundwater levels are generally shallower at higher elevation, they do not intersect the ground surface, even in watercourses. There are approximately 15 privately-owned, registered groundwater bores within a 10km radius of the Mine Site, the closest being 4.3km. Groundwater resources are being investigated as potential water supply options for the Project.	Further investigations are proposed to identify potential impacts of the Project on the groundwater system. A program of groundwater monitoring (levels and quality) via a network of bores remains ongoing. Monitoring data will be used to develop a conceptual model of the groundwater setting and inform development of a numerical model for assessing potential impacts.	Infiltration of mine affected water (seepage) from water management infrastructure (dams), the waste rock emplacements, CDA and the RSF has the potential to negatively impact groundwater quality. The lack of registered groundwater users in the vicinity of the Mine Site indicates that the Project is unlikely to impact groundwater availability at non Project-related groundwater works.	A groundwater impact assessment will be undertaken for the Project peer reviewed numerical modelling to support any conclusions. Modelling would consider mining operations and groundwater extraction from production bores to assess the Project against the requirements of the Aquifer Interference Policy. The groundwater assessment will also consider the relevant design criteria of the water management infrastructure and required design and operational safeguards to assess potential quality impacts from seepage.

7. References

- ATC Williams (ATCW) (2024).** *Taronga Tin Project Feasibility Study: Chapters 10 and 11 Tailings Storage Facilities and Water Management*
- Australian National Council on Large Dams (ANCOLD) (2019).** *Guidelines on Tailings Dams – Planning, Design, Construction, Operation, and Closure*
- Department of Environment, Climate Change and Water (DECCW) (2010a).** *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW*
- Department of Environment, Climate Change and Water (DECCW) (2010b).** *Aboriginal Cultural Heritage Consultation Requirements for Proponents*
- Department of Planning (DoP) (2011).** *Hazardous and Offensive Development Application Guidelines Applying SEPP 33.*
- Department of Planning, Industry and Environment (DPIE) (2022).** *State Significant Development Guidelines – Preparing a Scoping Report*
- H&S Consultants Pty Ltd (H&S) (2023).** *Taronga Tin Project Feasibility Study: Chapter 6 Geology and Mineral Resources*
- International Council on Mining and Metals (ICMM) (2020).** *Global Industry Standard on Tailings Management*
- Joint Ore Reserves Committee (JORC) (2012).** *Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves*
- Rosenbaum, G (2018).** *The Tasmanides: Phanerozoic Tectonic Evolution of Eastern Australia. Annual Review of Earth and Planetary Sciences. Vol 46, pp 291-325*
- Taronga Mines Pty Ltd (TMPL) (2024).** *Taronga Tin Project Feasibility Study.*

Appendices

Appendix 1 Scoping Summary Table

Appendix 2 Social Impact Assessment Worksheet

Appendix 1

Scoping Summary Table

(Total No. of pages including blank pages = 4)

This scoping summary table has been compiled to assist in guiding the level of assessment that is proposed to be undertaken for the respective environmental matters within the Environmental Impact Statement.

Table A1
Scoping Summary

Page 1 of 3

Level of Assessment	Matter	CIA	Engagement	Relevant government plans, policies and guidelines	Scoping Report Reference
Detailed	Biodiversity – native vegetation and native fauna	N	General	- Commonwealth EPBC 1.1 Significant Impact Guidelines – Matters of National Environmental Significance (Commonwealth of Australia, 2013) - Commonwealth Department of the Environment – Nationally Threatened Ecological Communities and Threatened Species Guidelines (various) - Commonwealth Department of the Environment – Survey Guidelines for Nationally Threatened Species (various) - Biodiversity Assessment Method (DPE 2020) - Biodiversity Assessment Method 2020 Operational Manual - Stage 1 (DPE 2020) - Guidance and Criteria to assist a decision maker to determine a serious and irreversible impact (OEH 2017) - Ancillary rules: Biodiversity conservation actions - Ancillary rules: Reasonable steps to seek like-for-like biodiversity credits for the purpose of applying variation rules - NSW Guide to Surveying Threatened Plants (OEH 2016) - Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna – Amphibians (DECC 2009) - Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities – Working Draft (DEC 2004) - Threatened Species Assessment Guideline – The Assessment of Significance (DECC 2007) 'Species credit' threatened bats and their habitats - NSW Survey guide for the Biodiversity Assessment Method (OEH 2018) - NSW Survey Guide for Threatened Frogs - A guide for the survey of threatened frogs and their habitats for the Biodiversity Assessment Method (DPE 2020) - Koala (Phascolarctos cinereus) - Biodiversity Assessment Method Survey Guide (DPE 2022) - Threatened reptiles - Biodiversity Assessment Method Survey Guide (DPE 2022) - OEH principles for the use of biodiversity offsets in NSW - NSW State Groundwater Dependent Ecosystem Policy (NOW)	Section 6
Standard	Access – traffic	Y	General	- Guide to Traffic Generating Development (RTA) - Austroads Guide to Road Design and Transport for NSW Supplements	Section 6
	Air - Particulate Matter	Y	General	- Protection of the Environment Operations (Clean Air) Regulation 2002 - Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA) - Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (EPA) - National Greenhouse Accounts Factors (Commonwealth)	Section 6
	Air - Gases	Y	General		
	Amenity – noise	N	General	- NSW Noise Policy for Industry (EPA) - Interim Construction Noise Guideline (EPA) - NSW Road Noise Policy (EPA) - Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZEC)	Section 6
	Amenity - visual	N	General	Nil	Section 6
	Amenity - blasting	N	General	Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZEC)	Section 6
	Built Environment - Private Property	Y	General	- Protection of the Environment Operations (Clean Air) Regulation 2002 - Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA) - Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (EPA) - National Greenhouse Accounts Factors (Commonwealth) - NSW Noise Policy for Industry (EPA) - Interim Construction Noise Guideline (EPA) - NSW Road Noise Policy (EPA) - Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZEC)	Section 6
	Built Environment - Public Land	N	General	Nil	Section 6
	Built Environment - Public Infrastructure	Y	General	- Protection of the Environment Operations (Clean Air) Regulation 2002 - Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA) - Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (EPA) - National Greenhouse Accounts Factors (Commonwealth) - NSW Noise Policy for Industry (EPA) - Interim Construction Noise Guideline (EPA) - NSW Road Noise Policy (EPA) - Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZEC) - Guide to Traffic Generating Development (RTA) - Road Design Guide (RMS) & relevant Austroads Standards	Section 6

Table A1 (Cont'd)
Scoping Summary

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Level of Assessment	Matter	CIA	Engagement	Relevant government plans, policies and guidelines	Scoping Report Reference
Standard (Cont'd)	Economic - Natural Resource Use	N	General	NSW Government Guide to Cost Benefit Analysis (NSW Treasury).	Section 6
	Economic - Livelihood	Y	General	Guideline for the economic assessment of mining and coal seam gas proposals	
	Economic - Opportunity Cost	N	General	Technical Notes supporting the Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals.	
	Hazards and risks – Bushfire	N	General	Planning for Bushfire Protection 2019 (RFS)	Section 6
	Hazards and risks – Flooding	N	General	- Floodplain Development Manual (OEH) - Floodplain Risk Management Guideline (OEH)	Section 6
	Hazards and risks – Dam Safety	N	General	Dams Safety NSW and Australian National Committee on Large Dams guidelines	Section 6
	Hazards and risks – Waste	N	General	- State Environmental Planning Policy No. 33 – Hazardous and Offensive Development - Hazardous and Offensive Development Application Guidelines – Applying SEPP 33 - Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis	Section 6
	Heritage – Aboriginal cultural and historic heritage	N	Specific	- The Burra Charter (The Australia ICOMOS charter for places of cultural significance) - Guide to investigation, assessing and reporting on Aboriginal cultural heritage in NSW (OEH) 2011 - Aboriginal Cultural Heritage Consultation Requirements for Proponents (OEH) - Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (OEH) - Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (OEH) - NSW Heritage Manual (OEH) - Statements of Heritage Impact (OEH)	Section 6
	Land – soil and Land capability	N	General	- Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land OEH) - State Environmental Planning Policy (Resilience and Hazards) 2021 - Agricultural Land Classification (DPI) - Rural Land Capability Mapping (OEH) - Soil and Landscape Issues in Environmental Impact Assessment (NOW) - Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC) - Guidelines for Consultants Reporting on Contaminated Sites (EPA) - Agricultural Issues for Extractive Industry Development (DPI)	Section 6
	Social – Social amenity and cohesion	Y	Detailed	Social impact assessment guideline for State significant mining, petroleum production and extractive industry development	Section 6
	Water – Hydrology and surface water	N	General	- NSW State Rivers and Estuary Policy (NOW) - NSW Government Water Quality and River Flow Objectives (EPA) - Using the ANZECC Guideline and Water Quality Objectives in NSW (EPA) - National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ) - National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ) - Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (EPA) - Managing Urban Stormwater: Soils & Construction (Landcom) and associated Volume 2E: Mines and Quarries (DECC) - Managing Urban Stormwater: Treatment Techniques (EPA) - Managing Urban Stormwater: Source Control (EPA) - Technical Guidelines: Bunding & Spill Management (EPA) - A Rehabilitation Manual for Australian Streams (LWRRDC and CRCCH) - NSW Guidelines for Controlled Activities (NOW)	Section 6
	Water – Hydrogeology and groundwater	N	General	- NSW Aquifer Interference Policy 2012 (NOW) - NSW State Groundwater Policy Framework Document (NOW) - NSW State Groundwater Quality Protection Policy (NOW) - NSW State Groundwater Quantity Management Policy (NOW) - Australian Groundwater Modelling Guidelines 2012 (Commonwealth) - National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC) - Guidelines for the Assessment & Management of Groundwater Contamination (EPA)	Section 6

Table A1 (Cont'd)
Scoping Summary

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Level of Assessment	Matter	CIA	Engagement	Relevant government plans, policies and guidelines	Scoping Report Reference
Not relevant	Biodiversity – Aquatic flora and fauna	N	General	- Commonwealth EPBC 1.1 Significant Impact Guidelines – Matters of National Environmental Significance (Commonwealth of Australia, 2013) - Commonwealth Land and Actions by Commonwealth Agencies (Commonwealth of Australia, 2013) - Commonwealth Department of the Environment – Nationally Threatened Ecological Communities and Threatened Species Guidelines (various) - Commonwealth Department of the Environment – Survey Guidelines for Nationally Threatened Species (various) - Biodiversity Assessment Method (EES 2020) - Guidance and Criteria to assist a decision maker to determine a serious and irreversible impact (OEH 2017) - Ancillary rules: Biodiversity conservation actions - Ancillary rules: Reasonable steps to seek like-for-like biodiversity credits for the purpose of applying variation rules - NSW Guide to Surveying Threatened Plants (OEH 2016) - Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna – Amphibians (DECC 2009) - Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities – Working Draft (DEC 2004) - Threatened Species Assessment Guideline – The Assessment of Significance (DECC 2007) - OEH principles for the use of biodiversity offsets in NSW - NSW State Groundwater Dependent Ecosystem Policy (NOW)	Not applicable
Standard (Cont'd)	Hazards and Risks - waste	N	General	- Waste Classification Guidelines (EPA) - Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes 1999 (EPA)	Section 6
	Land – land capability and soils	N	General	- State Environmental Planning Policy (Resilience and Hazards) 2021 - Agricultural Land Classification (DPI) - Rural Land Capability Mapping (OEH) - Soil and Landscape Issues in Environmental Impact Assessment (NOW) - Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC) - Guidelines for Consultants Reporting on Contaminated Sites (EPA) - Agricultural Issues for Extractive Industry Development (DPI)	Section 6
	Land – rehabilitation	N	General	- Mine Rehabilitation – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth) - Mine Closure and Completion – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth) - Strategic Framework for Mine Closure (ANZMEC-MCA)	Section 6
	Water – surface water	N	General	- NSW State Rivers and Estuary Policy (NOW) - NSW Government Water Quality and River Flow Objectives (EPA) - Using the ANZECC Guideline and Water Quality Objectives in NSW (EPA) - National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ) - National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ) - Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (EPA) - Managing Urban Stormwater: Soils & Construction (Landcom) and associated Volume 2E: Mines and Quarries (DECC) - Managing Urban Stormwater: Treatment Techniques (EPA) - Managing Urban Stormwater: Source Control (EPA) - Technical Guidelines: Bunding & Spill Management (EPA) - A Rehabilitation Manual for Australian Streams (LWRRDC and CRCCH) - NSW Guidelines for Controlled Activities (NOW)	Section 6
	Economic – economic costs and benefits	N	General	- NSW Government Guide to Cost Benefit Analysis (NSW Treasury). - Guideline for the economic assessment of mining and coal seam gas proposals - Technical Notes supporting the Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals.	Section 6
Minor	Water - groundwater	N	General	- NSW Aquifer Interference Policy 2012 (NOW) - NSW State Groundwater Policy Framework Document (NOW) - NSW State Groundwater Quality Protection Policy (NOW) - NSW State Groundwater Quantity Management Policy (NOW) - Australian Groundwater Modelling Guidelines 2012 (Commonwealth) - National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC) - Guidelines for the Assessment & Management of Groundwater Contamination (EPA)	Section 6

Appendix 2

Social Impact Assessment Worksheet

(Total No. of pages including blank pages = 2)

Social Impact Assessment (SIA) Worksheet

Taronga Mine Project Emmaville

Date:

CATEGORIES OF SOCIAL IMPACTS	POTENTIAL IMPACTS ON PEOPLE	PREVIOUS INVESTIGATION OF IMPACT	CUMULATIVE IMPACTS	ELEMENTS OF IMPACTS - Based on preliminary investigation								ASSESSMENT LEVEL FOR EACH IMPACT				PROJECT REFINEMENT	MITIGATION / ENHANCEMENT MEASURES
what social impact categories could be affected by the project activities	What impacts are likely, and what concerns/aspirations have people expressed about the impact? Summarise how each relevant stakeholder group might experience the impact. NB. Where there are multiple stakeholder groups affected differently by an impact, or more than one impact from the activity, please add an additional row.		Has this impact previously been investigated (on this or other project/s)?	If "yes - this project," briefly describe the previous investigation. If "yes - other project," identify the other project and investigation	Will this impact combine with others from this project (think about when and where), and/or with impacts from other projects (cumulative)?	If yes, identify which other impacts and/or projects	Will the project activity (without mitigation or enhancement) cause a material social impact in terms of its: You can also consider the various magnitudes of these characteristics					Level of assessment for each social impact	What methods and data sources will be used to investigate this impact?			Has the project been refined in response to preliminary impact evaluation or stakeholder feedback?	What mitigation / enhancement measures are being considered?
	Is the impact expected to be positive or negative						extent i.e. number of people potentially affected?	duration of expected impacts? (i.e. construction vs operational phase)	intensity of expected impacts i.e. scale or degree of change?	sensitivity or vulnerability of people potentially affected?	level of concern/interest of people potentially affected?		Secondary data	Primary Data - Consultation	Primary Data - Research		
way of life	Impacts on Emmaville community experience of travel because of increased traffic; localised noise and disruption impacts for near neighbours.	Negative	No		Yes	These impacts will flow into operational impacts of Taronga Mine.	Yes	Yes	Yes	Yes	Yes	standard assessment	Yes	Yes	No	No	None at this stage
community	Impacts on community cohesion with large inflow of predominantly male workers, gender safety and domestic violence potential. Pressures on available accommodation throughout the LGA.	Negative	Yes - this project	Some observational research of existing impacts of exploration employee influx.	Yes	These impacts will flow into operational impacts of Taronga Mine.	Yes	Yes	Yes	Yes	Yes	standard assessment	Yes	Yes	No	No	Location of Construction Accommodation camp critical. Glen Innes village (or nearby) preferred area for community safety and mitigation of localised impacts on Emmaville. Deepwater also a possibility. Infrastructure (sewage, water, Comms etc) has been investigated at Emmaville. Local businesses want to be primary suppliers to the mine camp.
access	Impacts on how people use roads, restrictions; impacts on road infrastructure and safety; impacts related to worker accommodation; stress on local service system including health and emergency services.	Negative	Yes - this project	Consultation with local service providers and emergency service providers re service system capacity - service system does not have capacity for employee influx.	Yes	These impacts will flow into operational impacts of Taronga Mine.	Yes	Yes	Yes	Yes	Yes	standard assessment	Yes	Yes	No	No	None at this stage - negotiations will occur with Council through a VPA. Emergency Management Plan needed. Partnerships should be explored with local hospital and school.
livelihoods	New employment and business opportunities	Positive	Yes - this project	Consultation with local business and residents re employment and business opportunities - high level of interest.	Yes	These impacts will flow into operational impacts of Taronga Mine.	Yes	Yes	Yes	Yes	Yes	standard assessment	Yes	Yes	Yes	No	Local Procurement Plan, Employment Policy and targets for Indigenous workforce are beginning to be explored.
culture	Loss of connection to land. Feelings of exclusion.	Negative	Yes - this project	Consultation with First Nations peoples to include them in the process. Heritage Study.	Yes	These impacts will flow into operational impacts of Taronga Mine.	No	Yes	No	Yes	Yes	standard assessment	Yes	Yes	No	Yes	Ongoing and targeted engagement. Indigenous employment targets. Business partnerships (e.g. establishment of a Nursery). Allowing for "sorry business" on site. Reconciliation Action Plan.
	Psychological stress on near neighbours. Noise and dust impacts near site. Depending on proximity of mine camp to Emmaville, potential anti-social behaviour associated with influx of male workers, use of alcohol and	Negative	Yes - this project	Some observational research of existing impacts of exploration employee influx.	Yes	These impacts will flow into operational impacts of Taronga Mine.	Yes	Yes	Yes	Yes	Yes	standard assessment	Yes	Yes	Yes	No	Mine Camp Management Plan. Environmental management plan and monitoring of near neighbour impacts.
surroundings	Impacts on safety of pedestrians, drivers, children and cyclists with increased traffic through the Emmaville village. Potential impacts on safety for women.	Negative	No		Yes	These impacts will flow into operational impacts of Taronga Mine.	Yes	Yes	Yes	Yes	Yes	standard assessment	Yes	Yes	No	No	Road Safety Management Plan. Employment policy and clear expectations set around off-site behaviour.
decision-making systems	Demonstrated commitment to authentic community engagement and potential for affected groups to influence project design and outcomes. Potential for community input to community sponsorship plans.	Positive	Yes - this project	Observation of engagement activities and responses to community input by social impact researcher.	Yes	These impacts will flow on from exploration and construction stages of mine development.	Yes	Yes	Yes	Yes	Yes	standard assessment	Yes	Yes	No	Yes	Community Partnerships and Sponsorship Policy. Comprehensive Stakeholder Engagement Plan and monitoring system. Grievance Procedure.
way of life	Impacts on Emmaville community experience of travel because of increased traffic, localised noise and disruption impacts for near neighbours. Lifestyle and amenity impacts for near neighbours.	Negative	Yes - this project	Focus group with Near Neighbours - identified high levels of anxiety about potential impacts on local character of the area and their peace and quiet.	Yes	These impacts will flow on from construction impacts of Taronga Mine.	Yes	Yes	Yes	Yes	Yes	standard assessment	Yes	Yes	No	No	None at this stage
community	Impacts on community cohesion with large inflow of predominantly male workers, gender safety and domestic violence potential. Pressures on available accommodation throughout the LGA.	Negative	Yes - this project	Some observational research of exploration employee influx.	Yes	These impacts will flow into operational impacts of Taronga Mine.	Yes	Yes	Yes	Yes	Yes	standard assessment	Yes	Yes	No	No	Location of Mine Camp Accommodation critical. Glen Innes village (or nearby) preferred area for community safety and mitigation of localised impacts on Emmaville, as well as for worker amenity and access to services. Deepwater also a possibility. Infrastructure (sewage, water, Comms etc) has been investigated at Emmaville. Local businesses want to be primary suppliers to the mine camp. Council consultation is ongoing.
access	Impacts on how people use roads, restrictions; impacts on road infrastructure and safety; impacts related to worker accommodation; stress on local service system including health and emergency services.	Negative	Yes - this project	Consultation with local service providers and emergency service providers re service system capacity - service system does not have capacity for employee influx.	Yes	These impacts will flow on from construction impacts of Taronga Mine.	Yes	Yes	Yes	Yes	Yes	standard assessment	Yes	Yes	No	No	None at this stage - negotiations will occur with Council through a VPA. Emergency Management Plan needed. Partnerships should be explored with local hospital and school.
livelihoods	New employment and business opportunities	Positive	Yes - this project	Consultation with local business and residents re employment and business opportunities - high level of interest.	Yes	These impacts will flow on from construction impacts of Taronga Mine.	Yes	Yes	Yes	Yes	Yes	standard assessment	Yes	Yes	Yes	No	Local Procurement Plan, Employment Policy and targets for Indigenous workforce are beginning to be explored.
culture	Loss of connection to land. Feelings of exclusion.	Negative	Yes - this project	Consultation with First Nations peoples to include them in the process. Heritage Study.	Yes	These impacts will flow on from construction impacts of Taronga Mine.	No	Yes	No	Yes	Yes	standard assessment	Yes	Yes	No	Yes	Ongoing and targeted engagement. Indigenous employment targets. Business partnerships (e.g. establishment of a Nursery). Allowing for "sorry business" on site. Reconciliation Action Plan.
	Psychological stress on near neighbours. Noise and dust impacts near site. Visual impacts. Environmental impacts, both real and perceived. Depending on proximity of mine camp to Emmaville, potential anti-social behaviour associated with influx of male workers, use of alcohol and other drugs, gender related violence.	Negative	Yes - this project	Some observational research of existing impacts of exploration employee influx.	Yes	These impacts will flow on from construction impacts of Taronga Mine.	Yes	Yes	Yes	Yes	Yes	standard assessment	Yes	Yes	Yes	No	Mine Camp Management Plan. Environmental management plan and monitoring of near neighbour impacts. Grievance Procedure. Employment policy and clear expectations set around off-site behaviour.
surroundings	Impacts on safety of pedestrians, drivers, children and cyclists with increased traffic through the Emmaville village. Potential impacts on safety for women.	Negative	No		Yes	These impacts will flow on from construction impacts of Taronga Mine.	Yes	Yes	Yes	Yes	Yes	standard assessment	Yes	Yes	No	No	Road Safety Management Plan. Employment policy and clear expectations set around off-site behaviour. Potential revitalisation of Emmaville through sponsoring community projects and possible location of mining operations office (although planned for on-site currently)
decision-making systems	Demonstrated commitment to authentic community engagement and potential for affected groups to influence project design and outcomes. Potential for community input to community sponsorship plans.	Positive	Yes - this project	Observation of engagement activities and responses to community input by social impact researcher.	Yes	These impacts will flow on from exploration and construction stages of mine development.	Yes	Yes	Yes	Yes	Yes	standard assessment	Yes	Yes	No	Yes	Community Partnerships and Sponsorship Policy. Comprehensive Stakeholder Engagement Plan and monitoring system. Grievance procedure.
INSERT NEW ROWS ABOVE THIS ROW																	