



# Warrego Project Mining Management Plan

Variation of Authorisation #1073-01  
Section 38(1) *Mining Management Act 2001*

DRAFT Amendment #1  
Prepared by Tennant Consolidated Mining Group Pty Ltd  
October 2023

## Document Control

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Final Amendment 1	Prepared by TCMG for release October 2023

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## Acknowledgement of Country

Tennant Mining acknowledges the Traditional Owners of the lands in which our projects operate, the Warumungu and Warlmanpa people. We pay our respects to Warumungu and Warlmanpa elders, past, present and emerging. We sincerely thank the Warumungu and Warlmanpa people for welcoming us to their Country.

It is an honour and privilege for us to partner with the Warumungu and Warlmanpa to work on their traditional lands to create benefits and value for them and their families - for our companies, our employees and their families – and for other people living in Tennant Creek, the Barkly Region and the Northern Territory.

## Declaration

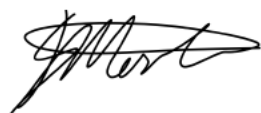
I hereby declare that the information provided in the Mining Management Plan is true and correct to the best of my knowledge and that I accept that the misrepresentation or omission of facts may delay assessment for authorisation under the *Mining Management Act 2001*.

Managing Director, Peter Main



..... Date: 02 / 11 / 2023

Company Secretary, Jamie Morton



..... Date: 02 / 11 / 2023

Contact Information	Details
Organisation	Tennant Consolidated Mining Group Pty Ltd
Contact Person	Peter Main
Phone	1800 879 028
Email	info@tennantmining.com.au
Mail	PO Box 37, West Perth WA 6872
ABN	72 645 263 547



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## Amendments

Section	Amendment
1 - Introduction	2.1 – Operator Details Change in key contact person and organisational structure.
1.3.3 – Project Proposition	2.5 – Project Summary Now proposing rehabilitation works to remove, cleanup, and scrap from site the existing mill, and all other above ground infrastructure no longer required on site.  (no longer proposing to refurbish and recommission the existing gold ore treatment facility; refurbish and recommission the TDI tailings storage facility; develop new water and wastewater services; develop new electrical power services; or recommission the existing industrial landfill at Warrego).
2.1.3 Flora and Fauna	3.1.3.1 – Weeds Detail of the weed management program included.
2.2.2 – Identified Stakeholders and Consultation	3.3 – Identified Stakeholders and Consultation Added detail of the stakeholder engagement program carried out by TCMG during 2022 and 2023.
2.2.3 – Workforce Description and Demography	3.3.2 – Workforce Description and Demography Detail of current TCMG workforce projections included.
3 – Statutory and Non-Statutory Requirements	4 – Legislation and Obligations Detail and expansion of requirements added.
3.3.1 – Sacred Sites	3.2.1 – Sacred Sites

Section	Amendment
	TCMG applications for AAPA and CLC sacred sites clearance certificates have been made.
3.3.2 – Heritage and Archaeological Sites	3.2.2 Heritage and Archaeological Sites Correction of factual inaccuracy. Details of a search of the Northern Territory Heritage Register conducted in 2023 by the Heritage Branch for the Project site included.
4 – Operational Activities	5 – Operational Activities Changed to now include: <ol style="list-style-type: none"> <li>1. Rehabilitation works including the removal and scrapping of existing historical above ground mining infrastructure;</li> <li>2. Use and upgrade of tracks as required; and</li> <li>3. Implementation of a care and maintenance program.</li> </ol>
5 – Environmental Management Program	7 – Environmental Management System Updated to reflect changes in Project planning, organisational structure, and to provide further detail. Risk assessment updated and included in Appendix B. TCMG Environmental Policy added at Appendix C. Environmental Objectives altered to align with EPA Factors and Objectives. 8 – Environmental Management Plan Details aspects of environmental management to mitigate potential environmental impacts relevant to the updated Project planning.

Section	Amendment
	Weed Management Plan included in Appendix A.
6 – Water Management	No longer required due to changes in Project planning.  Water management included in 8.1 – Water Quality and Quantity.
8 – Closure Planning	10 – Closure Planning  Updated to reflect changes in Project planning.
8.3.2 – Financial Provisions for Rehabilitation	10.4 – Financial Provisions for Rehabilitation  Updated security calculation to reflect changes in Project planning for rehabilitation works only.

## Glossary and Acronyms

AAPA	Aboriginal Areas Protection Authority
ABS	Australian Bureau of Statistics
ARI	Average Recurrence Interval
ATSI	Aboriginal and Torres Strait Islander
CLC	Central Land Council
Cleanup Area	The area the subject of this MMP, within which rehabilitation works are proposed to be carried out – as shown in Figure 2-6
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DEPWS	Department of Environment, Parks and Water Security
DITT	NT Government Department of Industry, Tourism and Trade
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	Environmental Management System
EP Act	<i>Environment Protection Act 2019</i> (Northern Territory)
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
ESC	Erosion Sediment Control
ESCP	Erosion Sediment Control Plan
ESG	Environmental, Social and Governance
FTE	Full Time Employment position
GHGs	Greenhouse Gases
ILUA	Indigenous Land Use Agreement



LFA	Land Functional Analysis
ML	Mineral Lease
MLC	Mineral Lease Central
MM Act	<i>Mining Management Act 2001</i> (Northern Territory)
MMP	Mining Management Plan
MNES	Matters of National Environmental Significance
MT Act	<i>Minerals Titles Act 2010</i> (Northern Territory)
Northern Iron	Northern Iron Pty Ltd
NR Maps	Web-based Natural Resource Mapping Tool developed by the NT Government Available at: <a href="https://nrmaps.nt.gov.au/nrmaps.html">https://nrmaps.nt.gov.au/nrmaps.html</a>
NT	Northern Territory
NEPC Act	<i>National Environment Protection Council (Northern Territory) Act 1994</i> (Northern Territory)
NEPM-AAQ	<i>National Environment Protection (Ambient Air Quality) Measure 1998</i> (Commonwealth)
NGER Act	<i>National Greenhouse and Energy Reporting Act 2007</i> (Commonwealth)
NT	Northern Territory
NT EPA	Northern Territory Environment Protection Agency
Project	All project activities within the scope of proposed works the subject of this MMP
RMP	Risk Management Plan
ROM	Run of Mine
SCLU Act	<i>Soil Conservation and Land Utilisation Act 1969</i> (Northern Territory)
TCMG	Tennant Consolidated Mining Group

TD1	Tailings Dam 1
TPWC Act	<i>Territory Parks and Wildlife Conservation Act 1976</i> (Northern Territory)
TSF	Tailings Storage Facility
Water Act	<i>Water Act 1992</i> (Northern Territory)
WHS Act	<i>Work Health and Safety (National Uniform Legislation) Act 2011</i>
WM Act	<i>Weed Management Act 2001</i> (Northern Territory)
WMPC Act	<i>Waste Management and Pollution Control Act 1998</i> (Northern Territory)

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## 1 Introduction

This is the first amendment of this Mining Management Plan (MMP). In the time since approval of the first MMP in April 2021, only care and maintenance works have been carried out. Works in an exploration and mineral development program focused on gold and copper targets are being undertaken within the Project area during 2023, which are covered within a separate exploration only MMP which was approved, and Mining Authorisation granted 23 June 2023 (Authorisation 1159-01). The intended outcome of the drilling program is to determine a Mineral Resource estimate at Warrego that can be classified. This will inform viability studies into recommencement of mining at Warrego. Any such proposed mining activities will be included in a subsequent amendment to this MMP.

The purpose of this amendment is to reflect changes in Project planning in the time since preparation of the first MMP, and to undertake rehabilitation works on site. TCMG undertook a feasibility study in 2023 informed by exploration and mineral development, environmental studies, and other statutory requirements. As a result of these studies, Project planning evolved to establish a central processing facility at Nobles Nob – as opposed to refurbishment of the Warrego mill as previously planned. Establishment of the processing facility at Nobles Nob is covered within a separate Nobles Nob MMP which was approved, and mining authorisation granted 15 August 2022 (Authorisation 1123-01).

Current planning for the Warrego Project area is to undertake rehabilitation and cleanup activities to improve the safety and environmental condition of the site. This will also prepare the site for potential future mining – pending the outcome of the current exploration and mineral development program. The scope of works proposed for this rehabilitation program include removal of the existing mill and associated buildings and remnant above ground mining infrastructure within the proposed Cleanup Area, and continuation of care and maintenance of the site. Further details are outlined below.

## 2 Application for Authorisation

### 2.1 Operator Details

Tennant Consolidated Mining Group Pty Limited (TCMG) is the owner and operator of the historical Warrego Gold Ore Treatment Plant located on Mineral Lease (ML) 30888. Operator details are shown in Table 2-1 below.

**Table 2-1 Operator details**

<b>Operator Details:</b>	Tennant Consolidated Mining Group Pty Ltd
<b>ABN:</b>	ABN 72 645 263 547
<b>Key contact person:</b>	Peter Main (Managing Director)
<b>Postal address:</b>	PO Box 37, West Perth, WA 6872
<b>Street address:</b>	Level 3, 16 Ventnor Street, West Perth, WA 6005
<b>Phone:</b>	1800 879 028
<b>Email:</b>	info@tennantmining.com.au

The board of TCMG has appointed a Managing Director who is accountable for the management of the Warrego project site. This position is supported by internal resources and external service providers. The organisational structure and responsibilities are outlined in Figure 2-1 below. The Managing Director is responsible for maintaining the MMP and Environmental Management Plans relevant to the Project. The Project Manager is responsible for managing site works and implementing safety and environmental management plans, environmental monitoring programs, and statutory reporting.

### 2.2 Project Location

The proposed Project site is located at the historical Warrego mine site, located approximately 44 km northwest of the Tennant Creek township, and approximately 39 km west of the Stuart Highway. On the Short Range (5659) 1:100,000 map sheet centered on GDA94 Z53 coordinates 376100E 7849200N. The location of the Project site within the NT and in relation to Tennant Creek is shown in Figure 2-2 below.

Access to the Project site is approximately 55 km by sealed bitumen road. From Tennant Creek, this is approximately 3 km north of the town along the Stuart Highway, left on to Warrego Road for approximately 48 km, arriving at the private access Warrego gate. A key is required for access to the site.





# Organisation Chart

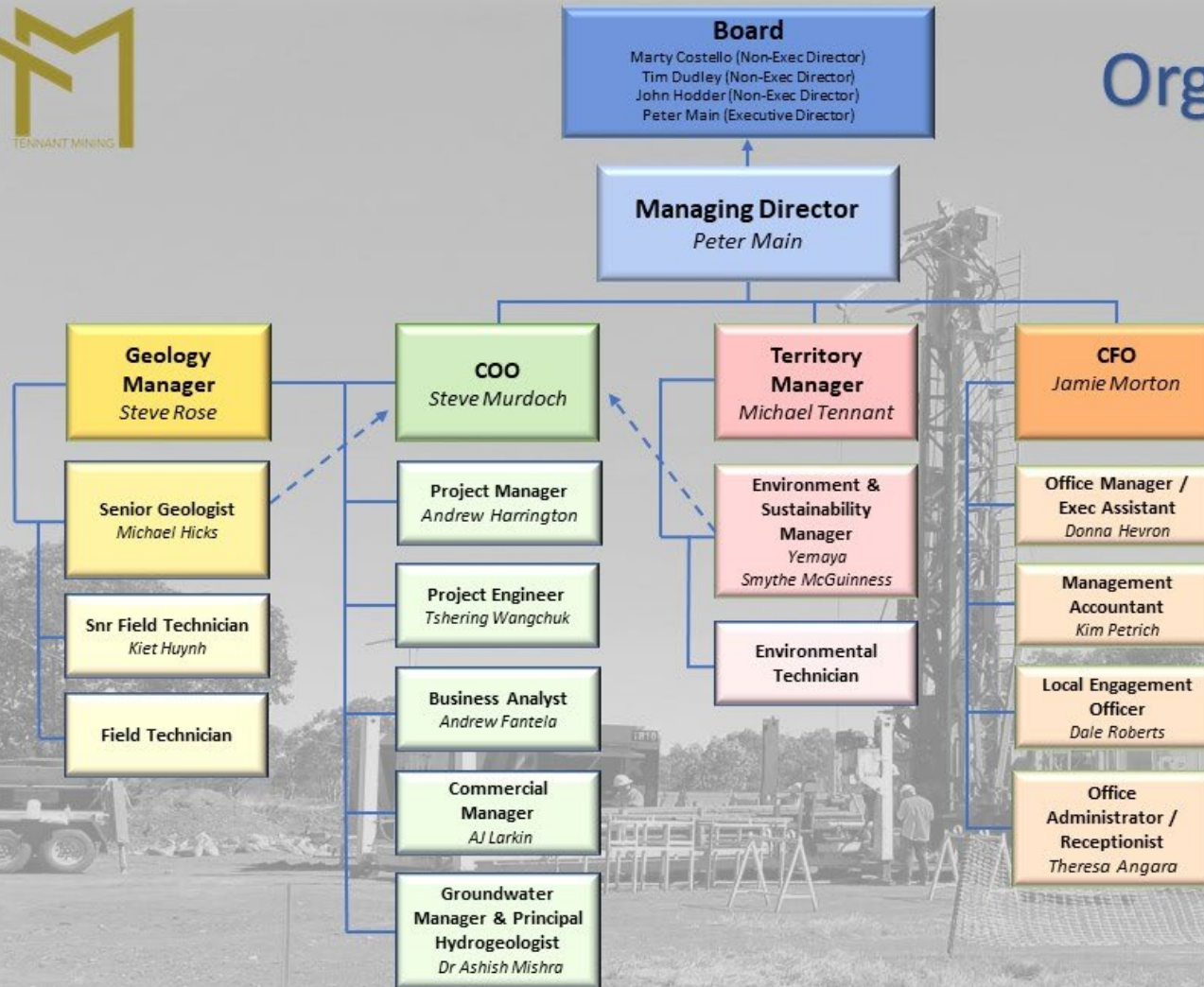
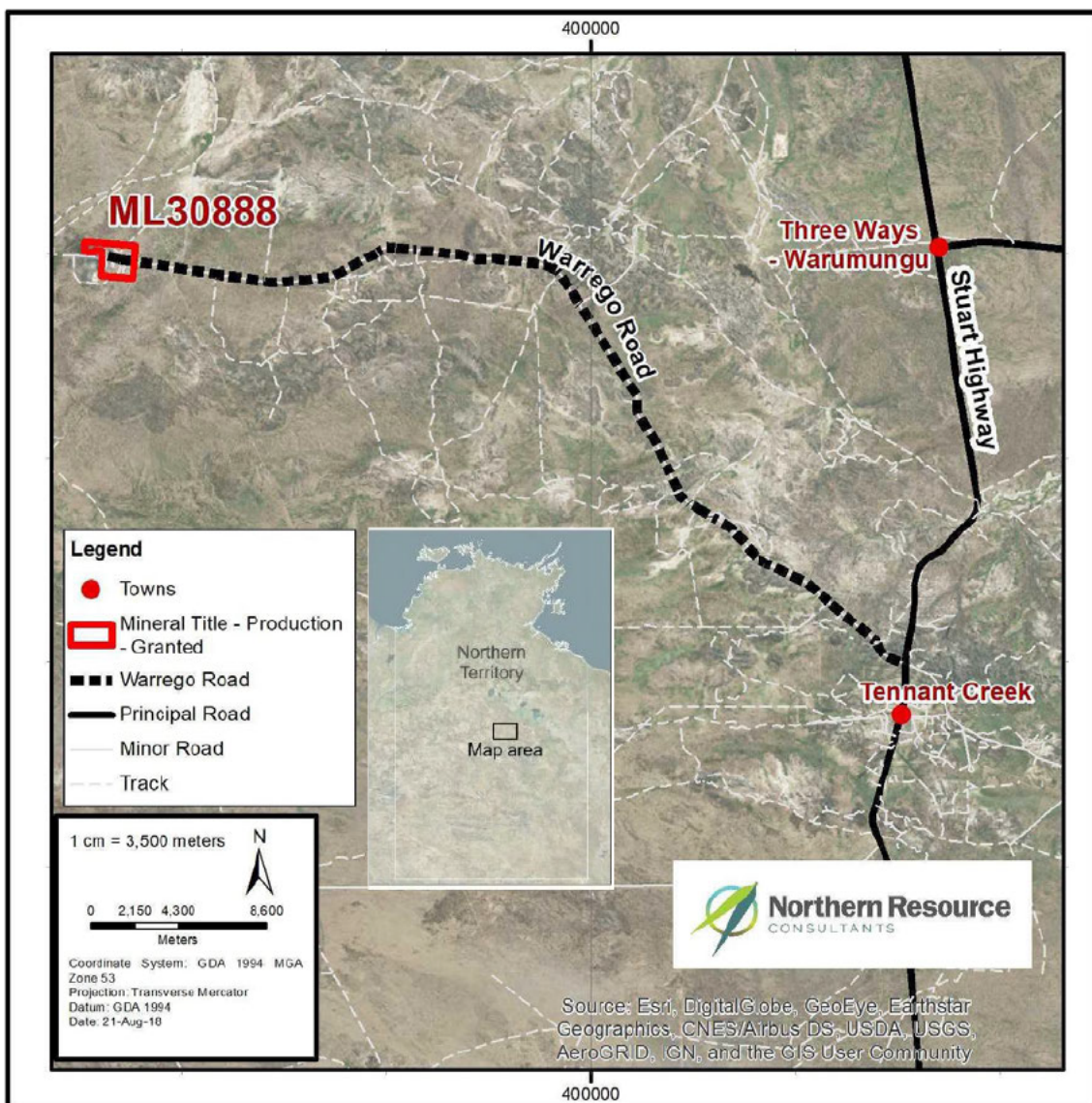


Figure 2-1 Organisational structure and responsibilities



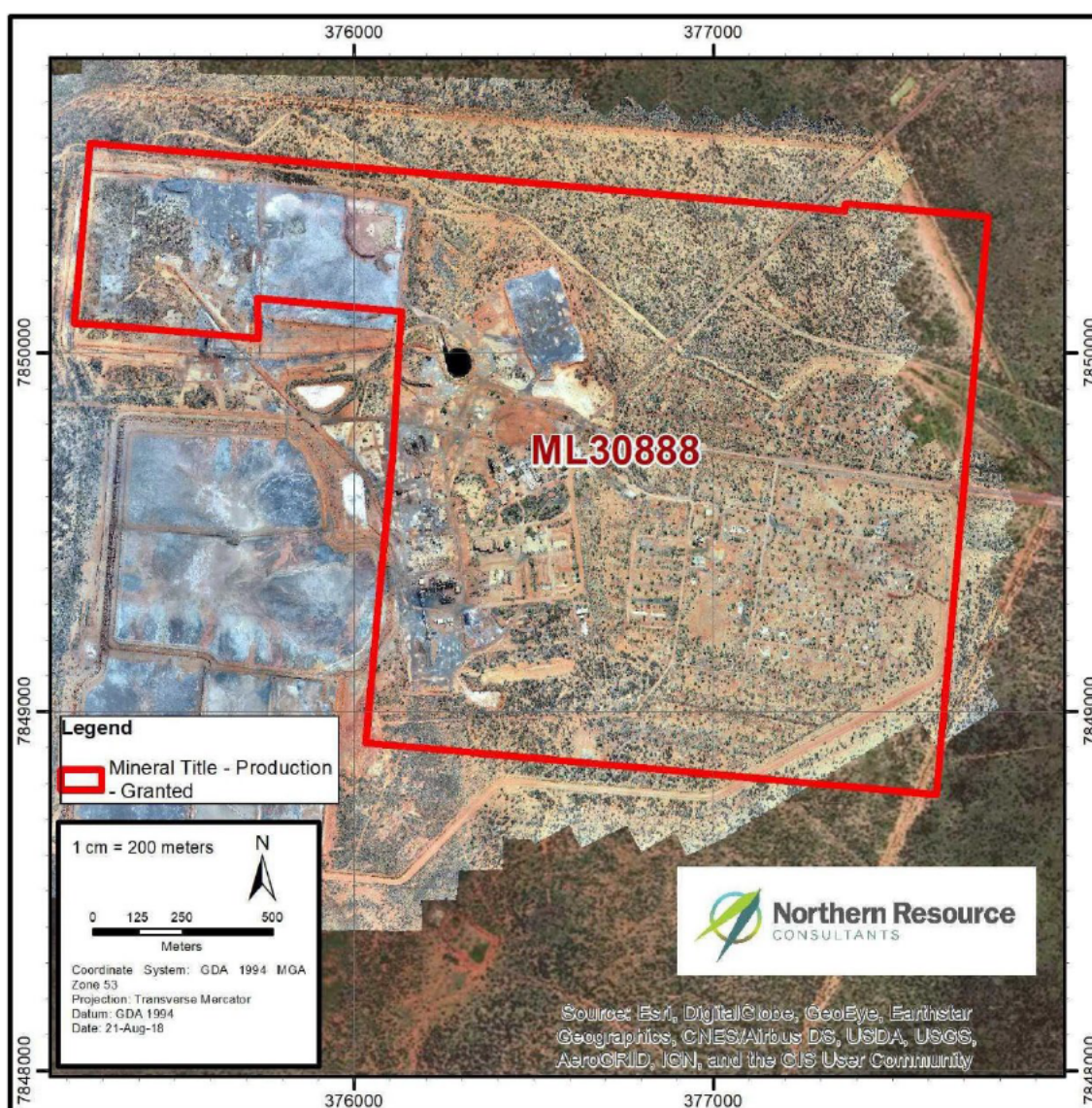
**Figure 2-2 Location of the Project site**

### 2.3 Mining Title Details

The proposed Project site is wholly within ML30888. ML30888 was granted on 10 July 2015 to Giants Reef Mining Limited (now Emmerson Resource Limited) for a term of 10 years to expire on 9 July 2025, and has since been transferred to the Tennant Consolidated Mining Group Pty Ltd. ML30888 is an amalgamation and replacement title for the previous Mineral Leases Central (MLC)'s 22, 39–41, 71–76, 83, 84, 98–102, 107 and 108. Details of the ML30888 tenure are listed in Table 2-2, and shown in Figure 2-3 below.

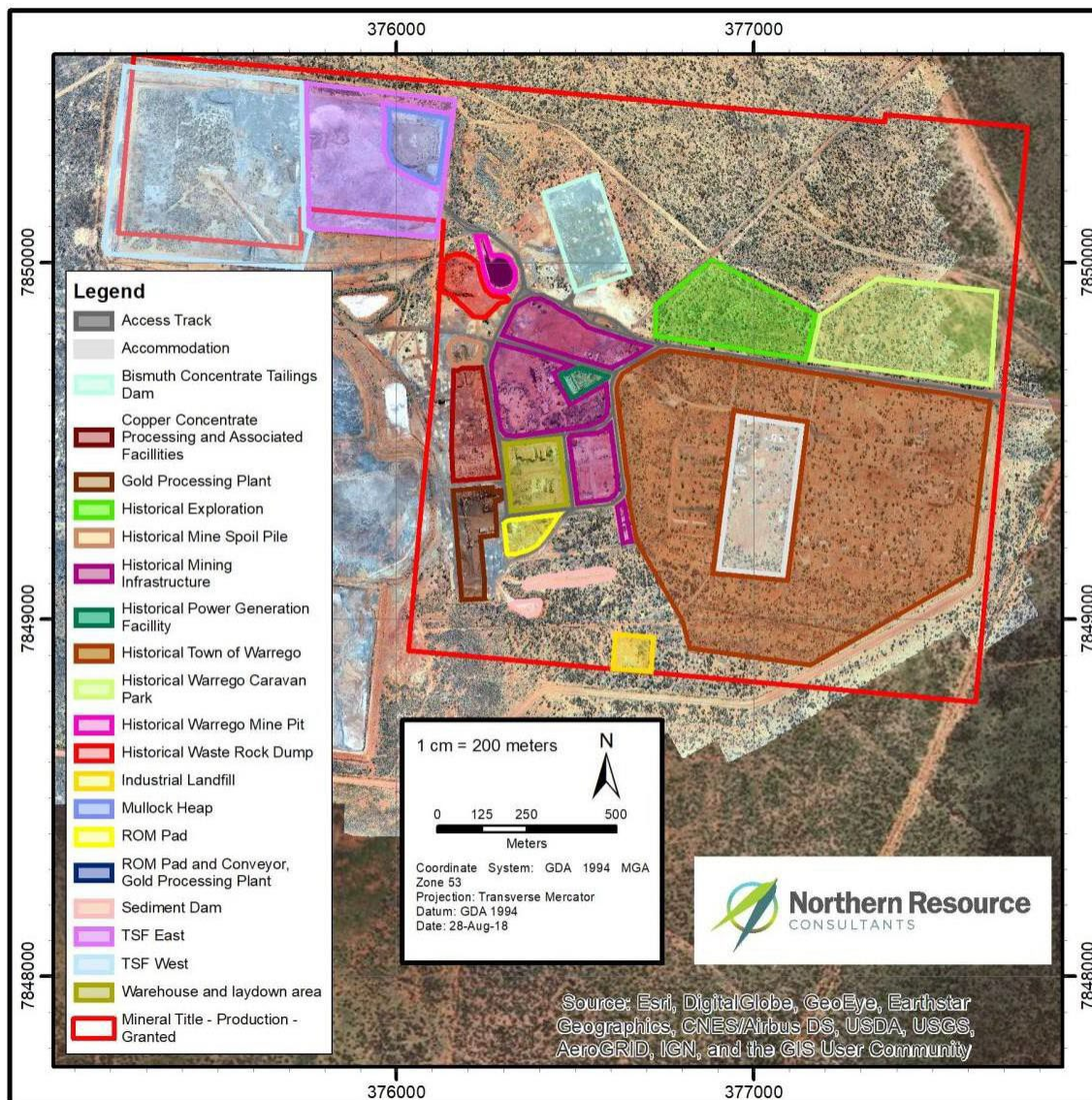
**Table 2-2 ML30888 tenure details**

Tenement ID	Tenement name	Holder	Interest	Grant Date	Effective Date	Expiry Date	Area (ha)
ML30888	Warrego	TCMG	100%	10/7/2015	10/7/2015	9/7/2025	306



**Figure 2-3 Boundary of the Project site within ML30888**

ML30888 incorporates the historical Warrego mine (open pit and underground workings), head frame and associated mining infrastructure, the copper concentrate processing facility and associated infrastructure, bismuth tailings storage facility (TSF), the disused gold processing plant and associated processing infrastructure, ore crushing and grinding facilities, ore conveyor infrastructure, ball mills, run of mine (ROM) pad, workshops and office facilities, the historical Warrego town site, and tailings dam 1 (TD1) tailings storage facility. Figure 2-4 below shows the location of the historical Warrego mining areas, and historical infrastructure remaining on site.



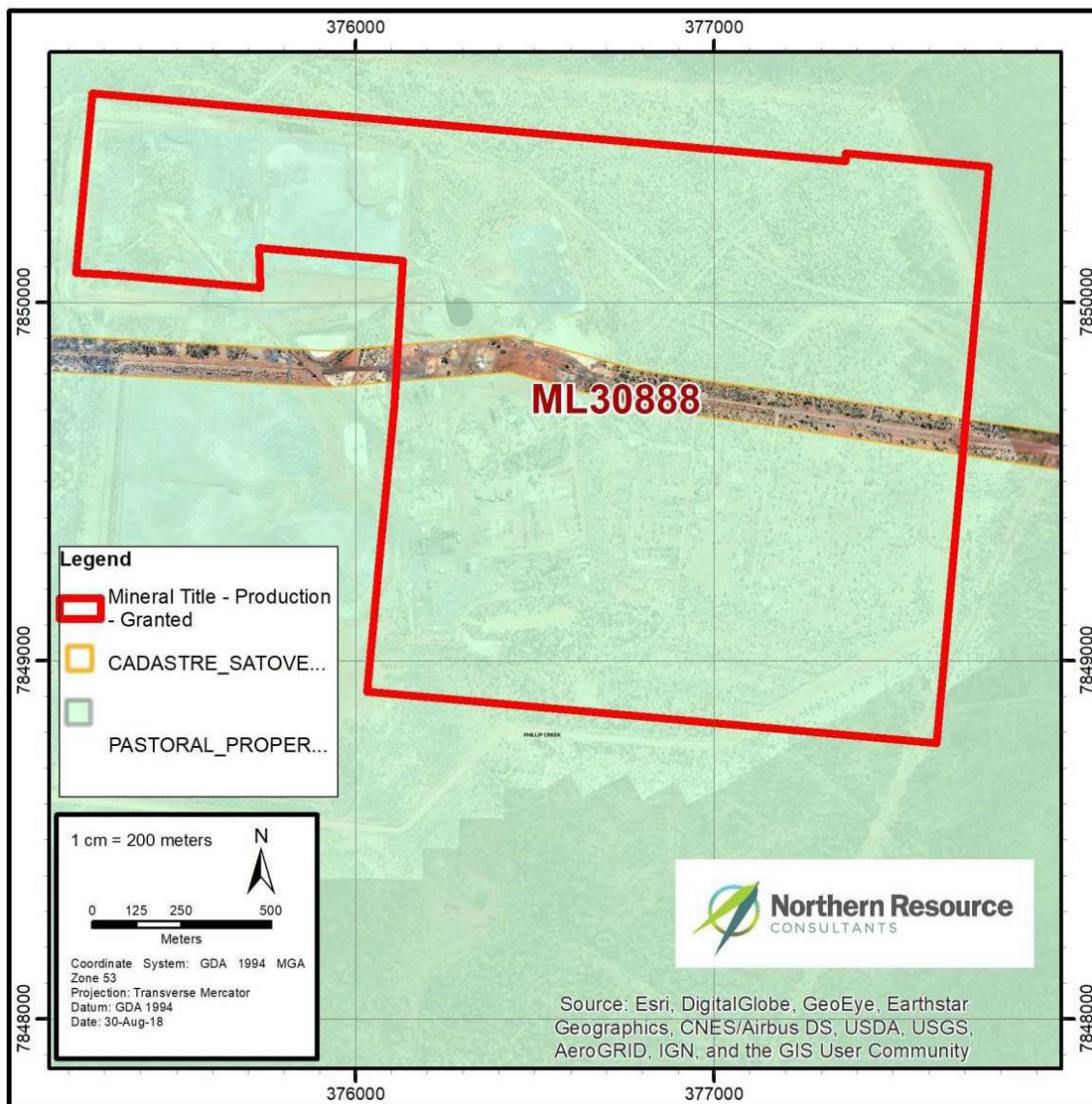
**Figure 2-4 Historical Warrego ore treatment plant and infrastructure areas**

The historical TSFs immediately adjacent to the western boundary of ML30888 are within separate mineral leases formerly held by Aard Metals Limited and currently owned and operated by Northern Iron Pty Ltd (Northern Iron). These separate mineral leases are owned and operated separate to TCMG, and activities occurring on these leases are not subject to this

MMP. TCMG does, however, have an agreement with Northern Iron to allow access to water on ML30888, and to allow entry and use of tracks on ML30888 to access Northern Iron’s project site on MLC82.

## 2.4 Land Tenure

The underlying land tenure of the Project site is the Phillip Creek Station (Perpetual Pastoral Lease 946, NT Land Parcel 00408), as shown in Figure 2-5 below.



**Figure 2-5 Underlying land tenure of the Project site**

Non-exclusive Native Title rights and interests have been determined to exist in relation to the area of ML30888 except for the Warrego Road (which passes through ML30888) in which Native Title has been extinguished. The determination that non-exclusive Native Title rights and interests exist over Phillip Creek Station, including the area of ML30888 (but excluding Warrego Road), is in the Federal Court matter *Freddie v Northern Territory & Ors* [2017] FCA 867, Federal Court Number 50/2014 and NNTT Number DCD 2017/005 (Determination). What constitutes the non-exclusive Native Title rights and interests is set out in paragraph 6 (pages iv and v) of the Determination.

Native Title has been suppressed (at least in part) over ML30888. ML30888 is recognised as an 'other right and interest' in paragraph 9(e) of the Determination (albeit as described as being held by Giants Reef Exploration Pty Ltd, an earlier title holder). Paragraph 10 of the Determination provides that:

*"To the extent that the continued existence, enjoyment or exercise of the native title rights and interests referred to in paragraph 6 in relation to NT Portions 408 and 7025 is inconsistent with the existence, enjoyment or exercise of the other rights and interests referred to in paragraph 9, the other rights and interests and the doing of any activity required or permitted to be done by or under the other interests, prevail over, but do not extinguish, the native title rights and interests".*

Native Title rights are suppressed to the extent that and for the periods that TCMG is exercising its mining rights in accordance with ML30888. Hence if there are any areas not used for mining the Native Title holders can exercise their Native Title rights until such time (and for such period) as the area is required for mining activities. Native Title holders can also recommence the exercise of their Native Title rights and interests once mining activities cease (or are suspended but not so as to interfere with care and maintenance). The correctness of this view is supported by the High Court in *Western Australia v Ward* [2014] HCA 8 (particularly paragraphs 32 – 58 of the majority).

The registered Native Title body corporate for the Phillip Creek Station (Perpetual Pastoral Lease 946, NT Land Parcel 00408) area - including the area of ML30888 (but excluding Warrego Road) - is the Warlmanpa Warumungu Aboriginal Corporation. There is an existing Indigenous Land Use Agreement (ILUA) in place between the CLC and Giants Reef Mining Limited (now Emmerson Resources Limited) for the Phillip Creek Station (Perpetual Pastoral Lease 946, NT Land Parcel 00408) area. The ILUA is registered in the Register of Indigenous Land Use Agreements as DIA2000/002. TCMG is under no legal obligation by the *Native Title Act 1993* (Cth) or by other statute, regulation or contract to observe or otherwise be bound by the terms of this ILUA.

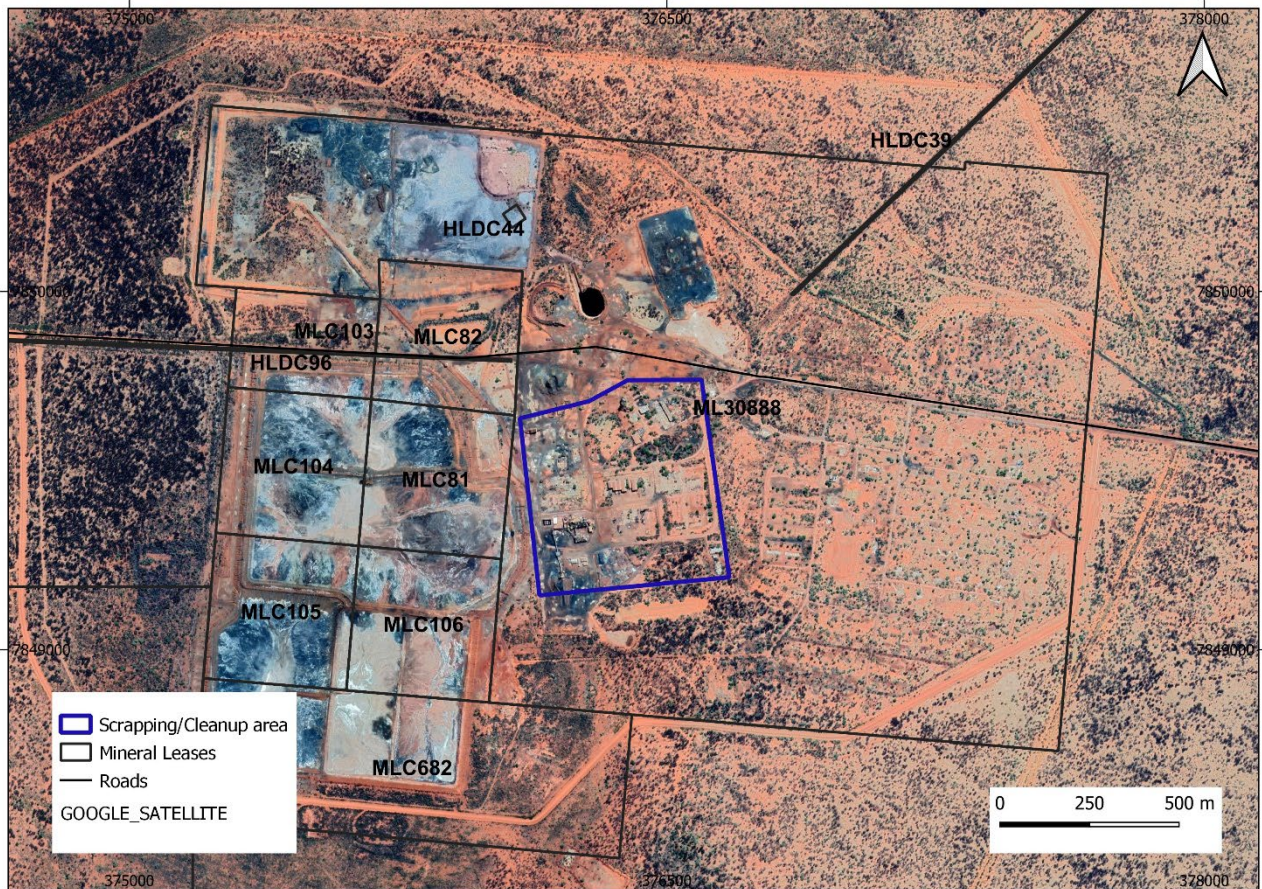
Regardless of the suppression of non-exclusive Native Title rights and interests for any periods of mining activity and regardless of not being bound by the ILUA – it is TCMG's intention to use reasonable endeavors to negotiate in good faith a deed of assumption via the CLC with the Warlmanpa Warumungu Aboriginal Corporation for TCMG to formally assume the rights and obligations of the existing ILUA if the outcomes of the current TCMG exploration and mineral development program support potential future mining on ML30888.

## 2.5 Project Summary

TCMG proposes to undertake rehabilitation works to remove, cleanup, and scrap from site the existing historical gold mill and remnant above ground mining infrastructure. The location of the area in which these works are proposed is shown in Figure 2-6 below, this area is referred to as the Cleanup Area. This includes the following:

- Removal of the existing mill for use by another operator offsite, including associated processing infrastructure, ore crushing and grinding facilities, ore conveyor infrastructure, and ball mills; and
- Removal and/or scrapping of the existing sheds, workshops, office facilities, above ground workings, and any other remnant above ground mining infrastructure within the Cleanup Area that is no longer required on site, and/or represents a safety hazard on site.

Other than the above activities and general care and maintenance, TCMG does not propose to operate, develop, or rehabilitate the remainder of ML30888 at this stage of operations. It is intended for a concurrent exploration and resource development program to be carried out within the Project site – as approved within the separate TCMG Warrego Gold and Copper Exploration Project MMP and Mining Authorisation 1159-01. This program will then inform future mining plans for the Project site, which will be the subject of a future amendment to this MMP, if deemed future mining is deemed feasible.



**Figure 2-6 Proposed Cleanup Area**



## 3 Site Conditions

### 3.1 Physical Environment

#### 3.1.1 Climate

The closest long-term weather station to the Project site is the Tennant Creek Airport, site number 015135 (413700 mE 7829440 mN; GDA 94\_Zone 53) located 37 km southeast of the Warrego site.

The climate of the Tennant Creek region is described as a typical sub-arid climate, with a cool winter from May to September (with occasional rainfall as a result of southern frontal activity) and a hot summer from October to April (with more humid conditions and rainfall from northern monsoons, typically in January and February). The prevailing wind direction in the region is east to southeast throughout the year. The highest rainfall usually falls from November to March. The amount of rainfall in any one year is dependent on the degree to which the monsoon influence penetrates inland.

The Tennant Creek area in central Australia is very dry and experiences a high rate of evaporation (approximately 3,600 mm); therefore, little permanent surface water remains from one wet season to the next. Droughts are common to the region and may persist for several years. The average maximum and minimum daily air temperatures, average monthly rainfall, 9.00 am and 3.00 pm humidity levels, and wind speed data for Tennant Creek are presented in Table 3-1 below.

Analysis by Groundwater Resource Management (2009) reported the regional maximum 6-minute intensity rainfall data recorded from the Tennant Creek Airport was 192 mm/hr on 9 February 1982. The authors indicated this short duration rainfall intensity in excess of 150 mm/hr is potentially indicative of rainfall intensities that might be experienced within the region and concluded that this intensity has an average recurrence interval (ARI) in excess of 50 years.

**Table 3-1 Meteorological data for Tennant Creek Airport**

red = highest value blue = lowest value

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years
Temperature														
Mean maximum temperature (°C)	36.6	35.7	34.5	31.8	27.7	24.6	24.7	27.5	31.7	34.9	36.5	37.1	31.9	49 1969–2018
Mean minimum temperature (°C)	24.9	24.4	23.3	20.4	16.4	12.9	12.3	14.4	18.4	21.7	23.8	24.8	19.8	49 1969–2018
Rainfall														
Mean rainfall (mm)	119.3	118.7	53.6	16.4	8.2	5.5	5.4	2.5	7.7	19.2	41.5	76.0	476.8	49 1969–2018
Decile 5 (median) rainfall (mm)	93.2	71.2	29.4	2.4	0.0	0.0	0.0	0.0	1.2	12.0	37.2	49.2	438.5	49 1969–2018
Mean number of days of rain ≥ 1 mm	7.8	7.6	4.3	1.5	1.0	0.6	0.5	0.4	1.2	2.7	4.1	6.2	37.9	49 1969–2018
Other daily elements														
Mean daily sunshine (hours)	9.2	9.1	9.2	9.8	9.7	9.8	10.2	10.6	10.2	10.1	9.8	9.4	9.8	47 1969–2017
Mean number of clear days	6.5	5.5	11.0	15.5	18.7	20.5	23.2	23.0	20.5	17.2	11.4	8.0	181.0	41 1969–2010
Mean number of cloudy days	12.4	11.7	8.9	5.3	4.3	2.6	1.9	1.7	2.5	4.5	6.1	10.1	72.0	41 1969–2010
9 am conditions														
Mean 9am temperature (°C)	29.2	28.4	27.1	24.3	19.9	16.2	15.8	18.6	23.2	27.0	29.1	29.8	24.0	41 1969–2010
Mean 9am relative humidity (%)	50	54	46	38	40	42	38	31	28	29	34	42	39	41 1969–2010
Mean 9am wind speed (km/h)	16.9	16.8	19.6	23.7	24.7	24.3	23.7	25.2	25.6	24.9	21.7	18.4	22.1	42 1969–2010
3 pm conditions														
Mean 3pm temperature (°C)	35.3	34.4	33.4	30.8	26.9	23.8	23.9	26.6	30.6	33.6	35.2	35.7	30.9	41 1969–2010
Mean 3pm relative humidity (%)	32	35	29	26	26	26	22	18	17	18	21	26	25	41 1969–2010
Mean 3pm wind speed (km/h)	15.5	16.0	17.6	17.3	16.7	16.4	15.5	16.1	16.0	14.6	13.9	14.3	15.8	41 1969–2010

### 3.1.2 Land Systems

#### 3.1.2.1 Topography and Geology

Gold and copper-gold deposits discovered in the Tennant Creek gold field to date are hosted in the Lower Proterozoic Warramunga Formation; a metamorphosed (greenschist facies) greywacke-siltstone-shale sedimentary sequence that usually displays a pronounced east-west cleavage. Ore occurs adjacent to steeply dipping, lenticular or pipe-like magnetite/haematite-chlorite-quartz bodies ('ironstone') that are found along east-west trending structures. It is generally thought that the magnetite/haematite was hydrothermally formed in dilation zones along the controlling structures and that the deposition of gold, sulfides and associated alteration minerals was a later event with mineralisation possibly being derived from a different source but following the same structurally controlled path. In plan view, the ironstone bodies tend to be narrowest in the north-south direction and elongated east-west, reflecting the regional cleavage and shearing. Ore grades may occur over substantial vertical intervals of an ironstone pipe or lens, but are not expected to occur over the entire length.

The topography of the area generally comprises essentially flat plains with occasional rounded to steep sided hills some 20 to 30 m above the surrounding plains.

#### 3.1.2.2 Topsoil and Subsoil

The Project site is located on an alluvial plain to the south of the Short Range, in an ephemeral drainage system. Drainage lines, which trend in a southerly direction, are poorly developed and become less defined with distance from the Short Range.

Soils in the area are Red Kandosols (Isabell 1996). The soils of the area are highly leached, lacking in phosphorous and nitrogen, and low in nutrient value. Topsoil cover is generally in the order of 5–10 cm thick. However, topsoil has been stripped from the area inside the Project area. The regolith consists of up to 3 m of alluvium overlying approximately 30 m of deeply weathered siltstone.

#### 3.1.2.3 Hydrology and Drainage

The Project site lies within a shallow, south-easterly sloping 'low' in the regional topography. Because of its topographical position, the area is prone to flooding during the wet season.

Within the site, drainage is artificial and a product of previous historical site development activities. Extensive bunding has been built to the north and east of the plant site to isolate the Project site from runoff by diverting overland flow. Surface water drainage lines are limited to two shallow, partly rock armoured drainage lines that redirect water deflected by the bunds. One of these drainage lines is located at the south-eastern end of the bund and the other at the western end. Groundwater encountered in monitoring bores on the site has been recorded to depths of 27.45 m below the surface and is generally saline.

### 3.1.3 Flora and Fauna

The Project site was cleared of native vegetation prior to construction of the historical Warrego facilities. Previous owners of the site undertook revegetation activities in some areas of the site

as infrastructure was decommissioned and removed and stockpiles relocated, with varying degrees of success (Giants Reef 2003).

Survey of the site undertaken by Hollingsworth (2000) described the vegetation community at the nearby Warrego township as Acacia woodland, dominated by Mulga (*Acacia aneura*). The vegetation communities located outside the Project area are characterised by scattered open woodland over-storey of Snappy Gum (*Eucalyptus leucophloia*) community with a Spinifex (*Triodia pungens* and *Plectrachne pungens*) open hummock grassland lower-storey and ground cover.

Hollingsworth (2000) describes the region as containing a range of native fauna owing to the area being in a transitional zone from the high summer rainfall northern area, to the low increasingly winter rainfall of the southern semi-arid area. The area hosts a wide range of local bird species and, during the wet season, may also host migratory birds from the northern coastal region (Fowler *et al.* 1998).

Given the level of current and previous disturbance to the site, and the absence of vegetation communities likely to support threatened species, the potential for species of conservation significance to be found over the Project area is considered unlikely.

TCMG undertook a search of the NT Government's NR Maps tool in September 2023 for any threatened flora and fauna species recorded within a 10 km radius of the Project site. No threatened flora were recorded. One threatened fauna species was recorded from one location. This was the Greater Bilby (*Macrotis lagotis*) recorded in 1990 at the White Devil Mine site location, approximately 3.9 km from the border of ML30888. The Greater Bilby is listed as *Vulnerable* under both NT legislation *Territory Parks and Wildlife Conservation Act 1976* (TPWC Act) and Commonwealth legislation *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Greater Bilby occurs primarily in open tussock grasslands, Mulga *Acacia aneura* woodlands and shrublands including mixed associations with Witchetty Bush *Acacia Kempeana*, and hummock grasslands. These habitats occur on a variety of landforms, including uplands, rises, sand plains, dunes, drainage systems and other alluvial areas (DEPWS 2021). Given the extent of vegetation clearance and historic disturbance of the site, habitat suitable for the Greater Bilby is considered unlikely to occur within the Project area – and this species is therefore considered unlikely to occur within the Project area.

A stock fence is installed around the perimeter of the lease to exclude cattle from the adjacent Phillip Creek Station from entering the Project area.

#### 3.1.3.1 Weeds

A Weed Management Plan for the Project site has been prepared by TCMG, and was approved by the Department of Industry, Tourism and Trade (DITT) to meet statutory requirements, in accordance with Condition 16 of Mining Authorisation 1073-01. This is included in Appendix A. Implementation of this plan is currently underway.

There are a number of known noxious weeds within the Project area. These are remaining on

site from gardens in the historical township and caravan park, and from spread by vehicles/machinery/plant used during historical mining activities. During 2022 and 2023 TCMG has been working together with the Weeds Management Branch of the Department of Environment, Parks, and Water Security (DEPWS) in Tennant Creek to monitor, develop a management program, and implement control of weed infestations on site. As recorded within a file note written by DEPWS 24 April 2023, the Warrego Mine site has a history of numerous weeds, including declared weeds under the NT *Weeds Management Act 2001* (WM Act) as listed in Table 3-2 below. Each class of declared weeds under the WM Act has a stipulated level of control required, as shown below for the weeds found on site.

**Table 3-2 Weeds known to have occurred within the Project area**

Common Name	Scientific Name	Declared Weeds under the WM Act	Level of control required	Found on site in 2023
Athel Pine	<i>Tamarix aphylla</i>	Class A	To be eradicated	No
Bellyache Bush	<i>Jatropha gossypifolia</i>	Class A		No
Prickly Pear	<i>Ficus indica</i>	Class A		Yes
Rope Cactus	<i>Cylindropuntia fulgida</i>	Class A		Yes
Parkinsonia	<i>Parkinsonia aculeate</i>	Class B	Growth and spread to be controlled	Yes
Rubber Bush	<i>Calotropis procera</i>	Class B		Yes

A weeds survey of the Project site was undertaken by the Weeds Management Branch and TCMG on 24 April 2023, which identified infestations of Prickly Pear, Rope Cactus, Parkinsonia, and Rubber Bush. No infestations of Athel Pine or Bellyache Bush were found.

In accordance with the Warrego Weed Management Plan and following recommendations of the Weeds Management Branch, an annual treatment plan has been developed in accordance with the requirements of the *Weeds Management Act 2001*, the *Australian Weeds Strategy 2017-2027*, and the *Tennant Creek Regional Weeds Strategy 2021-2026*. TCMG has been implementing this Plan to manage weeds at the Warrego site.

### 3.1.3.2 Pests

TCMG undertook a search of the NT Government’s NR Maps tool in September 2023 for any introduced fauna species recorded within a 10 km radius of the Project site. There was one record of one introduced fauna species, Cat (*Felis catus*) located approximately 1 km west of ML30888. Other pest species are however known to occur within the Tennant Creek region – for example within a *Threatened Species, Weeds and Pests* study undertaken by EcOz Environmental Consulting for the wider Tennant Creek region including the Warrego Area (EcOz 2017), a number of introduced fauna species were listed with the potential to occur within the wider area, including:

- Feral Cat (*Felis catus*)
- Feral Horse (*Equus caballus*)
- Red Fox (*Vulpes vulpes*)
- Donkey (*Equus asinus*)

- Camel (*Camelus dromedarius*)
- Rabbit (*Oryctolagus cuniculus*)

There is therefore the potential for these species to be found within and surrounding the Project area. Given that no new disturbance areas are being proposed within the scope of works for this MMP, however, and given the existing heavily disturbed nature of the site, Project works are not likely to increase the spread of introduced fauna species or increase habitat conditions favorable to these species. By undertaking cleanup and rehabilitation of the site, the works proposed by TCMG are expected to remove built habitat favored by some pest species.

### 3.2 Socio-Economic Environment

The Tennant Creek region has a history of gold and copper mining from 1934 to present day and owes its partial existence as an established township to support this mining activity. The mining history of the region also facilitates tourism.

The nearest town to the Project area is Tennant Creek, administered by the Barkly Regional Council and has approximately 3,000 inhabitants according to the 2021 Australian Census data (ABS 2023). A high proportion of the Tennant Creek population identify as Aboriginal or Torres Strait Islander (55.4%) compared to the national average (3.2%). Key demographics recorded for Tennant Creek as of the 2021 census date are shown in Table 3-3 below. The Project area is located approximately 44 km northwest of the Tennant Creek township, along Warrego Road.

**Table 3-3 Population statistics for Tennant Creek from the 2021 census (ABS 2023)**

General population statistics					
People (total #)	Male (%)	Female (%)	ATSI (%)*	Median age	Participation in labour force (%)
3,080	50.9	49.1	55.4	33	51.3
Household statistics					
Weekly household income (median \$)		People per household (average #)		Households where non-English language is used (%)	
1,677		2.7		36.7	

\*Identified as Aboriginal and/or Torres Strait Islander

#### 3.2.1 Sacred Sites

There are no recorded or registered sacred sites, exclusion zones or restricted work areas within the Project site as defined by the ML30888 boundaries. An Aboriginal Areas Protection Authority (AAPA) Certificate (C2003/081) that covers ML30888 was obtained by Giants Reef Mining Limited in 2003.

[REDACTED]

TCMG obtained an abstract of records from AAPA in March 2023 to understand if there had been any more recently registered or recorded sacred sites, and any associated exclusion zones and / or restricted works areas identified within the ML30888 area. None were identified within ML30888.

Regardless, TCMG has applied for an AAPA Certificate and a CLC Sacred Sites Clearance over ML30888, which are currently being assessed by each authority. Any new sacred sites or heritage values identified by the AAPA and / or CLC will be managed according to all instructions given within certificates, and to avoid any damage or disturbance.

[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

### 3.2.2 Heritage and Archaeological Sites

There are no recorded heritage or archaeological sites, places, or objects within the Project site. A search of the Northern Territory Heritage Register was undertaken by the Heritage Branch of Territory Families, Housing and Communities for the Warrego mine site (ML30888) – with advice provided to TCMG on 29 March 2023. This included a search of the Heritage Branch archaeological database for known archaeological places located both within the subject site and adjacent to, and an assessment of the likelihood of unrecorded archaeological places within the site. The search found there are no known archaeological places and no declared heritage places or objects within the site. The likelihood of unrecorded archaeological places existing within the site was assessed by the Heritage Branch as *unlikely* with the advice that *no further work is required*.

The Heritage Branch also advised that *if archaeological places are discovered over the course of the work, establish an exclusion zone around the site and contact the Heritage Branch immediately*. This will be implemented by TCMG, as reflected in the Cultural and Historical Heritage Management Plan outlined in Section 8.5 of this MMP.

### 3.2.3 Mining History

Warrego is a historical underground mine that produced 6.75 Mt at 6.6 g/t Au and 1.9% Cu between 1972 and 1989. It is the largest producer in the Tennant Creek Mineral Field. Warrego also produced critical metals cobalt and bismuth. It also has a small open cut pit remaining on site.

Historical drilling of the Warrego deposit included 41 surface DDH holes, 94 RC holes, 72 rotary air blast holes, 4 aircore holes and 674 underground DDH holes.

The Warrego prospect was pegged in 1958 by Peko Mines following identification of a 2200 nT magnetic anomaly by the Bureau of Mineral Resources 1956 airborne magnetic survey. It was not until 1962 that the first lode intersection was made in DDH 3. A total of 29 surface holes were subsequently drilled to prove a resource leading to the development of the Warrego mine. Shaft sinking commenced late in 1967 on what was essentially a copper resource with indicated reserves of 3-17 Mt @ 2.2% Cu and 1.7 g/t Au.

Large-scale mineral development of the Warrego area commenced in the early 1970s. Limited production of copper-rich ore began in late 1972, and full-scale production commenced in 1973. The discovery of a gold and bismuth rich zone during routine ore blocking on 8 level in early 1972, brought about a change in status of the Warrego mine. Now a significant gold mine, shaft sinking was re-commenced to provide access to the lower levels of the orebody so that this new resource could be defined. Two pods of high-grade gold ore centered approximately on 10 and 13 levels were defined, known as No. 3 orebody. Total reserves were improved to 5 Mt @ 7.0 g/t Au, 2.6% Cu, and 0.3% Bi.

The Peko Wallsend Company established a large underground mining and processing facility at Warrego in 1972. Mining facilities included a large headframe, vent and access shafts as well as associated workshops and geological stores. Processing facilities included large primary and secondary crushing circuits, grinding mills and flotation circuits for the extraction of copper concentrates that were rich in gold. Process residues were stored in the TD1 complex to the north of the site. Extensive water and power generation facilities as well as a town to house the workforce supported these developments. Full production of the high-grade gold-bismuth ore was achieved in mid-1974.

In 1991, a carbon-in-pulp gold treatment plant was developed at the site. Tailings from the Warrego concentrator were treated in the new plant to extract residual gold not removed in the copper flotation process. By this time, storage in the TD1 complex had been exhausted and additional tailings storage was developed to the west of the site in TDs 2, 3 and 4.

In addition to the Warrego production, gold/copper ore mined at the Gecko and Argo mines was also brought into Warrego for treatment. In the years leading up to 1999 ore from the White Devil mine was processed in the gold circuit. Tailings from this campaign were disposed of in the TD2/3/4 complex.

Mining at Warrego was curtailed in 1999 when the crown pillar failed. Following that, tailings were reclaimed from the TD1 complex and retreated in the gold plant to recover residual gold. Following the tailings re-treatment campaign, the site was placed into care and maintenance.



The plant was recommissioned in 2003 to process approximately 275,000 t of ore from the Chariot mine, which was transported to Warrego for treatment in the gold circuit between 2003 and 2005.

Following another period of care and maintenance, a decision was made to scrap much of the original copper processing facility. The lease operator at the time engaged a contractor to undertake the work that included dismantling and removal of much of the fixed plant and associated buildings. The program did not include scrapping of the 300,000 tpa gold treatment plant. During the execution of these works, the contracting company went into receivership with some of the decommissioning works incomplete.

Prior to TCMG taking ownership of the ML30888 in 2021, Territory Resources Limited kept the site and its remaining infrastructure secure for future potential site recommissioning projects.

TCMG has undertaken technical assessments of the above ground historical mining infrastructure and determined that it is in very poor, degraded conditions; poses materially significant risks to the health and safety of people and the surrounding environment; is beyond economic repair; and is not feasible to restore or repair.

#### 3.2.4 Current Land Use

The Warrego lease is located within the Phillip Creek Station pastoral lease, and the land across the lease is flat and suited for grazing.

Since taking ownership of ML30888, TCMG has undertaken care and maintenance and environmental management of the site, and a drill program in 2023 to develop gold and copper resources on site. Approved for the 2023 drill program were 12 RC and 13 DDH holes from surface. Land uses within ML30888 are currently restricted to mining related activities due to remnant mine site infrastructure, contamination, and safety issues. Other land uses are limited due to the extremely degraded environmental condition of the site.

Current surrounding land uses include cattle grazing activities on the adjacent Phillip Creek Station, mining activities on the adjacent mineral leases, and exploration activities on the surrounding exploration leases. Surrounding land contains native vegetation, albeit heavily disturbed by historical mining activities, the fire regime, and grazing activities of the region.

### 3.3 Identified Stakeholders and Consultation

In the time since this initial MMP was approved in 2021, TCMG has undertaken extensive community engagement and stakeholder consultation in relation to its exploration and mine planning activities in the Tennant Creek region, including community information sessions and ongoing communication, partnerships, and engagement with local stakeholders. TCMG has built a positive community reputation and social licence, and is committed to initiatives to contribute to and improve the capacity and capability of the region. Further details are outlined in the TCMG Territory Benefits Plan; Buy Local Procurement Policy; and Workforce Strategy (which prioritises local workforce development) which have been previously provided to the Northern Territory Government and are available upon request. Further details are outlined below.

TCMG engaged Ernst and Young to develop a comprehensive stakeholder engagement strategy in October 2021 and develop a Territory Benefit Policy and Plan. This commenced in January 2022 and is ongoing. A comprehensive stakeholder engagement program has been carried out in Tennant Creek, the Barkly Region, Darwin, and the wider NT throughout 2022 and 2023 and is ongoing.

Ernst and Young and TCMG identified six key stakeholder groups for Projects in the Tennant Creek region, which are listed in Figure 3-1 below. Strategies to engage with each of the key groups have been developed and targeted meetings, briefing sessions, development workshops, and initiatives have been carried out for each group. Further details of these engagements and initiatives are outlined within TCMG’s Stakeholder Engagement and Communications Plan, and Territory Benefits Plan, both of which are ‘living’ documents that are updated regularly to remain current, and can be provided upon request.

Within its Territory Benefits Plan TCMG outlines the following key objectives to which it is committed:

1. **Community Benefits:** Deliver benefits to the community through collaboration, contribution, participation and an enduring positive legacy.
2. **Employment Benefits:** Employ as many Traditional Owners, Barkly Region Aboriginal and other residents, and Territorians as we can.
3. **Procurement Benefits:** Use as many Barkly Region Indigenous Business Enterprises and Barkly Region Enterprises in our supply chain as possible.
4. **Industry Benefits:** Collaborate with other major projects, local businesses and across industry sectors to build a sustainable economy in the Barkly Region.

TCMG has developed a Buy Local Procurement Policy and Local Workforce Development Strategy which prioritise Traditional Owners, and then local Aboriginal workers and enterprises, before other local workers and enterprises, and then wider Northern Territory, and finally interstate. TCMG has a Sponsorship Policy which is already being implemented in Tennant Creek, which includes support for:

- Community
- Aboriginal empowerment and engagement
- Arts and cultural
- Sport and recreation
- Education and training
- Business and industry
- Sustainability and environment

TCMG is committed to deliver as many benefits from the Project to the local community as possible. To date, engagement with each key group has been positive, with TCMG receiving positive feedback about its engagement approach and the potential benefits of its activities to the Barkly region.

Category	Groups
Aboriginal Community	1. Central Land Council 2. Traditional Owners 3. Prescribed Body Corporate 4. Aboriginal Community members 5. Aboriginal Leadership Group 6. Local Aboriginal Corporations 6a. Anyinginyi Aboriginal Corporation 6b. Julalikari Council Aboriginal Corporation 6c. Manungurra Aboriginal Corporation 6d. Papulu Apparr-kari Aboriginal Corporation 6e. Patta Aboriginal Corporation
Town of Tennant Creek	1. Local Businesses 2. Community Residents 3. Community and Social Service Providers 4. Childcare Providers 5. Charities and Not-For-Profits
Commercial	1. Local Contractors 2. Commercial Partners 2a. Emmerson Resources Ltd 2b. ICN NT 2c. Hidden Valley Ford 2d. Makita 2e. Territory Generation 3. Common Infrastructure Users 3a. Elmore 3b. Northern Iron 3c. Third Party Ore Suppliers 4. Other Major Projects 4a. Fortune Agribusiness 4b. Sun Cable
Education, Training and Employment	1. Charles Darwin University 2. Barkly Regional Schools 3. RTOs 4. RN Employment Services 5. Saltbush 6. Juno Centre 7. Barkly Work Camp 8. TCMG/Barkly Local Workforce Development Group
Government	1. Commonwealth Government 1a. Barkly Regional Deal 1b. Backbone Team 1c. Economic Growth and Support Working Group 1d. Regional Workforce Strategy Working Group 2. NT Government 2a. Ministers, Senators, MPs and MLAs 2b. Investment Territory Commissioner 2c. Major Project Commissioner 2d. Infrastructure Commissioner 2e. DIPL 2f. DITT 2g. DTF 2h. DCMC 2i. EPA 2j. DEPWS 2k. Buy Local Advocate 3. Chamber of Commerce NT 4. NT IBN 5. Aboriginal Areas Protection Authority 6. Minerals Council of Australia NT 7. Barkly Regional Council
Pastoralists	1. Tennant Creek Station 2. Phillip Creek Station

**Figure 3-1 Key stakeholder groups identified for the Project**

### 3.3.1 Key Project Stakeholders

Engagement with key stakeholders related specifically to the Warrego Project area are outlined within Table 3-5 below.

**Table 3-5 Warrego Project key stakeholders and engagement to date**

Stakeholder	Consultation
Phillip Creek Station Sandy and Katherine Warby	Initial meetings were held at the Phillips Creek Homestead. Key issues identified as boundary fencing, weeds, and local water resources.  In-principle agreement to operate pursuant to the Emmerson Resources Land Access Agreement. This will be formalised during the term of this MMP.

Stakeholder	Consultation
Traditional Owners and the Central Land Council (CLC)	<p>See Section 2.4 for details of Native Title rights and interests.</p> <p>There are no recorded or registered sacred sites, exclusion zones, or restricted work areas within the Project site as defined by the ML30888 boundaries. Regardless, TCMG has applied for a CLC Sacred Sites Clearance over ML30888, which is currently being assessed by the CLC. Any new sacred sites or heritage values identified by the CLC will be managed according to all instructions given within certificates, and to avoid any damage or disturbance. See Section 3.2.1 for further details.</p>
Aboriginal Areas Protection Authority (AAPA)	<p>TCMG obtained an abstract of records from AAPA in March 2023 to understand any registered or recorded sacred sites, and any exclusion zones and / or restricted works areas previously identified within its project areas. None were identified within ML30888.</p> <p>Regardless, TCMG has applied for an AAPA Certificate over ML30888, which is currently being assessed by the AAPA. Any new sacred sites or heritage values identified by the CLC will be managed according to all instructions given within certificates, and to avoid any damage or disturbance. See Section 3.2.1 for further details.</p>
Mungalawurra community	<p>Mungalawurra community share the sealed access road (Warrego Road) that leads to the main gate into the Warrego site and the dirt road beyond the Warrego Mill and mine site (which was built as the Wiso borefield access road and was subsequently used to found their community). Targeted engagement with this community will be undertaken at such time that mine planning is progressed.</p>
Department of Industry Tourism and Trade (DITT)	<p>Regular consultation has occurred with DITT and is ongoing to provide updates on Project planning and consult on and meet MMP, security, and regulatory requirements. All proposed changes to Project planning will be reflected in an updated MMP submitted to DITT for approval, prior to undertaking such works.</p>

### 3.3.2 Workforce Description and Demography

TCMG's current workforce projections estimate a total of 169 full time employment positions (FTEs) will be required to be based in the Territory throughout the production phase of TCMG's wider Tennant Creek project. The number of FTEs required will change incrementally during the construction (~109 FTEs) and commissioning (~45 FTEs) phases of the project, although many of those will be employed through TCMG's head contractor. The ongoing workforce

(~169) during the production phase of the project will be directly engaged by TCMG as employees or contractors. At the end of the project, 88 FTEs are expected to be required during the closure phase.

These workforce estimates include the workforce required across operations and project sites, including for processing activities at Nobles Nob, accommodation facilities in Tennant Creek, operations at Warrego, and any other satellite sites. This workforce planning will continue to be updated as project planning progresses.

TCMG is committed to returning benefits to the local community and to collaborating with Traditional Owners to grow the prosperity of local people through employment, training, and commercial enterprise. With the aim of improving the prosperity and wellbeing of the Barkly Region for the benefit of current and future generations of Territorians. As outlined above, TCMG's Territory Benefits Plan details a range of initiatives to meet these commitments. Including initiatives and incentives to grow the local workforce through local employment wherever possible, and encouraging interstate employees to relocate to the Barkly Region. As well as initiatives to collaborate to grow local business opportunities.

TCMG's Workforce Strategy preferences employment in the following order: Traditional Owners; local Aboriginal people; other local people; Aboriginal people from elsewhere in the Territory; other people in the Territory; and interstate Australian residents. Similarly, TCMG's Procurement Policy preferences Barkly Region Indigenous Business Enterprises, before other Barkly Region Enterprises, followed by other Territory Enterprises over suppliers from outside the Territory wherever it is economically viable to do so.

## 4 Legislation and Obligations

### 4.1 Statutory Requirements

This MMP has been developed as required under the *Mining Management Act 2018* (MM Act) and has been collated in accordance with Section 40 of the Act to ensure that the required information is provided to DITT for assessment. The MM Act is the key piece of legislation for the Project; however, other legislation and regulatory requirements apply to the Project. Applicable legislation, permits and licences and their relevance to the Project area are listed in Table 4-1 below. The associated policies and regulations apply.

**Table 4-1 Legislative requirements relevant to the Project**

Legislation	Regulation/ approval required	Project relevance
<b>Mining Activities</b>		
<i>Environment Protection Act 2019</i> (EP Act)	No referral or approval required.	<p>The Northern Territory Environment Protection Authority (NT EPA) is responsible for administering the EP Act, the key legislation used to perform Environmental Impact Assessment (EIA) of proposed actions in the NT. The primary purpose of the EIA process is to provide for appropriate examination of proposed projects that may cause significant environmental impact.</p> <p>TCMG has undertaken environmental assessment of the Project area and risk assessment of the proposed Project activities, informed by site monitoring, desktop studies, and previous studies undertaken at the Project area, as outlined within this MMP and Appendices.</p> <p>Based on the studies and risk assessment undertaken, the Project was assessed in relation to the EP Act definitions of impact, the NT EPA's Factors and Objectives guidance, and using the NT EPA Pre-referral Screening Tool. The outcome of this assessment is that the Project is not expected to have a significant impact on the receiving environment. It is expected that the Environmental Management System developed will adequately mitigate, manage, and reduce any potential sources of impacts. TCMG has therefore determined the Project does not meet any of the criteria or thresholds requiring referral to the NT EPA.</p> <p>Given the extensive historical disturbance of the site and severely degraded environmental condition, the rehabilitation and cleanup works proposed in this MMP</p>

Legislation	Regulation/ approval required	Project relevance
		are expected to improve the environmental condition of the site, and remove some of the legacy mine issues currently remaining on site.
<i>Mineral Titles Act 2010 (MT Act)</i>	Mineral Licence required.	The Department of Industry, Tourism and Trade (DITT) oversees the approval and regulation of mining activities in the NT. TCMG has been granted ML30888 under the MT Act.
<i>Mining Management Act 2001 (MM Act)</i>	Mining Authorisation and approval of MMP required.	Mining Authorisation is the key regulatory instrument used by the NT Government for approval and compliance monitoring of mining operations in the NT. This is administered by the Department of Industry, Tourism and Trade (DITT). Mining Authorisation 1073-01 has been granted to TCMG for the scope of works proposed within the approved MMP prepared in January 2020. Any amendments to the MMP will need to be submitted for approval and variation of the Mining Authorisation prior to undertaking any works not within the scope of the approved MMP. This MMP document forms the basis for the first application for variation.
<b>Flora and Fauna</b>		
<i>Planning Act 1999</i>	No permit required.	Vegetation clearing on mining interests in the NT is controlled by application of the MM Act and MMPs. No land clearing permit is required.
<i>Territory Parks and Wildlife Conservation Act 1976 (TPWC Act)</i>	No permit required.	Pursuant to Section 56 of the NT TPWC Act, the taking or interfering with wildlife that is listed as threatened, requires approval at the Ministerial level. No threatened species' populations are expected to occur within the Project area. No permit to take or interfere with wildlife that is threatened is therefore required.
<i>Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i>	No referral or approval required.	This Commonwealth legislation provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places – matters of national environmental significance (MNES). There are no MNES which will be impacted by the Project and the Project therefore does not require referral under the EPBC Act.

Legislation	Regulation/ approval required	Project relevance
<i>Weed Management Act 2001 (WM Act)</i>	No approval required – appropriate weed control must be undertaken.	Occupiers of land (including mine sites) have an obligation to ensure listed weeds are not introduced or spread – and are appropriately controlled according to national, NT, and Barkly Region weed strategies. Noxious weeds are known to occur within the Project site. TCMG has developed a Weed Management Plan for Warrego which was approved by DITT to meet legislative requirements and Condition 16 of Mining Authorisation 1073-01. Appropriate control measures are being implemented by TCMG and will continue to be for the life of the Project. See Section 8.9 and Appendix A for further details.
<b>Land and Soils</b>		
<i>Soil Conservation and Land Utilisation Act 1969 (SCLU Act)</i>	No approval required – appropriate erosion and sediment control must be undertaken.	The SCLU Act provides for the prevention of soil erosion, and for the conservation and reclamation of soil, and requires Erosion and Sediment Control Plans (ESCPs) to be devised for development projects. The current scope of works is for rehabilitation, care and maintenance – an ESCP will therefore not be developed at this stage of the Project. Management of erosion and sedimentation will, however, be undertaken on site in relation to all proposed works – and to ensure appropriate drainage is maintained across the site.
<b>Water Quality and Hydrological Processes</b>		
<i>Water Act 1992 (Water Act)</i>	No licence required.	A waste discharge licence is required where waste comes into contact with water, e.g: discharge of wastewater to water. Any discharge from operational areas to a watercourse would require a Waste Discharge Licence. The licencing system is managed by the NT EPA.  No discharge of waste or contact with water are expected within the current scope of works.
	No licence required.	A recent amendment to the Water Act now requires mining activities to hold a licence to take surface or groundwater; and a permit to construct or alter works that interfere with a waterway; where they are applicable.



Legislation	Regulation/ approval required	Project relevance
		<p>TCMG does not propose any works that will interfere with a waterway, or to take groundwater during the current scope of works.</p> <p>TCMG has an agreement to allow Northern Iron to access water from ML3088 – however the responsibility for gaining appropriate approvals and implementing any subsequent conditions or requirements lies with Northern Iron.</p>
<i>Public and Environmental Health Act 2011</i>	Notification not required.	<p>The Project site is outside of a Building Control Area. TCMG proposes to use a portable waste solution for the duration of project activities. Notification to the Department of Health is not required for this scope of works. Prior to installation, TCMG will ensure that all legislative requirements are met. All wastewater will be removed and disposed offsite by a licenced contractor.</p>
<b>Social, Economic and Cultural Aspects</b>		
<i>Native Title Act 1993</i>	An Indigenous land use agreement (ILUA) is not required.	<p>Non-exclusive Native Title rights and interests have been determined to exist in relation to the area of ML30888 except for the Warrego Road. The registered Native Title body corporate is the Warlmanpa Warumungu Aboriginal Corporation. Native Title rights are, however, suppressed to the extent that and for the periods that TCMG is exercising its mining rights in accordance with ML30888. See Section 2.4 for further details.</p>
<i>Northern Territory Aboriginal Sacred Sites Act 1989</i>	An Aboriginal Areas Protection Authority (AAPA) Authority Certificate is required.	<p>There are no recorded or registered sacred sites, exclusion zones, or restricted work areas within the Project site as defined by the ML30888 boundaries. Regardless, TCMG has applied for an AAPA Certificate and a CLC Sacred Sites Clearance over ML30888, which are currently being assessed by each authority. Any new sacred sites or heritage values identified by the AAPA and / or CLC will be managed according to all instructions given within certificates, and to avoid any damage or disturbance. See Section 3.2.1 for further details.</p>
<i>Heritage Act 2011</i>	No approval required.	<p>There are no sites on the NT Heritage Register within the Project area. TCMG received advice from the Heritage Branch that the likelihood of unrecorded archaeological places existing was unlikely.</p>

Legislation	Regulation/ approval required	Project relevance
<i>Pastoral Land Act 1992</i>	A pastoral land use agreement is required.	The entirety of ML30888 is within the Phillip Creek Station (Perpetual Pastoral Lease 946, NT Land Parcel 00408). A land access agreement was previously made between Emmerson Resources Limited (the previous tenement holder) and Phillip Creek Station. The land access agreement will be formally novated to TCMG, or a new agreement made, during the term of this MMP. TCMG has been engaging with the station owners to date.
<b>Other</b>		
<i>Work Health and Safety (National Uniform Legislation) Act 2011 (WHS Act)</i>	No approval required.	Mine sites in the NT must not permit any mining activity or a related mining activity to be carried out unless the mine operator has given to the regulator a Risk Management Plan (RMP) for the mine site that has been certified in accordance with Regulation 614.  No mining activities are proposed within the current scope of proposed rehabilitation works. An RMP will be prepared by TCMG at such time that mining activities are proposed.  This legislation and associated Regulations also outline requirements for works with the potential to cause a public health nuisance, including those causing emissions and refuse.
<i>Public and Environmental Health Act 2011</i>	No approval required.	Outlines requirements for the management of waste and potential pollutants with the potential to cause environmental harm.
<i>Dangerous Goods Act 1998</i>	No approval required.	The storage, use and transport of explosives requires an approval to be obtained from NT Worksafe.  No such activities are proposed within the current scope of proposed rehabilitation works. These authorisations will be obtained prior to undertaking any such works, if planned in future.
<i>Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Act 2010</i>	Dangerous goods licences required if transporting designated dangerous goods.	The object of this Act is to regulate the transport of dangerous goods on land in order to promote public safety and protect property and the environment.  TCMG will abide by all requirements of this Act and the associated regulations if transporting any dangerous goods to and from site – including appropriate loading, placarding, packaging, containers, obtaining dangerous

Legislation	Regulation/ approval required	Project relevance
		goods licences for vehicles and drivers, if and when required.
<i>Waste Management and Pollution Control Act 1998 (WMPC Act)</i>	No approval or licence required.	<p>The NT EPA grants environment protection approvals and licences for activities listed in Schedule 2 of the WMPC Act. These activities are associated with the: disposal of waste by burial; Listed Waste collecting, transporting, storing, re-cycling, treating or disposing on a commercial or fee for service basis; and processing hydrocarbons so as to produce, store and/or despatch liquefied natural gas or methanol.</p> <p>None of the above activities are proposed within the scope of the Project. All general and hazardous wastes will be removed from site by a licenced contractor. There is no onsite landfill proposed. No approval or licence is therefore required.</p>
<i>Environmental Offences and Penalties Act 1996</i>	No approval or licence required.	Applies in the case of an environmental offence.
<i>National Greenhouse and Energy Reporting Act 2007 (NGER Act)</i>	Reporting not required.	Commonwealth legislation. Corporations must register and report if they emit greenhouse gases (GHGs), produce energy, or consume energy at or above specified quantities in a given financial year. The Project will not trigger the reporting thresholds for reporting. TCMG will keep records of GHG emissions from Project activities to inform Environment, Social and Governance (ESG) reporting. If at any time emissions exceed the thresholds for reporting, this will be undertaken.
<p><i>National Environment Protection (Ambient Air Quality) Measure 1998 (NEPM-AAQ)</i></p> <p><i>National Environment Protection Council (Northern Territory) Act 1994 (NEPC Act)</i></p>	No approval required – appropriate dust control and air quality management must be undertaken.	<p>Commonwealth legislation. The stated desired environmental outcome of the NEPM-AAQ is: <i>ambient air quality that minimises the risk of adverse health impacts from exposure to air pollution</i>. Within the NEPM-AAQ, standards are set for air quality pollutants including particulates, and measurement protocols.</p> <p>The NEPC Act is a mirroring act to the national NEPM-AAQ.</p> <p>TCMG will implement dust control measures to maintain air quality on site, and appropriate PPE will be used by personnel as required, to maintain human health. See Section 8.2 for further details.</p>

Legislation	Regulation/ approval required	Project relevance
<i>Bushfires Management Act 2016</i>	No approval required – appropriate fire management must be undertaken.	Provides the legislative framework for the mitigation, management, and suppression of bushfires in the NT. TCMG will adhere to the requirements of bushfire management on site, including fire breaks, removal of flammable material, and fire control response procedures.

#### 4.2 Non-Statutory Obligations

In addition to statutory obligations, there are also a number of non-statutory obligations relating to the Project. Project planning has considered the following standards, guidelines and codes of practice relevant to avoiding or minimising environmental impacts.

##### **Mining Best Practice Guidelines**

- A Guide to Leading Practice Sustainable Development in Mining (Australian Centre for Sustainable Mining Practices 2011)
- A Guideline for Managing the Impacts of Dust and Associated Contaminants from Land Developments Sites, Contaminated Sites Remediation and Other Related Activities (Government of Western Australia, Department of Environment and Conservation, 2011)
- Conflict-Free Gold Standard (World Gold Council 2012)
- Free Prior and Informed Consent – An Indigenous Peoples’ Right and a Good Practice for Local Communities – Manual for Practitioners (Food and Agriculture Organization of the United Nations 2016)
- Responsible Gold Mining Principles (World Gold Council 2019)
- Towards Sustainable Mining - TSM 101: A Primer (The Mining Association of Canada 2019).
- GRI Sector Standards Project for Mining – Exposure Draft (GRI 2023)

##### **Storm Water Management, Erosion and Sediment Control**

- *Best Practice Erosion and Sediment Control* (International Erosion Control Association 2008)
- Northern Territory Land Suitability Guidelines (Northern Territory Government 2013).

## Noise and Dust

- A Guide to the Sampling and Analysis of Air Emissions and Air Quality (Victoria State Government, EPA Victoria 2002)
- Methods for sampling and analysis of ambient air - Determination of particulate matter - Deposited matter - Gravimetric method (Australian/New Zealand Standard 3580.10.1:2003)
- Airborne Contaminants, Noise and Vibration – Leading Practice Sustainable Development Program for the Mining Industry (Australian Government 2009)
- A Guideline for Managing the Impacts of Dust and Associated Contaminants from Land Developments Sites, Contaminated Sites Remediation and Other Related Activities (Government of Western Australia, Department of Environment and Conservation 2011)
- Good Practice Guide for Assessing and Managing Dust (New Zealand Ministry for the Environment 2016)
- Management of Dust from Development Sites – Guidance for Developing Dust Emission Control Plan (Townsville City Council 2019)
- *Dust Emissions Guideline – July 2021 for external consultation* (Government of Western Australia, Department of Water and Environmental Regulation 2021).

## Water Management

- AS/NZS 1547:2012 Code of Practice for On-site Domestic Wastewater Management.
- Water Accounting Framework for the Australian Minerals Industry (Minerals Council of Australia 2014).
- *Methodology for the Sampling of Groundwater* (Northern Territory Government, Department of Primary Industry and Resources 2016)
- *Methodology for the Sampling of Surface Water* (Northern Territory Government, Department of Mines and Energy 2016)
- Water Stewardship – Leading Practice Sustainable Development Program for the Mining Industry (Department of Foreign Affairs and Trade 2016)
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (Australian and New Zealand Governments 2018)
- Designing and Installing On-site Wastewater Systems – A WaterNSW Current Recommended Practice (WaterNSW 2019)
- *Guidelines for Private Water Supplies* (Northern Territory Government, Department of

Health 2019)

- *Code of Practice for Wastewater Management* (Northern Territory Government, Department of Health 2020)
- *Guidance Notes for Wastewater Management* (Northern Territory Government, Department of Health 2020)
- Australian Drinking Water Guidelines – National Water Quality management Strategy (Australian Government, National Health and Medical Research Council 2023)
- *Territory Water Plan* (Northern Territory government, Office of Water Security 2023).

### **Storage and Handling of Hazardous Substances and Dangerous Goods**

- AS/NZS 4452:1997 The storage and handling of toxic substances
- Storage and Handling of Workplace Dangerous Goods National Code of Practice [NOHSC:2017(2001)]
- Code of Practice for the Safe Removal of Asbestos [NOHSC:2002(2005)]
- AS 1962:2006 Tanks for flammable combustible liquids
- AS 3780:2008 The storage and handling of corrosive substances
- Hazardous materials Management – Leading Practice Sustainable Development Program for the Mining Industry (Australian Government 2016)
- AS1940:2017 The Storage and Handling of Flammable and Combustible Liquids (Standards Australia 2017)
- *Liquid Storage and Handling Guidelines June 2018* (Victoria State Government, EPA Victoria 2018)
- Australian Code for the Transport of Dangerous Goods by Road & Rail (7.7-2020).

### **Mine Closure Planning**

- *WA Guidelines for Preparing Mine Closure Plans* (Government of Western Australia, Department of Mines and Petroleum and WA EPA 2015).
- Mine Closure – Leading Practice Sustainable Development Program for the Mining Industry (Australian Government 2016)
- Mine Rehabilitation – Leading Practice Sustainable Development Program for the Mining Industry (Australian Government 2016).

### **Weed Management**



- *Australian Weeds Strategy 2017 – 2027* (Australian Government, Invasive Plants and Animals Committee 2017)
- *Northern Territory Weed Management Handbook* (Northern Territory Government, Department of Environment, Parks and Water Security 2021)
- *Tennant Creek Regional Weeds Strategy 2021 – 2026* (Northern Territory Government, Department of Environment, Parks and Water Security 2021).

## 5 Operational Activities

Activities proposed to be undertaken at the Project site during the term of this MMP include:

4. Rehabilitation of the site by removal and scrapping of existing historical above ground mining infrastructure within the Cleanup Area;
5. Use and upgrade of tracks as required; and
6. Implementation of a care and maintenance program.

Other than the above activities and general care and maintenance, TCMG does not propose to operate, develop, or rehabilitate the remainder of ML30888 at this stage of operations.

### 5.1 *Removal of Remnant Infrastructure*

TCMG proposes to remove, cleanup and scrap from site the existing historical gold mill and associated remnant above ground mining infrastructure, including the following:

- Removal of the existing mill for use by another operator offsite, including associated processing infrastructure, ore crushing and grinding facilities, ore conveyor infrastructure, and ball mills; and
- Removal and/or scrapping of the existing sheds, workshops, office facilities, above ground workings, and any other remnant above ground mining infrastructure within the Cleanup Area that is no longer required on site, and/or represents a safety hazard on site.

All infrastructure will be removed by licensed contractors, who will be required to adhere to all TCMG approvals, site safety and environmental management plans, including the requirements contained within this MMP.

### 5.2 *Use and Upgrade of Tracks*

TCMG proposes to use the existing on-site tracks to access and traverse the site. Including maintenance of tracks as required to maintain safe access, and upgrade of tracks where required for access by trucks and equipment for the proposed works.

TCMG has entered into an agreement with Northern Iron which includes allowing the use of access tracks on ML30888 to traverse the site from Warrego Road through to Northern Iron's project site on MLC82. This section of track will need to be upgraded to allow for Northern Iron's site access and ore haulage.

### 5.3 *Care and Maintenance Program*

The purpose of the care and maintenance program is to:

1. Ensure public safety and stock safety.



2. Protect the environmental values of the site.
3. Meet regulatory requirements.

To achieve these objectives, a care and maintenance program has been developed, as shown in Table 5-1 below.

**Table 5-1 Care and maintenance work program**

Aspect	Strategic Approach	Monitoring and Corrective Actions
Site Security and Safety	Exclude stock and the general public from ML30888.	<ul style="list-style-type: none"> <li>• Continue to monitor and assess the adequacy of site fencing and signage to exclude access by the public, and by stock.</li> <li>• Maintain, install and repair fences and signage as required.</li> </ul>
Land and Biodiversity Management	Undertake activities to eradicate and control noxious weeds on site.	<ul style="list-style-type: none"> <li>• Continue to implement the Warrego Weed Management Plan (see Appendix A)</li> <li>• Undertake annual weed control to eradicate all declared Class A species, and to eradicate or at a minimum control the growth and spread of all Class B species.</li> <li>• Undertake at a minimum bi-annual weed inspections and mapping on site.</li> <li>• Comply with recommendations of the Weed Management Branch where appropriate to do so.</li> </ul>
Environmental Management System	Take a systematic and risk-based approach to environmental management.	<ul style="list-style-type: none"> <li>• Continue to implement regular environmental inspections of the site, with a minimum of six inspections per year.</li> <li>• Implement a groundwater monitoring program on site – whether undertaken by TCMG, or by Northern Iron, with monitoring results made available to TCMG.</li> <li>• Apply adaptive management to address any environmental risks or impacts identified within inspections or monitoring.</li> <li>• Review the environmental aspects and impacts and environmental risk assessment annually, or with significant changes in Project planning.</li> </ul>
Regulatory Management	Maintain compliance with all applicable laws and licenses.	<ul style="list-style-type: none"> <li>• Maintain and implement the requirements of all required approvals and agreements including mining authorisation, sacred sites clearances, and land access and use agreements.</li> <li>• Prepare annual MMP reporting and amendments as required.</li> </ul>

#### 5.4 *Operational Performance Against Previous MMP*

This is the first amendment of this MMP. In the time since approval of the MMP, only care and maintenance works and environmental management activities have been undertaken within the scope of this MMP. No operational works have been undertaken. Care and maintenance works that have been undertaken include:

- Repair of fencing around the perimeter of the gold processing plant to exclude public entering and to protect the onsite assets.
- Weed survey and control activities.
- General monitoring and cleanup where environmental or safety hazards have been identified.

TCMG is also undertaking exploration and mineral resource development works within the Project site, which are within the scope of the separate TCMG Warrego Gold and Copper Exploration Project MMP and Mining Authorisation 1159-01. These works will be reported separately for that MMP.

TCMG has also entered into an agreement with neighboring tenement holder and operator Northern Iron, to use access tracks, and access water within ML30888. The scope of Northern Iron's activities are not included within this MMP, and are included with Northern Iron's own separate MMP. Northern Iron is responsible for attaining its own approvals including mining authorisation and water licensing.

## 6 Environmental Risk Assessment

### 6.1 *Identification of Environmental Aspects and Impacts*

Environmental aspects are the elements of TCMG and/or its contractor's activities within the Project area that interact or can interact with the environment.

Environmental impacts are any change to the environment, whether adverse or beneficial, wholly or partially resulting from TCMG and/or its contractor's activities.

TCMG has identified and assessed Project activities which may cause an impact (either positive or negative) to the environment. This includes aspects from scrapping, removal of infrastructure and material offsite, use and upgrade of access tracks, vehicle and machinery movement, and site maintenance activities. When identifying aspects, consideration has been given to potential emergency situations, normal and abnormal operating and environmental conditions.

A Conceptual Site Model has been developed for the Project, as shown in Section 6.2 below. This was based on TCMG's understanding of the physical environmental and socio-economic site conditions informed by previous site studies, information collected from TCMG's care and maintenance program, site inspections, and stakeholder engagement to date, and the potential environmental aspects and impacts of the Project. Building on this, a detailed risk assessment was undertaken, as outlined in Section 6.3 and detailed in Appendix B.

### 6.2 *Conceptual Site Model*

The Warrego Conceptual Site Model is outlined in Table 6-1 below. This has been developed to describe the potential environmental risks from the proposed Project activities and potential pathways and receptors of impact. The potentially impacted receptors from the potential contaminants and impacts of concern are soil, vegetation, fauna, air quality, surface water, groundwater, and people. The overarching environmental objectives relating to these receptors are outlined in Section 7.3 below, which are aligned with the Northern Territory Environment Protection Authority (NT EPA) environmental factors and objectives. The EMP to achieve these objectives is outlined in Section 8.

**Table 6-1 Warrego conceptual site model**

Activity	Potential impacts	Source	Pathway	Receptor
Removal of infrastructure	<ul style="list-style-type: none"> <li>Improved environmental condition</li> <li>Fewer contamination sources</li> <li>Reduced waste</li> <li>Reduced pests</li> <li>Improved safety on site</li> <li>Disturbance of soil</li> <li>Removal of vegetation</li> <li>Causing erosion or sedimentation</li> <li>Reduced air quality impacting the health of onsite personnel</li> <li>Air particulates impacting the surrounding environment</li> <li>Release of contained contaminants when moving materials, e.g. asbestos, oil, or other hazardous substances</li> </ul>	<ul style="list-style-type: none"> <li>Removal of remnant structures</li> <li>Removal of potential contaminants stored on site</li> <li>Removal of waste</li> <li>Removal of pest habitat</li> <li>Removal of structures that are safety hazards</li> <li>Disturbance of soil beneath and surrounding infrastructure</li> <li>Disturbance of any regrowth vegetation surrounding infrastructure</li> <li>Dust produced while removing infrastructure</li> <li>Sheds, buildings, oil drums, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Removal of structures, scrapping and cleanup</li> <li>Movement of machinery</li> <li>Surface water runoff</li> <li>Air emissions</li> <li>Materials</li> </ul>	<ul style="list-style-type: none"> <li>Fauna</li> <li>Soil</li> <li>Vegetation</li> <li>Air quality</li> <li>Surface water</li> <li>Groundwater</li> </ul>
Transport of removed infrastructure	<ul style="list-style-type: none"> <li>Reduced air quality impacting the health of onsite personnel</li> <li>Air particulates impacting the surrounding environment</li> <li>Materials escaping when leaving site with a load</li> <li>Fauna strike</li> <li>Spread of weeds or pests</li> </ul>	<ul style="list-style-type: none"> <li>Dust produced while traversing the site</li> <li>Unsafe or unsecure loading of materials</li> <li>Collision of vehicles with any fauna on site</li> <li>Dirt, seeds, or pests contained on vehicles when entering or leaving the site</li> </ul>	<ul style="list-style-type: none"> <li>Air emissions</li> <li>Materials</li> <li>Vehicles</li> </ul>	<ul style="list-style-type: none"> <li>Air quality</li> <li>Vegetation</li> <li>Fauna</li> </ul>
Use and upgrade of tracks	<ul style="list-style-type: none"> <li>Disturbance of soil</li> <li>Removal of vegetation</li> <li>Causing erosion or sedimentation</li> <li>Reduced air quality</li> </ul>	<ul style="list-style-type: none"> <li>Disturbance of soil along tracks</li> <li>Disturbance of any regrowth vegetation along</li> </ul>	<ul style="list-style-type: none"> <li>Movement of machinery</li> <li>Surface water runoff</li> <li>Air</li> </ul>	<ul style="list-style-type: none"> <li>Soil</li> <li>Vegetation</li> <li>Air quality</li> <li>Surface water</li> <li>Groundwater</li> </ul>

Activity	Potential impacts	Source	Pathway	Receptor
	<ul style="list-style-type: none"> <li>impacting the health of onsite personnel</li> <li>Air particulates impacting the surrounding environment</li> <li>Fauna strike</li> <li>Spread of weeds or pests</li> </ul>	<ul style="list-style-type: none"> <li>tracks</li> <li>Collision of vehicles with any fauna on site</li> <li>Dirt, seeds or pests contained on vehicles when entering or leaving the site</li> </ul>	<ul style="list-style-type: none"> <li>emissions</li> <li>Vehicles</li> </ul>	<ul style="list-style-type: none"> <li>Fauna</li> </ul>
Restriction of site access	<ul style="list-style-type: none"> <li>Improved community safety</li> <li>Preventing residents access to communities - or operators access to surrounding sites</li> </ul>	<ul style="list-style-type: none"> <li>Fencing and locked gate installed</li> </ul>	<ul style="list-style-type: none"> <li>Access routes and agreements</li> </ul>	<ul style="list-style-type: none"> <li>People</li> </ul>

### 6.3 Risk Assessment

A risk assessment of the potential impacts for each of the identified environmental aspects has been undertaken for the Project, and is included in Appendix B. The risk assessment matrix used for the Project is based on the sample provided in the *Template for the Preparation of a Mining Management Plan*. The key prompt to assessing a risk is the likelihood that a particular event or issue will take place. The definitions of the likelihood of an occurrence are included in Table 6-2 below.

**Table 6-2 Definitions of likelihood of an incident occurring at the Project**

Measure of likelihood	
Almost Certain	Common or repeating occurrence. Is expected to occur several times over the duration of a development in the region.
Likely	Known to occur or will probably occur. Has occurred several times in association with recent developments.
Possible	Might occur at some time. Has previously occurred in similar developments.
Unlikely	Could occur at some time but unlikely. Has only occasionally occurred in association with a development in the region.
Rare	Highly unlikely, will only occur in exceptional circumstances. Has never occurred in association with a development in the region.

As the likelihood of each event is assessed, so is the potential consequence of the event taking place. The definition of the consequences used in this risk assessment is included in Table 6-3

below.

The combined likelihood and consequence of an event result in a risk rating for that event. A numerical rating is attributed to both the scale of likelihood and the scale of consequence of a potential event. A matrix that demonstrates the combined scores from those scales is presented in Table 6-4 below.

Scoring risks in terms of their potential impact allows them to be ranked in order of magnitude and assigned corresponding actions required for mitigation. The need for action on a potential event ranked by its risk score is presented in Table 6-5 below.

**Table 6-3 Definitions of consequence as it applies to risk assessment for the Project**

Measure of consequence	
Catastrophic	Environmental disaster
Major	Severe environmental and/or social impacts
Moderate	Contained temporary, or permanent minor, localised environmental damage or social impact
Minor	Some, minor, temporary environmental and/or social impact
Insignificant	No measurable impact on the environment or social values

**Table 6-4 Risk assessment matrix used for the Project**

LIKELIHOOD OF OCCURRENCE	SEVERITY OF CONSEQUENCES				
	Catastrophic (5)	Major (4)	Moderate (3)	Minor (2)	Insignificant (1)
Almost certain (5)	10	9	8	7	6
Likely (4)	9	8	7	6	5
Possible (3)	8	7	6	5	4
Unlikely (2)	7	6	5	4	3
Rare (1)	6	5	4	3	2

**Table 6-5 Assessment of risk scores for the Project**

Risk Score	Risk Rating	Assessment of risk	Action required
9 – 10	Extreme	Intolerable	Immediate.
7 – 8	High	Intolerable or tolerable	Action plan required. Senior management attention.
5 – 6	Moderate	Tolerable or acceptable	Specific monitoring or procedures required.
1 – 4	Low	Acceptable	Management through routine procedures.

The risk assessment undertaken for the Project aligns with the NT EPA factors and objectives, which form the over-arching environmental objectives of the Project. Risk ratings were assessed based on the current site environmental conditions and planned size, extent, and method of Project activities. An initial risk rating is given, assessed for the base case in which

no mitigation measures are implemented. Based on the risk rating, mitigation measures were identified for implementation on site. A residual risk rating following implementation of these mitigation measures is then given. Comparison of the initial risk rating against the residual risk rating gives an indication of the expected effectiveness of the proposed mitigation measures.

As outlined in Appendix B, in all cases the residual risk following implementation of mitigation measures for all identified potential impacts of the Project is categorised as *Low* risk. According to the risk matrix key, these risks are all categorised as *Acceptable*, with management through routine procedures required to manage these risks. Routine management procedures and implementation of the identified mitigation measures are further outlined within Section 7 and Section 8 below.

Further, the positive environmental impacts resulting from the Project activities, as identified in the conceptual site model in Table 6-1 above, were not included in the risk assessment, as they do not represent risks. Overall, it is expected that the environmental impacts of the Project will be net positive, due to removing existing environmental and safety hazards and risks and cleaning up the site.

## 7 Environmental Management System

### 7.1 Environmental Policy

TCMG's activities will be carried out to protect the health of management, staff, employees, contractors, key stakeholders and community while paying proper regard to the protection and management of the environment, including cultural heritage. The primary goal of TCMG's operations is to maintain the highest environmental standards. TCMG's Environmental Policy is included in Appendix C.

TCMG is committed to:

- Ensure compliance with applicable Northern Territory and Commonwealth laws, regulations, guidelines and procedures
- Establish procedures to ensure effective implementation of its policy.
- Provide adequate environmental training and guidance to its employees
- Instill a culture of continuous improvement through setting and reviewing targets, auditing and reporting environmental performance
- Undertake regular consultation with Project stakeholders (including regulatory bodies) to discuss any of their environmental concerns.

### 7.2 Environmental Management Structure

TCMG will maintain over-arching responsibility for compliance with this MMP, implementation of the Environmental Management System (EMS), and adhering to the conditions of all approvals, permits and licenses issued for the Project. The Project Manager will be responsible for implementation of the EMS and environmental compliance for all staff and contractors.

TCMG expects all employees and contractors to:

- Comply with TCMG's environmental management policies and plans
- Review and strive to improve environmental practice
- Report all environmental incidents to their immediate managers
- Identify and address environmental concerns through open and honest consultation with local community members and government departments.



### 7.3 Environmental Objectives

The over-arching environmental objectives of the Project are aligned with the NT EPA environmental factors and objectives, as shown in Table 7-1 below. These objectives have been used to inform the development of the environmental management system and will be used to assess the adequacy of the management system throughout Project implementation.

**Table 7-1 Environmental Objectives of the Project**

<b>Theme</b>	<b>Factor</b>	<b>Environmental Objective</b>
<b>Land</b>	Landforms	<i>Conserve the variety and integrity of distinctive physical landforms.</i>
	Terrestrial environmental quality	<i>Protect the quality and integrity of land and soils so that environmental values are supported and maintained.</i>
	Terrestrial ecosystems	<i>Protect terrestrial habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.</i>
<b>Water</b>	Hydrological processes	<i>Protect the hydrological regimes of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.</i>
	Inland water environmental quality	<i>Protect the quality of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.</i>
	Aquatic ecosystems	<i>Protect aquatic habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.</i>
<b>Air</b>	Air Quality	<i>Protect air quality and minimise emissions and their impact so that environmental values are maintained.</i>
	Atmospheric processes	<i>Minimise greenhouse gas emissions so as to contribute to the NT Government's goal of achieving net zero greenhouse gas emissions by 2050.</i>
<b>People</b>	Community and economy	<i>Enhance communities and the economy for the welfare, amenity and benefit of current and future generations of Territorians.</i>
	Culture and heritage	<i>Protect sacred sites, culture and heritage.</i>
	Human health	<i>Protect the health of the Northern Territory population.</i>

In addition to the above over-arching environmental objectives, the following broad objectives have been developed for the ongoing care and maintenance program at the Project site. These are to be met on an ongoing basis, including after completion of the removal of site infrastructure:

1. Ensure public safety and stock safety.
2. Protect the environmental values of the site.
3. Meet regulatory requirements.

#### *7.4 Environmental Commitments*

Section 8 below outlines the over-arching Project Environmental Management Plan (EMP) identifying planned environmental management activities.

TCMG will continue to commit to environmental management over subsequent MMP submissions. The following commitments will form part of the ongoing Project:

- TCMG will maintain over-arching responsibility for complying with this MMP and the conditions of all approvals, permits and licences issued for the Project. The Project Manager will be responsible for environmental compliance for all staff and contractors.
- All of the proposed activities will be within the mineral lease boundary.
- Mining Authorisation and MMP approval will be sought prior to undertaking any mining activities within the Project area not within the scope of this MMP. All conditions of mining authorisations will be implemented.
- The EMP will be implemented on site, and will be subject to continuous review and improvement informed by monitoring and implementation data.
- All required approvals under the *Water Act 1992* will be sought prior to undertaking any such these activities.
- All site activities will be in accordance with the conditions of the sacred sites clearance certificates for the Project area when granted.
- All commitments outlined within TCMG's Territory Benefits Plan will be implemented to the best of TCMG's ability, including implementation of TCMG's Procurement Policy and Workforce Strategy.
- ISO 14001 certification will be maintained for TCMG's EMS.
- Implementation of the approved Weed Management Plan will be undertaken for the

duration of the Project to control weed infestations on site.

- All relevant Project personnel, contractors and visitors will undertake a site induction detailing the essential environmental and cultural heritage management information for the Project. This will include an explanation of the environmental management structure, environmental policy and requirements of this MMP.
- Emergency and incident response procedures will be presented during inductions and include spill response, equipment failure, storms and fire, and information on reporting requirements.
- Scheduled toolbox meetings with Project workers will keep employees informed of safety and environmental issues and will ensure continued awareness of environmental management activities.
- All incidents which cause or have the potential to cause material or serious environmental harm will be reported to The Northern Territory Department of Industry, Tourism and Trade (DITT) as required under Section 29 of the Mining Management Act.
- A register of incidents will be maintained during operations for the Project which will include details about the incident, how it occurred, where and when it occurred, physical actions taken to rectify, remediate or rehabilitate, and operational actions to address the future management of incidents of this type. Where required, accidents and incidents will be reported to DITT via a Notification of an Environmental Incident form.
- Upon completion of Project activities, all disturbed areas will be left in a safe and stable, non-polluting state. The site will then continue within the care and maintenance program.

### *7.5 Environmental Training and Education*

All relevant Project personnel, contractors and visitors will be presented with a site induction detailing the essential environmental management information for the Project before commencing works on site. Site inductions will include:

- Environmental management structure, responsibilities and duty of care
- Company policies, practices and procedures
- Requirements of this MMP and any other site management plans
- Emergency and incident response procedures
- Environmental awareness.

Specific environmental issues covered in the inductions will include where applicable:

- All site safety information and requirements
- Speed limits on site, and avoiding driving at dawn and dusk, whether within site, or to/from site
- Minimising soil and vegetation disturbance
- Requirements of the Weed Management Plan, including washing down of vehicles to avoid the spread of noxious weeds, how to identify weeds, and avoiding weeds with site machinery and equipment
- Restricting travel through the lease area to existing tracks to minimise disturbance. Avoiding travel on wet muddy tracks after rains to maintain the integrity of the tracks
- Carrying any rubbish away and not burning it on site
- Storing chemicals and any hazardous substances within approved containers and away from surface or groundwater
- Cleaning up chemical and oil spills and removing all contaminated ground material
- Emergency and incident response procedures will include spill response, equipment failure, storms and fire, and reporting requirements
- Any nearby Aboriginal sacred sites or sites of significance, shown with maps, exclusion markers, and any conditions of sacred sites clearances
- Potential occurrence and location of native fauna. Staff and contractors are asked to avoid disturbing native fauna species and to inform the site/project manager of any sightings. Response and reporting requirements in the incident of a fauna strike.

All TCMG employees are provided with environmental induction training on joining the company. Additional induction training will be given for issues specific to each operational site, prior to commencement of an employee at each project area, including the Warrego site.

Short-term contract personnel such as field support staff, contractors and scrapping contractors will also be given an environmental induction as part of a general site and safety induction. The induction will be undertaken prior to commencement of work activities on site. The induction given will be relevant to the relevant work area and activities to be undertaken.

Scheduled toolbox meetings during active site works with Project workers will also be undertaken to keep employees informed of safety and environmental issues, and ensure continued awareness of environmental management activities.

### *7.6 Environmental Monitoring*

Environmental monitoring will be carried out on an ongoing basis for the life of the Project, as

appropriate for each environmental aspect and impact, and each stage of Project works, as follows:

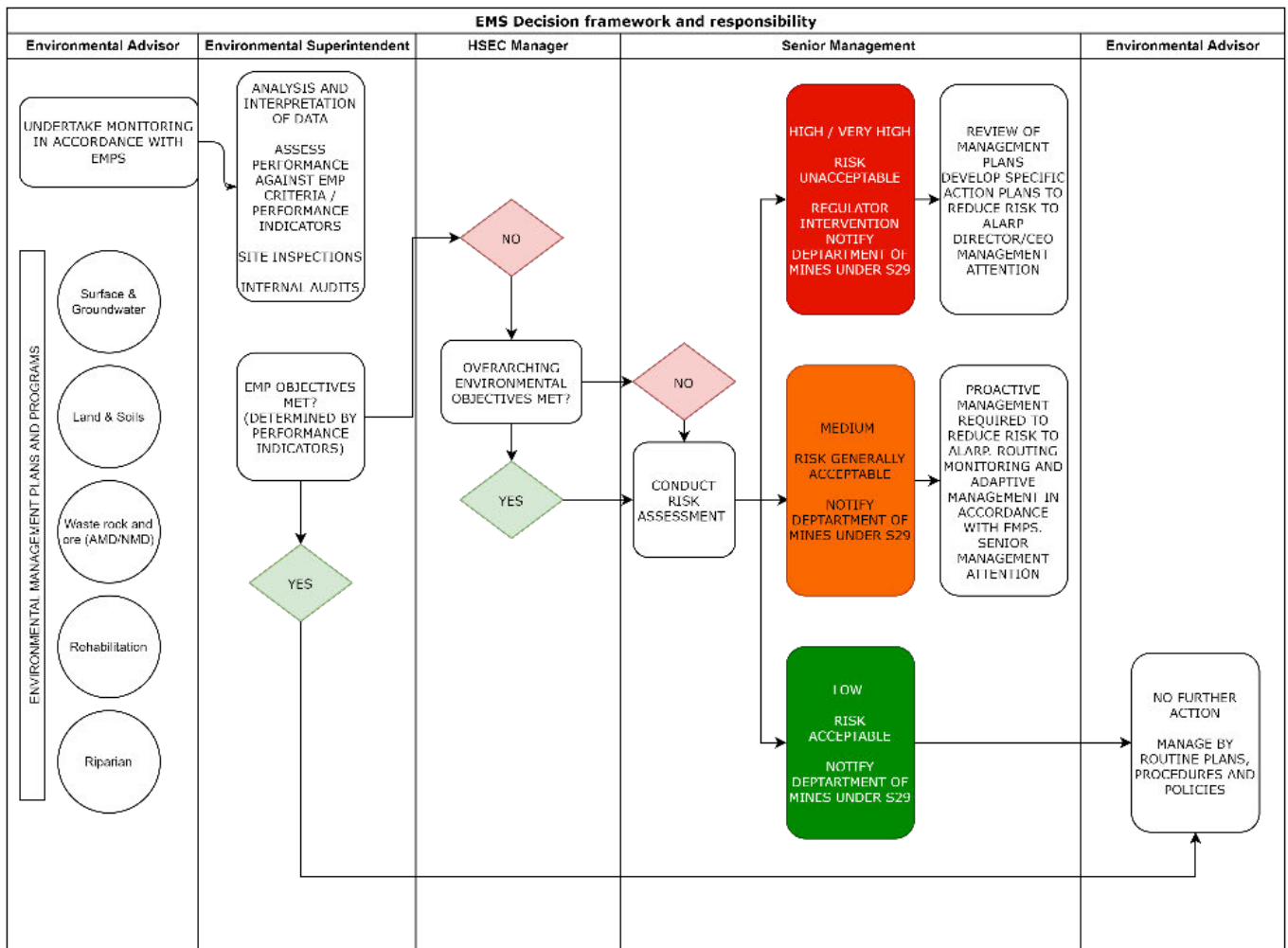
- Daily monitoring will be undertaken during active site works for the scrapping and removal of infrastructure from site.
- Regular site-wide monitoring will be undertaken on an ongoing basis within the care and maintenance program, with a minimum of six inspections undertaken per year.

Further detail of what will be included within environmental monitoring is provided in the Project Environmental Management Plan in Section 8 below.

Monitoring will be carried out in accordance with the relevant industry standards, by TCMG staff or contractors who have been trained by suitably qualified professionals.

### *7.7 Environmental Decision Framework*

TCMG's EMS decision framework is shown in Figure 7-1 below. This decision framework outlines how the Environmental Management System and Environmental Management Plans will be used to inform decisions and management, and identifies who is responsible throughout the process.



**Figure 7-1 TCMG's EMS Decision Framework**

### 7.8 Environmental Record Keeping

Records will be kept by TCMG on an ongoing basis to demonstrate implementation of the EMS and maintain transparency. Including records of all:

- Environmental monitoring
- Environmental management
- Environmental accidents or incidents
- Stakeholder engagement
- Community complaints

TCMG uses an online management system called *SkyTrust* to record, track and manage aspects of safety and environmental compliance and management – including environmental

monitoring, control, and incidences. TCMG is also using an online management system called *Consultation Manager* to record, track and manage stakeholder engagement activities – including consultation meetings and community complaints.

### 7.9 Environmental Reporting

TCMG will undertake regular environmental reporting to relevant stakeholders including to meet statutory reporting requirements, ESG reporting requirements of investors and industry bodies, and to maintain community engagement. Table 7-2 below indicates the statutory reporting requirements for the Project which will be implemented at the required frequency. Incident reporting is outlined within Section 9.3 below.

**Table 7-2 Statutory Reporting Requirements**

Statutory Reporting	Required By	Frequency	Responsible Person
Mining Management Plan	Department of Industry, Tourism and Trade	Annually	Project Manager
Employment, Injury and Safety Statistics	NT Worksafe	Annually	Project Manager
Tenement Annual Reports	Department of Industry, Tourism and Trade	Annually	Tenement Administrator
National Pollutant Inventory Reporting	Department of Industry, Tourism and Trade	Annually	Project Manager

### 7.10 Review of Environmental Management System

TCMG will review the adequacy and efficacy of its EMS and EMP on an ongoing basis, to continue to monitor its environmental performance and identify where improvements can be made. Any environmental incidences, near misses, or community complaints will trigger a review of the relevant management aspects and plans. As will any significant changes to Project planning. When preparing annual reporting and/or subsequent amendment to this MMP, any updates made to improve the EMS in the preceding year will be reported upon.

## 8 Environmental Management Plan

This section provides information regarding the implementation of environmental management measures to ensure the potential risks to the receiving environment are mitigated. The tables below provide a summary of how this EMP will be implemented to address the potential impacts associated with the Project operations. This includes the management actions, targets/performance indicators, monitoring, corrective actions and contingencies, and reporting and record keeping mechanisms. A detailed Weed Management Plan has also been developed for the Project site, which is included in Appendix A, as a key pre-existing environmental issue requiring ongoing management by TCMG on site.

### *Soil Erosion and Sediment Management*

<b>Management actions</b>	<b>Targets / performance indicators</b>	<b>Monitoring</b>	<b>Corrective actions and contingencies</b>	<b>Reporting and record keeping</b>
<ul style="list-style-type: none"> <li>• Infrastructure removal works will be undertaken in the dry season, and will be avoided during heavy rainfall events</li> <li>• The site will be monitored daily during infrastructure removal and cleanup works. If any evidence of erosion or sedimentation are evident, temporary drainage controls will be installed to manage stormwater within work areas</li> <li>• If installed, temporary drainage controls will be maintained during all works</li> <li>• Existing site-wide drainage, erosion and sediment control measures will be maintained on site throughout care and maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• No detection of newly created erosion within the Project area</li> <li>• No newly created sedimentation of surrounding environments.</li> </ul>	<ul style="list-style-type: none"> <li>• Visual monitoring for erosion within the overall Project area within the care and maintenance program, quarterly at a minimum</li> <li>• Daily visual monitoring for erosion within all active works areas during the scrapping/infrastructure removal works.</li> </ul>	<ul style="list-style-type: none"> <li>• Implement temporary drainage controls if erosion is evident during works</li> <li>• Maintain site-wide drainage and any required erosion controls to avoid erosion throughout the care and maintenance period.</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring and management records</li> <li>• Incident reporting records.</li> </ul>



Management actions	Targets / performance indicators	Monitoring	Corrective actions and contingencies	Reporting and record keeping
<p>activities, and will be checked after rainfall events and the end of the wet season</p> <ul style="list-style-type: none"> <li>• In all cases, erosion and sediment control measures will not be removed until disturbed areas have been stabilised.</li> </ul>				

### 8.1 Water Quality and Quantity

Management actions	Targets / performance indicators	Monitoring	Corrective actions and contingencies	Reporting and record keeping
<ul style="list-style-type: none"> <li>• Fuel, oils and chemicals will be appropriately stored and banded according to the National Standard for the Storage and Handling of Workplace Dangerous Goods [NOHSC:2017(2001)] and any other relevant Australian standards. Including the Australian Standards for <i>The storage and handling of flammable and combustible liquids</i> (AS 1940); <i>Tanks for flammable combustible liquids</i> (AS 1962); <i>The storage and handling of corrosive substances</i> (AS 3780); and <i>The storage and handling of toxic substances</i> (AS/NZS 4452).</li> </ul>	<ul style="list-style-type: none"> <li>• No detection of new erosion within the Project area</li> <li>• No new sedimentation of surrounding environments</li> <li>• No indication of spills of chemicals or</li> </ul>	<ul style="list-style-type: none"> <li>• Visual monitoring for erosion, leaks and spills within the Project area</li> <li>• Regular inspections of chemical and hazardous substance storage areas through operational activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain site-wide drainage controls, and implement additional temporary drainage controls if required during works.</li> <li>• Review storage and handling practices for chemicals and hazardous substances.</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring and management records</li> <li>• Incident reporting records.</li> </ul>

<b>Management actions</b>	<b>Targets / performance indicators</b>	<b>Monitoring</b>	<b>Corrective actions and contingencies</b>	<b>Reporting and record keeping</b>
<ul style="list-style-type: none"> <li>• Fit for purpose spill kits to be positioned at refuelling and storage areas.</li> <li>• All personnel on site will be trained in use of spill kits, in the event of a spill.</li> </ul>	hazardous substances. <ul style="list-style-type: none"> <li>• Any spill of stored product is contained and remediated through the spill response procedure</li> <li>• No leaks from equipment.</li> </ul>		<ul style="list-style-type: none"> <li>• Increase the amount of bunding and containment for chemical and hazardous substance storage areas.</li> <li>• Increase the number, capacity or type of spill kit materials.</li> </ul>	

## 8.2 Air Quality

<b>Management actions</b>	<b>Targets / performance indicators</b>	<b>Monitoring</b>	<b>Corrective actions and contingencies</b>	<b>Reporting and record keeping</b>
<ul style="list-style-type: none"> <li>• Dust generated during site activities will be managed through dust suppression using a water cart</li> <li>• No burning of vegetation or other materials will be permitted on site</li> <li>• Exhaust emissions from plant and equipment will be minimised by maintaining equipment in accordance with manufacturer's specifications</li> </ul>	<ul style="list-style-type: none"> <li>• No complaints regarding dust and air quality</li> <li>• Air quality kept at levels safe for human health</li> </ul>	<ul style="list-style-type: none"> <li>• Visual monitoring for dust within the Project area</li> <li>• Regular inspections of plant and equipment.</li> </ul>	<ul style="list-style-type: none"> <li>• Implement more frequent dust suppression activities where required</li> <li>• Plant and equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring and management records</li> <li>• Incident reporting records</li> <li>• Complaints database.</li> </ul>

<b>Management actions</b>	<b>Targets / performance indicators</b>	<b>Monitoring</b>	<b>Corrective actions and contingencies</b>	<b>Reporting and record keeping</b>
<p>and undertaking periodic visual checks of exhaust systems.</p> <ul style="list-style-type: none"> <li>• Any vehicle transporting waste or other materials that may produce odours or dust will be covered during transportation</li> <li>• Appropriate ear protection and PPE will be worn by all staff personnel engaged in dust producing works.</li> </ul>	<ul style="list-style-type: none"> <li>• No smothering of surrounding vegetation by dust.</li> </ul>		<p>maintenance where required.</p>	

### 8.3 Noise and Vibration

<b>Management actions</b>	<b>Targets / performance indicators</b>	<b>Monitoring</b>	<b>Corrective actions and contingencies</b>	<b>Reporting and record keeping</b>
<ul style="list-style-type: none"> <li>• All reasonable practical steps will be undertaken to reduce Project activity noise and vibration from the site</li> <li>• Appropriate ear protection and PPE will be worn by all staff personnel engaged in noise or vibration intensive works.</li> </ul>	<ul style="list-style-type: none"> <li>• No complaints regarding noise and vibration.</li> </ul>	<ul style="list-style-type: none"> <li>• Regular inspections of plant and equipment.</li> </ul>	<ul style="list-style-type: none"> <li>• Implement noise monitoring if required due to complaints</li> <li>• Plant and equipment maintenance where required.</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring records</li> <li>• Incident reporting records</li> <li>• Complaints database.</li> </ul>

#### 8.4 Flora and Fauna

Management actions	Targets / performance indicators	Monitoring	Corrective actions and contingencies	Reporting and record keeping
<ul style="list-style-type: none"> <li>• Soil disturbance and clearance of vegetation will be kept to the minimum necessary to carry out works</li> <li>• Fauna awareness included within site inductions for all TCMG staff and contractors, including Northern Iron</li> <li>• Vehicles and works not to be undertaken in close proximity to native fauna or cattle – vehicles to go around, and/or works to stop if fauna are spotted</li> <li>• Enforce speed limits on site access tracks and roads</li> <li>• The fauna strike incidence response procedure and reporting will be followed in all incidences.</li> </ul>	<ul style="list-style-type: none"> <li>• No incidents of fauna strike.</li> </ul>	<ul style="list-style-type: none"> <li>• Daily site monitoring during infrastructure removal works, including inspections of working areas for fauna strike.</li> </ul>	<ul style="list-style-type: none"> <li>• Review equipment used</li> <li>• Review speed limits across site</li> <li>• Review induction/staff training.</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring and management records</li> <li>• Incident reporting records</li> <li>• Incident report to be completed for all fauna injuries or death.</li> </ul>

### 8.5 Cultural and Historical Heritage

Management actions	Targets / performance indicators	Monitoring	Corrective actions and contingencies	Reporting and record keeping
<ul style="list-style-type: none"> <li>• Copies of AAPA and CLC Certificates and access Permits will be kept on site at all times</li> <li>• All conditions of these Certificate to be adhered to</li> <li>• Cultural heritage requirements and all conditions of these Certificates to be included within site inductions for all TCMG staff and contractors, including Northern Iron</li> <li>• A stop works will be implemented if unexpected artefacts or places are discovered during activities on site. The Project Manager will be notified immediately, who will establish an exclusion zone around the object or site, and will immediately contact the NT Heritage Branch, AAPA and CLC, and await instructions before continuing with works.</li> </ul>	<ul style="list-style-type: none"> <li>• No damage to cultural or historical artefacts or sites.</li> </ul>	<ul style="list-style-type: none"> <li>• Regular inspections of working areas.</li> </ul>	<ul style="list-style-type: none"> <li>• Review staff inductions and training.</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring and management records</li> <li>• Incident reporting records</li> <li>• Report/liaise with NT Heritage Branch, AAPA and CLC as appropriate.</li> </ul>

## 8.6 Waste Management

Management actions	Targets / performance indicators	Monitoring	Corrective actions and contingencies	Reporting and record keeping
<ul style="list-style-type: none"> <li>• Waste generated from site activities will be sorted and amounts estimated and recorded</li> <li>• Remove from the site and dispose of all waste materials, including green waste, food scraps and other putrescible wastes, Project waste, chemicals and effluent in an appropriate manner, in approved legal waste disposal sites or facilities</li> <li>• Where available, waste suitable for reuse or recycling will be reused or recycled</li> <li>• Materials and products with recycled content will be proposed for the works wherever these are cost and performance competitive and they are environmentally preferable to the non-recycled alternative</li> <li>• Waste oil will be sent to approved recyclers, or a licenced disposal facility</li> <li>• Waste and containers not able to be recycled will be disposed of at a licenced landfill facility.</li> </ul>	<ul style="list-style-type: none"> <li>• No new waste or contamination issues on site.</li> </ul>	<ul style="list-style-type: none"> <li>• Regular inspections of working areas.</li> </ul>	<ul style="list-style-type: none"> <li>• Review staff inductions and training</li> <li>• Review waste management actions.</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring and management records</li> <li>• Waste records.</li> </ul>

## 8.7 Wastewater Management

Management actions	Targets / performance indicators	Monitoring	Corrective actions and contingencies	Reporting and record keeping
<ul style="list-style-type: none"> <li>• Wastewater from any temporary amenities/ablutions installed on site will be emptied by a licensed contractor and disposed of offsite</li> <li>• Any such temporary amenities will be installed, maintained, and removed by a licenced contractor.</li> </ul>	<ul style="list-style-type: none"> <li>• Design specifications and installation meets health and environmental standards and requirements</li> <li>• Licenced contractor</li> <li>• No contamination from spills/use of temporary ablutions on site.</li> </ul>	<ul style="list-style-type: none"> <li>• Daily visual monitoring of any temporary amenities/ablutions while located and in use on site.</li> </ul>	<ul style="list-style-type: none"> <li>• Licenced contractor to remove and replace any faulty amenities</li> <li>• Review placement on site and/or contractor used, if issues persist.</li> </ul>	<ul style="list-style-type: none"> <li>• Installation and maintenance records</li> <li>• Incident register and reporting in the case of any spills.</li> </ul>

## 8.8 Hazardous Materials and Dangerous Goods

Management actions	Targets / performance indicators	Monitoring	Corrective actions and contingencies	Reporting and record keeping
<ul style="list-style-type: none"> <li>• The handling, storage and transport of hazardous materials and dangerous goods will be in accordance with all relevant legislation, manufacturer’s instructions and relevant Safety Data Sheets (SDSs)</li> <li>• Fuel, oils and chemicals will be appropriately stored and banded according to the <i>National Standard for the Storage and Handling of Workplace Dangerous Goods</i> and any other relevant Australian standards. Including the Australian Standards for <i>The storage and handling of flammable and combustible liquids</i> (AS 1940); <i>Tanks for flammable combustible liquids</i> (AS 1962); <i>The storage and handling of corrosive substances</i> (AS 3780); and <i>The storage and handling of toxic substances</i> (AS/NZS 4452)</li> <li>• Employ transporting, handling, storage and application methods that will prevent chemical, fuel and lubricant spillage on the site and adjoining areas</li> <li>• Spill clean-up equipment and materials, appropriate for the type and quantities of chemicals used on site, must be kept on site at all times during the works and in a readily accessible location</li> <li>• Clean up spills in accordance with the spill response as follows:</li> </ul>	<ul style="list-style-type: none"> <li>• No contamination of soil, water, or surrounding environment from spills or hazardous substances on site</li> <li>• All hazardous materials handled, removed, and disposed of in accordance with relevant legislation and standards.</li> </ul>	<ul style="list-style-type: none"> <li>• Daily inspections of working areas</li> <li>• Regular whole of site monitoring within the care and maintenance program.</li> </ul>	<ul style="list-style-type: none"> <li>• Review staff inductions and training</li> <li>• Review transport, use, and storage of chemicals onsite and amend where necessary.</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring and management records</li> <li>• Incident reporting records</li> <li>• Report significant spills, or spills that entered a waterway to the NT EPA Pollution Hotline.</li> </ul>



Management actions	Targets / performance indicators	Monitoring	Corrective actions and contingencies	Reporting and record keeping
<ul style="list-style-type: none"> <li>• Locate the source of the spill, identify the volume and type of spill</li> <li>• Assess the risk to workers and the environment from the spill to ensure appropriate PPE and containment measures are implemented</li> <li>• Control and contain the spill by isolating and/or removing the source</li> <li>• Clean the spill using spill kit absorbent material if practical, or installing bunds</li> <li>• Collect all contaminated material and dispose of contaminated spill control material, and/or contaminated materials to an appropriately licence waste facility.</li> <li>• Report significant spills, or spills that entered a waterway to the NT EPA Pollution Hotline</li> <li>• Report spills and all environmental incidents to DITT under Section 29 of the MM Act.</li> <li>• <b>If contaminants are identified</b> - In the event that any material that has the potential of being a contaminant (e.g. dumped waste, stained soil, asbestos), is identified prior to undertaking works, or uncovered during operations the following procedure will be implemented: <ul style="list-style-type: none"> <li>• Stop work in the area where any unexpected contaminated material is identified</li> </ul> </li> </ul>				

Management actions	Targets / performance indicators	Monitoring	Corrective actions and contingencies	Reporting and record keeping
<ul style="list-style-type: none"> <li>• Specialists will be engaged as necessary to advise and/or oversee the removal of contaminated material</li> <li>• The removal and disposal of the material will be conducted in accordance with relevant legislation (depending on what material is identified e.g. a licenced asbestos removal contractor)</li> <li>• If the material identified is a listed waste, the waste will be removed and transported by a licenced waste contractor and disposed of at a licenced waste facility specific to the contaminated material.</li> <li>• <b>If Asbestos is identified</b> - In the event that asbestos is found on site, an Asbestos Management Plan will be developed and implemented. Removal, transportation, disposal and remediation will be in accordance with the <i>Work Health and Safety (National Uniform Legislation) Regulations 2011</i>, the <i>Public and Environmental Health Act 2011</i>, the <i>Waste Management and Pollution Control Act 1998</i>, the associated Regulations, the <i>Code of Practice for the Safe Removal of Asbestos [NOHSC:2002(2005)]</i> and any other relevant guidelines/industry standards.</li> </ul>				

## 8.9 Weeds and Pest Management

Management actions	Targets / performance indicators	Monitoring	Corrective actions and contingencies	Reporting and record keeping
<ul style="list-style-type: none"> <li>• All declared weeds will be managed in accordance with the Weeds Management Act, and the Weed Management Plan attached at Appendix A</li> <li>• Identification of any declared weeds will be reported to the Weeds Branch in accordance with the NT Weeds Management Act</li> <li>• Weed treatment will be in accordance with the NT Weed Management Handbook.</li> <li>• Weed hygiene will be implemented to control movement of machinery, vehicles and personnel in a manner which avoids movement of weed plants, seeds or contaminated soil from infested areas into un-infested areas.</li> <li>• Machinery and equipment will arrive at and depart from the site in a clean condition, free of seed or mud, and pests, with inspection records kept</li> <li>• Waste and infrastructure being transported offsite will be inspected for weeds and pests prior to being transported.</li> </ul>	<ul style="list-style-type: none"> <li>• No new weed occurrences and no spread of existing weeds on site</li> <li>• All current weed infestations to be eradicated or controlled according to the Weed Management Plan</li> <li>• No weeds spread offsite on machinery or removed infrastructure</li> <li>• No pests attracted to site from waste</li> <li>• No pests transported offsite within infrastructure/scraping materials.</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out regular site monitoring within the care and maintenance program</li> <li>• Regular inspections of working areas for weeds</li> <li>• Regular inspections of working areas for pests, especially around waste storage areas.</li> </ul>	<ul style="list-style-type: none"> <li>• Review staff inductions and training</li> <li>• Review waste management actions</li> <li>• Review weed management actions.</li> </ul>	<ul style="list-style-type: none"> <li>• Weed records taken using the Weed Mate Application</li> <li>• Monitoring and management records.</li> </ul>

### 8.10 Fire Management

Management actions	Targets / performance indicators	Monitoring	Corrective actions and contingencies	Reporting and record keeping
<ul style="list-style-type: none"> <li>• No fires will be lit on site</li> <li>• Material will not be burnt on site</li> <li>• Water cart on standby during periods of high fire danger and/or any high risk work</li> <li>• If any fires are accidentally started, they will be extinguished immediately, as appropriate and safe to do so</li> <li>• Hot works such as welding not to be undertaken on days of total fire ban or high winds</li> <li>• Smokers use of appropriate disposal of cigarettes</li> <li>• Vehicles will be well maintained</li> <li>• Fire breaks installed on site as per requirements of the <i>Bushfires Management Act 2016</i>.</li> </ul>	<ul style="list-style-type: none"> <li>• No fires started on site.</li> </ul>	<ul style="list-style-type: none"> <li>• Daily inspections of working areas to ensure smokers are disposing of butts appropriately, and to ensure no hot works occur during total fire bans or high winds.</li> </ul>	<ul style="list-style-type: none"> <li>• Review staff inductions and training</li> <li>• Review management actions</li> <li>• Review fire break maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring and management records</li> <li>• Incident reporting records.</li> </ul>

### 8.11 Environmental Induction and Training

Management actions	Targets / performance indicators	Monitoring	Corrective actions and contingencies	Reporting and record keeping
<ul style="list-style-type: none"> <li>All site staff and contractors will be made aware of this MMP, any environmentally sensitive areas, any culturally significant areas, and their environmental responsibilities.</li> <li>Inductions will be compulsory prior to undertaking works on site.</li> </ul>	<ul style="list-style-type: none"> <li>No environmental incidents on site.</li> </ul>	<ul style="list-style-type: none"> <li>Regular inspections of working areas.</li> </ul>	<ul style="list-style-type: none"> <li>Review staff inductions and training</li> <li>Review management actions.</li> </ul>	<ul style="list-style-type: none"> <li>Inductions and training records</li> <li>Incident reporting records.</li> </ul>

### 8.12 Community Liaison

Management actions	Targets / performance indicators	Monitoring	Corrective actions and contingencies	Reporting and record keeping
<ul style="list-style-type: none"> <li>Complaints received will be recorded and attended to promptly. On receiving a complaint, works will be reviewed to determine whether issues relating to the complaint could be avoided or minimised, and works methods will be amended accordingly.</li> <li>A register of complaints will be kept by the Company that records: <ul style="list-style-type: none"> <li>Date and time of complaint</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>No complaints received.</li> </ul>	<ul style="list-style-type: none"> <li>Regular inspections of working areas.</li> </ul>	<ul style="list-style-type: none"> <li>Review staff inductions and training</li> <li>Review management actions.</li> </ul>	<ul style="list-style-type: none"> <li>Incident reporting records.</li> </ul>

<b>Management actions</b>	<b>Targets / performance indicators</b>	<b>Monitoring</b>	<b>Corrective actions and contingencies</b>	<b>Reporting and record keeping</b>
<ul style="list-style-type: none"> <li>• Method by which complaint was made (i.e. telephone, letter, meeting, etc.)</li> <li>• Name, address, contact telephone number of complainant</li> <li>• Details of the complaint</li> <li>• Action taken in response to the complaint, including follow up contact with the complainant</li> <li>• Any monitoring to confirm the complaint has been satisfactorily resolved</li> <li>• If no action was taken, the reason for no action being taken.</li> </ul>				

## 9 Contingency Planning

### 9.1 Environmental Emergency Response Training

The Project Manager is the contact person for all emergencies and environmental incidents. All incidents which cause or have the potential to cause material or serious environmental harm will be reported to DITT as required under Section 29 of the MM Act.

The details of the designated contact persons for emergencies and environmental incidents are included in Table 9-1 below. This includes contacts for reporting environmental incidents (including non-urgent problems such as dust/noise), heritage and Aboriginal cultural heritage incidents, and contacts for provision of advice.

**Table 9-1 Emergency contact details**

Contact	Contact Details
Project Manager	Andy Harrington 0474 299 626 aharrington@tennantmining.com.au
DITT Mining Operations	Darwin Office 08 8999 6528 mineral.info@nt.gov.au
Aboriginal Areas Protection Authority (AAPA)	Alice Springs Office 08 8951 5023 enquiries.aapa@nt.gov.au
Central Land Council (CLC)	Alice Springs Office 08 8951 6211 Mining.Admin@clc.org.au
Heritage Branch (Department of Territory Families, Housing and Communities)	Darwin Office 08 8999 5039 heritage.branch@nt.gov.au
NT Police/Fire/Ambulance	000
NT Fire Rescue Service	08 8999 3473
Tennant Creek Fire Station	08 8962 0903
St John Ambulance Tennant Creek	08 8963 2800
Tennant Creek Hospital	08 8962 4399
Royal Flying Doctor Service	1300 669 569
NT EPA Pollution Hotline	1800 064 567 pollution@nt.gov.au

## 9.2 Spill Response Procedure

In the event of any spill, the following procedure is to be implemented:

- Locate the source of the spill, identify the volume and type of spill;
- Assess the risk to workers and the environment from the spill to ensure appropriate PPE and containment measures are implemented;
- Control and contain the spill by isolating and/or removing the source;
- Clean the spill using spill kit absorbent material if practical, or installing bunds;
- Collect all contaminated material and dispose of contaminated spill control material, and/or contaminated materials to an appropriately licenced waste facility; and
- Report significant spills, or spills that entered a waterway to DITT via a Notification of an Environmental Incident form.

Appropriately stocked spill containment equipment kits will be available in all works areas. All personnel on site will be trained in the use of spill kits.

## 9.3 Incident Reporting

A register of incidents will be maintained during operations which will include details about the incident, how it occurred, where and when it occurred, physical actions taken to rectify, remediate or rehabilitate, and operational actions to avoid and address the future management of incidents of this type.

In the event of a serious accident or incident the DITT Chief Executive Officer will be notified of the occurrence as soon as practicable as required under Section 29 of the MM Act.

Where required, environmental accidents and incidents will be reported to DITT via a Notification of an Environmental Incident form as required under Section 29 of the MM Act. Any significant pollution events will also be reported to the NT EPA Pollution Hotline.

Reporting to DITT will be in accordance with Regulations 3 and 4 of the MM Act and any individual reporting requirements contained in any authorisation issued under the MM Act.

The procedure for reporting is:

- All incidents are to be reported to the Project Manager as soon as the incident is identified. Examples of reportable incidents include spills (chemicals and fuel), burst or leaking pipelines and excessive dust generation.
- The Project Manager will be responsible for onward reporting of qualifying incidents to



the DITT as soon as practicable, within 24 hours of discovery of the incident.

- Management of the incident will be in accordance with the steps described in the management plans, depending on the nature of the incident.
- An incident register will be maintained by the site Project Manager and will be produced for inspection if required. The incident will be investigated to determine causes and identify procedures to prevent recurrence.

#### 9.3.1 Process for Reporting Fauna Impacts

Any fauna that are injured or killed during Project activities should be promptly reported to the Project Manager as an environmental incident.

The procedure for reporting is:

- All fauna incidents are to be reported to the Project Manager as soon as the incident is identified.
- An incident register will be maintained by the site Project Manager and will be produced for inspection if required. The incident will be investigated to determine causes and identify procedures to prevent recurrence.

#### 9.3.2 Process for Reporting Cultural Heritage Impacts

If culturally sensitive artefacts or objects are found during the refurbishment and commissioning works, the operator shall immediately stop works in the immediate vicinity of the artefact or object and advise the Project Manager. The Project Manager shall establish an exclusion zone around the artefact or object until it has been inspected and/or removed by a person authorised by the Heritage Branch of the NT Government. The Project Manager is to report the discovery to the Heritage Branch, AAPA and CLC immediately upon becoming aware of the discovery.

#### 9.3.3 Process for Reporting to DITT

Incidents that qualify for onward reporting to DITT should be notified within 24 hours of discovery of the incident. In an event where an incident causes a breach of the conditions of the Environmental Authority for the Project, reporting must be conducted in accordance with the details of that specific condition.

DITT has produced a *pro forma* for the reporting of incidents under Section 29 of the *Mining Management Act*. This *pro forma*, or a bespoke incident reporting form containing the same information, should be used to report any incident to DITT.

#### 9.3.4 Process for Reporting Health and Safety Incidents

If a workplace health and safety incident has also been identified as a ‘*notifiable incident*’ as per Part 3 of the *Work Health and Safety (National Uniform Legislation) Act 2011* (WHS Act),

the Project Manager is responsible for ensuring that NT WorkSafe is notified immediately, as per Sections 35 to 39 of the Act. A ‘*notifiable incident*’ as outlined within the Act constitutes the following:

- The death of a person
- A ‘serious injury of illness’
- A ‘dangerous incident’.

The procedure for reporting is:

- The Project Manager on site is responsible for informing NT WorkSafe immediately via phone or email once they are aware of the incident. Written notification may also be requested within 48 hours of the incident.

NT WorkSafe has produced a pro forma for the reporting of Health and Safety Incidents under Sections 35 to 39 of the WHS Act. This pro forma, or a bespoke incident reporting form containing the same information, should be used to report any incident to NT WorkSafe.

- The Project Manager will alert the Chief Operations Officer of the incident as soon as they are aware of the incident.
- The Project Manager will need to ensure that the site of the incident is preserved until an NT WorkSafe inspector arrives or directs otherwise.

On-site procedures will ensure that all staff inform the Project Manager of any incidents or health and safety risks on site.

The Project Manager is responsible for maintaining a record of all potential health and safety risks (using *SkyTrust*) and updating these within the Risk Management Plan.

TCMG acknowledges that effective mitigation of health and safety risks can help to mitigate potential environmental risks for the life of operations of the Project.

## 10 Closure Planning

The Project occurs wholly within ML30888, which is an amalgamation of historical leases associated with the former Warrego mine and ore treatment plant. The site was previously cleared of native vegetation and topsoil prior to the commencement of the historical mining and ore processing operations.

The Project will not be creating any new areas of site disturbance. All activities will be carried out on and within existing highly disturbed areas within ML30888. Given the extensive history of disturbance of the site, the proposed rehabilitation of the site will improve the environmental condition of the site by removing waste, scrap, and legacy mining infrastructure. Upon completion of the proposed rehabilitation activities, the Cleanup Area will be made safe, stable, and non-polluting, which will be an improvement of the safety and environmental condition of the site compared to its current condition.

Further land use planning will depend on the outcomes of the exploration and mineral development program currently being carried out by TCMG on ML30888. If reinstatement of mining is deemed feasible, this will be the preferred option for continued land use, which will be the subject of a subsequent MMP amendment.

### *10.1 Planned Closure Strategy*

#### 10.1.1 Expected Disturbance Areas

The scope of the proposed activities within this MMP represent rehabilitation of the site, and do not consist of any new disturbance areas or activities.

#### 10.1.2 Completion Criteria

Completion criteria are important to ensure that a clear definition of successful rehabilitation is established. Completion criteria for the proposed Cleanup Area following rehabilitation activities are for the land to be:

- safe to humans and wildlife;
- non-polluting;
- stable; and
- able to sustain an agreed end land use.

#### 10.1.3 End Land Use

In developing criteria for the end land use, a hierarchal approach is proposed, as follows:

1. Reinstatement mining use of the site.
2. Leave the site in a safe, stable, non-polluting condition.

The end land use will be determined based on the results of the exploration and mineral development program, and subsequent forward Project planning. The completion criteria will be achieved at the conclusion of the proposed scrapping and cleanup works, to maintain a safe, stable, non-polluting site within the Cleanup Area.

It is proposed that the care and maintenance program then continue while Project planning is progressed.

If mining of the deposits currently under development is deemed feasible by TCMG, it is proposed that the land use becomes reinstatement of mining at the site, in accordance with the first tier of the above land use hierarchy.

If mining is not deemed to be feasible by TCMG, the Cleanup Area will be left in a safe, stable, non-polluting condition, in accordance with the second tier of the above land use hierarchy, which will represent improved site safety, and improved environmental condition, compared to its current condition.

A rehabilitation register will be maintained summarising the rehabilitation status of all areas, and will be reported upon within subsequent annual reports, MMP amendments, and/or monitoring and closure reports.

### *10.2 Unplanned Closure Strategy*

In the event of an unplanned closure, operations will cease and all equipment and mobile infrastructure, fuels, and chemicals will be removed from site.

In the event the site is placed in to care and maintenance, environmental monitoring will continue to take place at the frequency nominated in Table 5-1 of this MMP.

Drainage, erosion and sediment control infrastructure will be inspected on a routine basis for integrity, and the entire site will be inspected monthly to ensure there is no risk of ongoing environmental harm.

Should the site be nominated for closure, the planned closure strategy will be implemented.

### *10.3 Financial Provisions for Rehabilitation*

In accordance with Section 43 of the MM Act, TCMG is required to submit a security bond to the NT Government to prevent or minimise environmental harm caused by the activities, specifically for the completion of rehabilitation should the holder of the mining lease and MMP be unable to complete the required works in accordance with this MMP.

Section 43A of the Mining Management Act specifies that the Minister will calculate the required amount of security to be provided to the Northern Territory Government. Once the security bond is set, the amount will be reviewed in conjunction with the Government to ensure it remains consistent with the level of disturbance caused by the Project at any specific time.

The scope of proposed works within this MMP consists of rehabilitation works, and do not represent any new disturbance activities or areas. [REDACTED]

[REDACTED] t such time that mining or any other disturbance activities are proposed on site, a new security calculation will be made and submitted accordingly.

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## Appendix A. Weed Management Plan for Warrego



# Weed Management Plan

## Warrego Project

Tennant Consolidated Mining Group





# DOCUMENT CONTROL RECORD

<b>Job</b>	EZ21152
<b>Document ID</b>	206713-34
<b>Author</b>	Jose F. C. Wenceslau

## DOCUMENT HISTORY

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3	Ray Hall	Ray Hall	Client	04/02/2022

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EcOz Pty Ltd.  
ABN: 81 143 989 039  
Level 1, 70 Cavenagh Street  
DARWIN NT 0800  
GPO Box 381, Darwin NT 0800

Telephone: +61 8 8981 1100  
Email: [ecoz@ecoz.com.au](mailto:ecoz@ecoz.com.au)  
Internet: [www.ecoz.com.au](http://www.ecoz.com.au)



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## Appendices

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# 1 INTRODUCTION

---

Tennant Consolidated Mining Group (TCMG) owns and operates gold and copper exploration on ML30888 known as, Warrego Project, located at Warrego Road, 50 km northwest of Tennant Creek, Northern Territory. The site is in care and maintenance. EcOz were engaged to prepare a weed management plan – this document – to fulfil commitments under the *Mining Management Act 2001* (MM Act).

## 1.1 Scope & objectives

The scope of this weed management plan is to outline the weed management measures that will be implemented to prevent the introduction and spread of weeds during activities at the site

The objectives of this weed management plan are to:

- Comply with all applicable legislation, regulations, conditions and regional weed management plans.
- Address the specific weed management requirements of station owners.
- Provide controls for all project activities to avoid introducing new weed species into the project area.
- Avoid or control the spread of existing weed species into new areas within the project area.
- Detail the monitoring, reporting and incident response procedures appropriate for the management measures.

The weed management plan is applicable to all activities associated with the site, and will be used by all personnel (including contractors) involved in project activities.

## 1.2 Site Manager

Warrego Project has a dedicated site manager, whose contact details are the following:

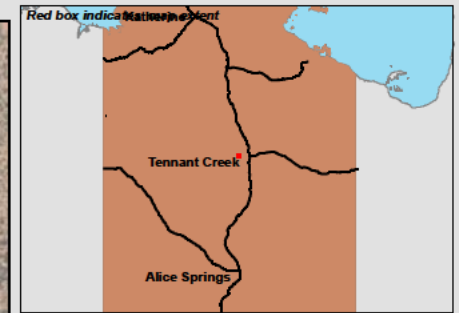
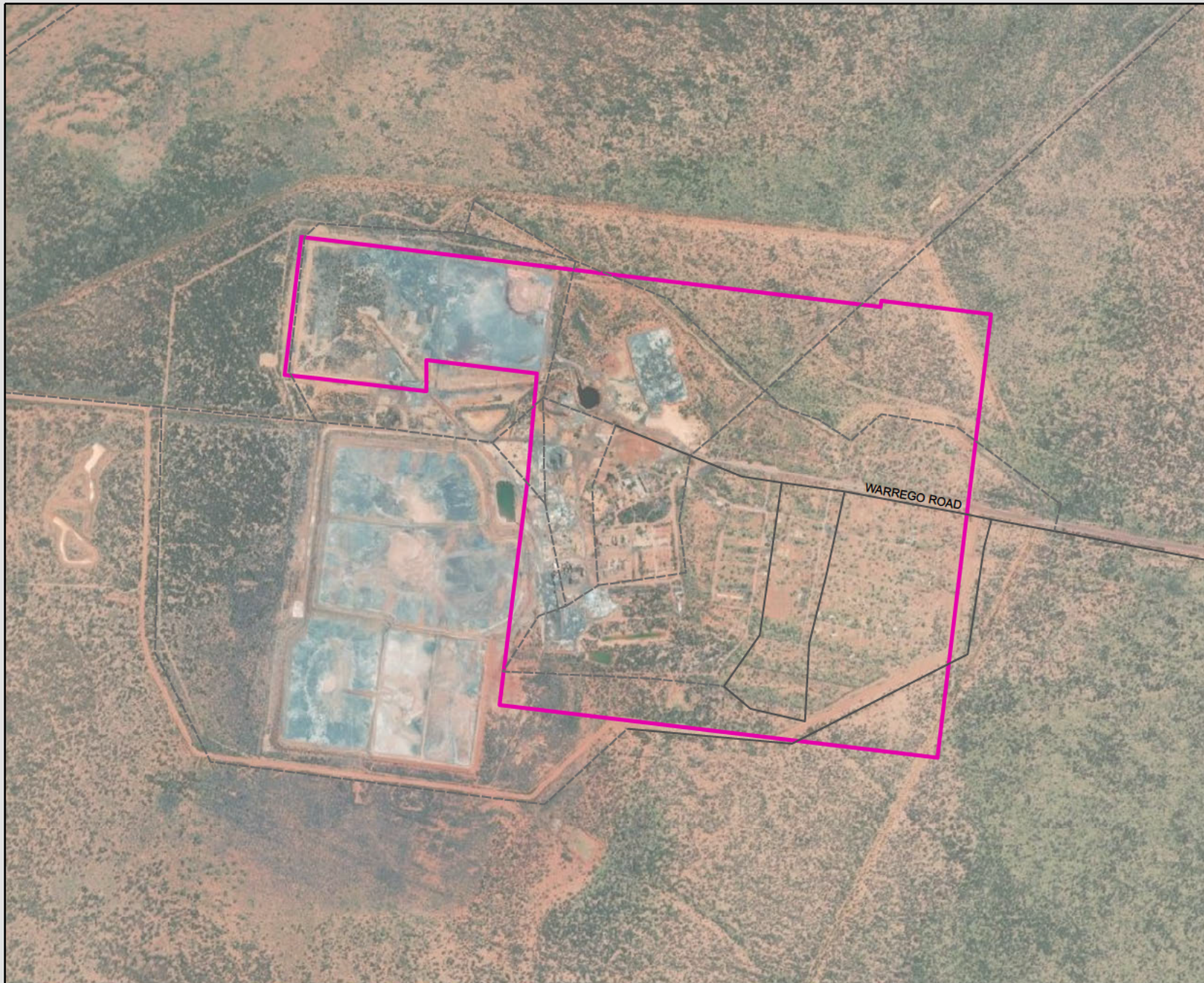
Justin Hankinson, Warrego Site Manager, Tel: 08 8962 0000, Email: [justin.hankinson@barkly.nt.gov.au](mailto:justin.hankinson@barkly.nt.gov.au)

## 2 PROJECT AREA

---

### 2.1 Project components

The former Warrego mine and mill infrastructure area has been in care and maintenance for many years and is the area of interest for this weed management plan.



**Legend**

- Minor road
- - - Track
- █ ML30888



0 0.1 0.2 0.4

Kilometres



**MAP INFORMATION**  
 Scale: 1:20,000 @ A4  
 Projection: GDA 1994 MGA Zone 52  
 Date Saved: 13/10/2021  
 Client: Tennant Consolidated Mining Group  
 Mapper: JW  
**DATA SOURCE**  
 Topographic data: Geoscience Aust.  
 Project data: TCMG  
 Imagery: Landsat

EcOz makes every effort to ensure this map is free of errors but does not warrant the map or its features as either spatially or temporally accurate or fit for a particular use.

**Figure 2-1. Location Map**

## 3 LEGAL REQUIREMENTS

---

The following legislation, statutory obligations and guidelines were considered during the preparation of this weed management plan.

### 3.1.1 Minerals Laws and Regulations

The MM Act requires submission of a Mining Management Plan (MMP) for approval, prior to any mining activity (including exploration or operational activities) taking place. This weed management plan represents a component of the 2021 MMP, as required by the regulations.

### 3.1.2 Weeds Management Act

This NT Act aims to:

*Protect the Territory's economy, community, industry and environment from the adverse impact of weeds*

It declares undesirable species of plants as weeds, and requires these species to be controlled, eradicated or prevented from entering the NT, depending on their classification. Under that Act, weeds are classified into one of three classes:

- Class A declared weed – to be eradicated
- Class B declared weed – growth and spread to be controlled
- Class C declared weed – not to be introduced into the NT (all Class A and B weeds are also Class C)

The Act specifies how weeds in each of the classes must be treated. Weed management plans for specific weeds are endorsed under this Act. The Commonwealth government has also categorised some species as Weeds of National Significance (WoNS).

### 3.1.3 Management plans and guidelines

#### ***Statutory Weed Management Plans***

These plans are legal documents containing specific information about management requirements for certain high priority weeds. Section 5 lists weeds that are present or have the potential for introduction onto Warrego Project site, and notes those with an associated statutory weed management plan.

#### ***Guidelines and standards***

The following guidelines associated with the management of weeds in the NT have also been considered during the preparation of this WMP:

- *Northern Territory Weed Management Handbook* (Weed Management Branch, 2018)
- *Northern Territory Weed Data Collection Manual* (Weed Management Branch, 2015)
- *Tennant Creek Regional Weeds Strategy (2021-2026)*. (DEPWS, 2021)

## 4 WEED RISK MITIGATION MEASURES

The MMP risk assessment process identified the weed introduction and/or spread risks associated with the scope of this project. Table 4-1 documents these risks, as well as the mitigation measures that will be implemented for their reduction.

**Table 4-1. Weed risk and mitigation measures**

Weed risk	Mitigation measures	Measurement criteria	Responsible person
Introduction of new weed species to Warrego Project site from plant and vehicles.	All vehicles / machinery /equipment entering the EP to be cleaned and free of soil and vegetative matter, and have a valid weed hygiene declaration	A register of vehicle / equipment / machinery inspection is kept. <sup>1</sup> Spot checks on vehicle / equipment / machinery to ensure inspections are completed correctly	TCMG Dedicated Weed Officer
	Site environmental inductions for all personnel and contractors to include vehicle weed hygiene requirements	All project staff undertake an environmental induction, to be recorded in the TCMG Training Register	TCMG Dedicated Weed Officer
Weed spread in Warrego Project site resulting from vehicles/plant traversing existing weed infestations	All infestations of declared weeds are mapped; all personnel and contractors made aware of existing infestation locations and trained in the identification of existing weeds	All project staff undertake an environmental induction, to be recorded in the TCMG Training Register Weed maps and factsheets included as part of environmental induction All operational staff to attend weed identification training delivered by the NT Weed Management Branch	TCMG Dedicated Weed Officer
	All vehicles, machinery and equipment to stay on formed access tracks, except for those involved in clearing	All vehicle movements tracked via in-vehicle management systems or similar	TCMG Dedicated Weed Officer
	If infestations are identified during the 2020 program, they will be demarcated and avoided, where possible, via a detour around the infestation	Maintain demarcation during operations and inspect (and rectify if needed) daily	TCMG Field Representative
	If infestations cannot be avoided, treat prior to traversing using methods set out in Table 6-1.	Work plan to reflect additional tasks required	
	Vehicles/plant to be cleaned and free of soil and vegetative matter prior to	Spot checks on vehicle / equipment / machinery to ensure inspections are	TCMG Field Representative / TCMG Dedicated

Weed risk	Mitigation measures	Measurement criteria	Responsible person
	moving beyond infestation	completed correctly	Weed Officer
Existing weed distribution not fully known due to survey conducted outside of prime growth period	Further monitoring to be undertaken, as set out in Section 7 of this document	Annual reporting against this WMP, as per Section 7.3	TCMG Dedicated Weed Officer



## 5 WEED SPECIES

Warrego Project site has been systematically surveyed by the Barkly Weeds Office of the DEPWS Weed Management Branch. The last survey was performed on the 15 of July 2019 by Nathanael Mills, the Weeds Officer of the Barkly Regional Council, and Justin Hankinson, as the Health & Safety Officer of the Barkly Regional Council. Surveys focused on the former campsite and rehabilitated areas.

The diversity of weeds observed within the areas targeted for survey was low, with records of only four declared weed species. The Fulgida rope cactus (*Cylindropuntia fulgida*) was the most abundant weed recorded, corresponding to 56% of the records, all occurring on the former campsite area. There were also six records of prickly pears (*Opuntia* sp.) and one Parkinsonia (*Parkinsonia aculeata*) in the former campsite area and six Rubber bush (*Calotropis procera*) recorded in the rehabilitated areas.

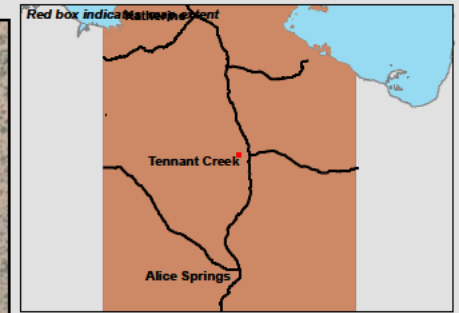
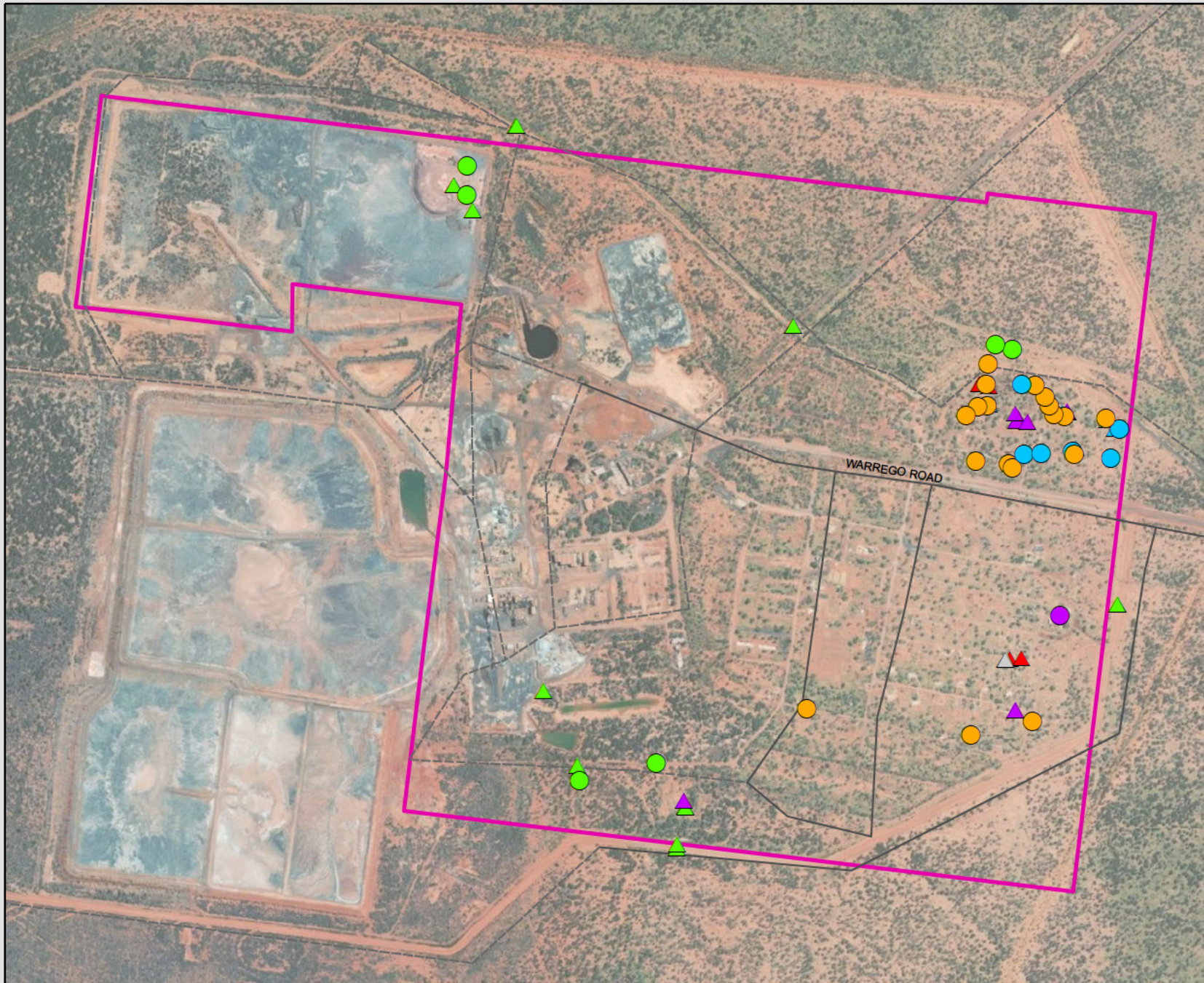
**Table 5-1. Declared weed species recorded on Warrego Project site**

Common name	Scientific name	Weeds of National Significance	NT Class	Status in the Tennant Creek Regional Strategy	Occurs in the Project area
Fulgida rope cactus	<i>Cylindropuntia fulgida</i>	Y	A/C	Eradication	Y
Prickly pears	<i>Opuntia</i> sp.	Y	A/C	Eradication	Y
Parkinsonia	<i>Parkinsonia aculeata</i>	Y	B/C	Strategic Control	Y
Rubber Bush	<i>Calotropis procera</i>	-	B/C	Strategic Control	Y

A desktop search through NR Maps was performed on 29 July 2021 to investigate historical records of all weed species within 50 km from Warrego Project site. These records are a compilation of past surveys as late as 2014 and provide insights of other weed species with the potential to also occur in the project area. These are listed in Table 5-2.

**Table 5-2. Other weeds recorded within 50 km from Warrego Project site**

Common name	Botanical name	Weeds of National Significance	NT Class	Status in the Tennant Creek Regional Strategy
Rope cactus species	<i>Austrocylindropuntia</i> spp., <i>Cylindropuntia</i> spp.	Y	A	Eradication
Bellyache bush	<i>Jatropha gossypifolia</i>	Y	A	Eradication
Prickly Acacia	<i>Vachellia nilotica</i> (previously <i>Acacia nilotica</i> )	Y	A	Eradication
Athel pine	<i>Tamarix aphylla</i>	Y	A	Strategic Control
Parthenium	<i>Parthenium hysterophorus</i>	Y	A	Alert Weed
Star burr	<i>Acanthospermum hispidum</i>	Y	B	-
Neem	<i>Azadirachta indica</i>	-	B	Strategic Control
Hyptis	<i>Hyptis suaveolens</i>	-	B	Contain Regional Spread
Khaki weed	<i>Alternanthera pungens</i>	-	B	Assist Interested Parties
Mossman River grass	<i>Cenchrus echinatus</i>	-	B	Weed of Concern
Buffel grass	<i>Cenchrus ciliaris</i>	-	-	Weed of Concern



**Legend**

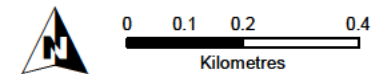
- Minor road
- Track
- ▭ ML30888

**2019 Weed Records**

- Parkinsonia
- Prickly pears
- Rubber bush
- Rope cactus - fulgida

**Historical Weed Records**

- ▲ Parkinsonia
- ▲ Prickly pears
- ▲ Rubber bush
- ▲ Athel pine
- ▲ Bellyache bush



**MAP INFORMATION**  
 Scale: 1:13,083 @ A4  
 Projection: GDA 1994 MGA Zone 52  
 Date Saved: 13/10/2021  
 Client: Tennant Consolidated Mining Group  
 Mapper: JW  
**DATA SOURCE**  
 Topographic data: Geoscience Aust.  
 Project data: DEPWS  
 Imagery: Landsat



EcOz makes every effort to ensure this map is free of errors but does not warrant the map or its features as either spatially or temporally accurate or fit for a particular use.

**Figure 5-2. Map of weed occurrences within or adjacent to the project area**

## 6 ANNUAL ACTION PLAN

The annual action plan in Table 6-1 details the survey and control activities for weeds recorded within Warrego Project site. Treatment suggestions are based on the *NT Weed Management Handbook* (Weed Management Branch, 2018).

**Table 6-1. Annual action plan**

Weed species	Management objective	Survey / monitoring time/s	Treatment time/s	Herbicide	Rate	Weed growth stage, method, and comments
Rope Cactus & Prickly Pears	Eradicate	Year round	Year round	Triclopyr 600 g/L	800 mL / 60 L (diesel)	Seedlings, juvenile, adults (individuals or infestations): Foliar spray entire plant surface, ensuring all plant surfaces are completely covered with spray-mix to the point of runoff. Avoid spraying plants that appear stressed.
				Triclopyr 240 g/L + Picloram 120 g/L	1 L / 60 L (diesel)	
Parkinsonia	No spread	End of wet season – March	March to May	Aminopyralid 8 g/L + Triclopyr 300 g/L + Picloram 100 g/L	350 mL / 100 L or 3 L / ha	Seedling (individuals and infestation): Foliar spray of plants up to 2 m or 2 years old. Uptake Spraying Oil required. Avoid spraying if plants are stressed or bearing pods
				Triclopyr 240 g/L + Picloram 120 g/L	1 L / 60 L (diesel)	Seedling or adult (individuals or infestation): Basal bark < 5 cm stem diameter Cut stump > 5 cm stem diameter
				Tebuthiuron 200 g/kg	1.5 g / m <sup>2</sup>	Seedling or adult (individuals or infestation): Granulated herbicide - ground applied Do not use within 30 m of desirable trees or apply to continuous area > 0.5 ha. Do not use if fire is eminent. Apply when there is soil moisture or prior to rain
Rubber Bush	No spread	Wet season – October to March	Wet and early dry season – October to June	Triclopyr 300 g/L + Picloram 100 g/L + Aminopyralid 8 g/L	750 mL / 100 L (water)  500-750mL / 100 L (water)	Seedling (individuals or infestation): Foliar spray. Check label for recommended adjuvant product.
				Triclopyr 240 g/L +	1 L / 60 L (diesel)	

Weed species	Management objective	Survey / monitoring time/s	Treatment time/s	Herbicide	Rate	Weed growth stage, method, and comments
				Picloram 120 g/L	1 L / 10 L (diesel) 1 L / 60 L (diesel)	stem diameter. Spray all stems. Spray to point of runoff. Thin Line up to 5cm stem diameter Cut stump > 5cm stem diameter
				Tebuthiuron (200g/kg)	1.5-2g/m <sup>2</sup>	Seedling or adult: Application to black clay soils in conjunction with seasonal rainfall. Spread granules according to density of the infestation.
				Fluroxypyr (333g/L)	3 L / 100 L (diesel)	Adult: Cut stump method for plants up to 10cm diameter and 3m high.
Weed Free Areas	Prevent the introduction of weeds	Year round	Immediately if weeds are found	<i>Treatment will depend on the weed species</i>		

## 7 WEED MONITORING

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The requirements for weed monitoring within each component of the project area are outlined above in Section 6. Additional to the survey / monitoring times listed in Table 6-1, monitoring for weed incursions will be ongoing during operations, as all operational staff will have a responsibility to report new weed incursions to TCMG's dedicated weed officer. Should new weed incursions be identified during monitoring, control will be undertaken during recommended treatment times, and follow-up surveys will be within three months to ensure effective eradication of the incursions.

Annual weed monitoring should take place across the entire Warrego site and be targeted to a time when seasonal and rainfall conditions are likely to have resulted in recent growth.

### 7.1 Notification procedure

All new weed incursions will be reported to the NT Weed Management Branch by TCMG's site manager. Initial notification will be verbal, followed by written notification of preliminary species identification and location within seven working days.

### 7.2 Recording

All weed monitoring and survey activities will be recorded in accordance with *the NT Weed Data Collection Guidelines* available at: <https://nt.gov.au/environment/weeds/weed-mapping-and-data-sharing>.

The following attributes of any new weed infestations will be recorded into a GPS-enabled device:

- Site ID
- Weed name
- ID confidence
- Date of record
- Coordinate information
- Recorder / organisation
- Infestation size
  - 5 m diameter
  - 20 m diameter
  - 50 m diameter
  - 100 m diameter
- Infestation density
  - 1 = Absent, no weeds of this species in the area
  - 2 = < 1%; very few, not many weeds
  - 3 = 1 – 10%; more than one or two isolate plants
  - 4 = 11 – 50%; Many plants, covering up to half the area
  - 5 = > 50%; Weed forms the dominant cover

Weed data will be submitted as an Excel spreadsheet to the Weeds Management Branch (refer to Appendix A for an example template).

### 7.3 Reporting

TCMG's weed management officer will submit annual reporting against this WMP as a component of the MMP environmental reporting requirements. This will include

- Details of activities implemented to address weed spread and introduction risks
- Submission of all weed data collected
- Details of survey and monitoring events, including dates, personnel, maps and track data
- An overview of weed control events and success rates.

This annual report will be submitted for review to the Department of Industry Tourism and Trade – Mines Division.

## 8 REFERENCES

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Department of Environment, Parks and Water Security (DEPWS) (2021). *Tennant Creek Regional Weeds Strategy (2021-2026)*. Darwin, Northern Territory.

Weed Management Branch (2018) *Northern Territory Weed Management Handbook*, Department of Environment and Natural Resources, Northern Territory Government, Palmerston NT.

Weed Management Branch (2015). *Northern Territory Weed Data Collection Manual*, Department of Environment and Natural Resources, Northern Territory Government, Palmerston NT.

## APPENDIX A WEED CONTROL RECORDING TEMPLATE

Weed Branch data entry sheet\_Feb19 - Excel

File Home Insert Page Layout Formulas Data Review View Foxit PDF M-Files Acrobat VBM Tell me what you want to do... Felicity Watt Share

Paste Clipboard Font Alignment Number Styles Cells Editing

1	RECORDER:				PROJECT:				LOCALITY:						
2	ORG_NAME:				GPS NAME/MODEL:				RECORDING METHOD:						
3	SITE_ID	DATE_REC	LAT_G84	LONG_G84	WEED_NAME	SIZE_DIA_M	DENS_CAT	SEEDLINGS	JUVENILES	ADULTS	SEED_PRES	PAST_TREAT	TREATMENT	HERBICIDE	COMMENTS
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## EcOz Environmental Consultants

**EcOz Pty Ltd.**  
ABN 81 143 989 039

Level 1, 70 Cavenagh St,  
GPO Box 381,  
Darwin, NT 0801

T: +61 8 8981 1100  
E: [ecoz@ecoz.com.au](mailto:ecoz@ecoz.com.au)

[www.ecoz.com.au](http://www.ecoz.com.au)



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## Appendix B. Risk Assessment for Warrego Amendment 1

Theme	Environmental Factor/Value	Hazard/Aspect	Incident/event	Possible impact	L*	C*	IR*		Mitigation measures	L*	C*	RR*	
LAND	Terrestrial Environmental Quality	Erosion	Exposed soils	Soil erosion due to increased runoff from cleared areas.	C	2	Moderate Risk (8)	8	Development and implementation of an Erosion and Sediment Control Plan (ESCP) This plan will be developed in accordance with the <i>International Erosion Control Association Australasia (2008) - Best Practice Erosion and Sediment Control (BPESC)</i> .	B	1	Low Risk (2)	2
LAND	Terrestrial Environmental Quality	Clearing vegetation / ground disturbance	Clearing regrowth vegetation around infrastructure areas and along access tracks	Reduction of vegetation type. Reduction of habitat availability for fauna.	B	1	Low Risk (2)	2	Very little habitat value remains within these areas.	A	1	Low Risk (1)	1
LAND	Terrestrial Environmental Quality	Traffic	Fauna strike	Native fauna death or injury due to vehicle interaction	C	2	Moderate Risk (8)	8	Enforce speed limits on site roads and tracks. Incident report to be completed for all fauna injuries or deaths.	B	2	Low Risk (5)	5
LAND	Terrestrial Environmental Quality	Contaminated soil	Disturbance of contaminated material when removing infrastructure	Contamination of soils from hazardous materials	D	2	Moderate Risk (12)	12	<b>If contaminants are identified</b> - In the event that any material that has the potential of being a contaminant (e.g. dumped waste, stained soil, asbestos), is identified prior to undertaking works, or uncovered during operations the following procedure will be implemented: <ul style="list-style-type: none"> <li>• Stop work in the area where any unexpected contaminated material is identified</li> <li>• Specialists will be engaged as necessary to advise and/or oversee the removal of contaminated material.</li> <li>• The removal of the material will be conducted in accordance with relevant legislation (depending on what material is identified e.g. a licenced asbestos removal contractor)</li> <li>• If the material is identified as a listed waste, the waste will be removed and transported by a licenced waste contractor and disposed of at a licenced waste facility specific to the contaminated material.</li> </ul> <b>If Asbestos is identified</b> - In the event that asbestos is found on site, an Asbestos Management Plan will be developed and implemented. Removal, transportation, disposal and remediation will be in accordance with the <i>Work Health and Safety (National Uniform Legislation) Regulations 2011</i> , the <i>Public and Environmental Health Act 2011</i> , the <i>Waste Management and Pollution Control Act 1998</i> , the associated Regulations, the <i>Code of Practice for the Safe Removal of Asbestos</i> [NOHSC:2002(2005)], and any other relevant guidelines/industry standards.	B	2	Low Risk (5)	5
LAND	Terrestrial Environmental Quality	Storage and handling of hazardous materials	Leaks and spills from existing contaminants stored on site (e.g. oil drums)	Contamination of soil from hazardous materials	D	2	Moderate Risk (12)	12	Storage and handling of hazardous materials will be developed as part of the site EMP. Fuel and flammable chemicals will be stored and handled in accordance with <i>AS 1940-2004</i> . Fit for purpose spill kits to be positioned at refuelling and storage areas. All personnel on site will be trained in use of spill kits, in the event of a spill.	B	2	Low Risk (5)	5
LAND	Terrestrial Environmental Quality	Storage and handling of hazardous materials	Leaks and spills from vehicles and machinery operating on site	Contamination of soil from hydrocarbons	C	2	Moderate Risk (8)	8	Storage and handling of hazardous materials will be developed as part of the site EMP. Fuel and flammable chemicals will be stored and handled in accordance with <i>AS 1940-2004</i> . Fit for purpose spill kits to be positioned at refuelling and storage areas. All personnel on site will be trained in use of spill kits, in the event of a spill.	B	1	Low Risk (2)	2
LAND	Terrestrial Ecosystems	Weeds	Weed introduction and spread through machinery and material movement	Reduced habitat quality on and off-site due to competition with native plant species	D	2	Moderate Risk (12)	12	Weed mitigation measures will be implemented according to the MMP and Weed Management Plan.  Mitigation measures will include the following: <ul style="list-style-type: none"> <li>• All machinery and equipment to be certified weed free by a suitably qualified person prior to arrival at site.</li> <li>• Control of declared weeds on-site as per the NT Weeds Management Act.</li> <li>• All weeds removed will be and disposed of appropriately to ensure no further spread of weeds.</li> <li>• Identification of any declared weed will be reported to the Weeds Branch in accordance with the NT Weeds Management Act.</li> </ul>	B	2	Low Risk (5)	5
LAND	Terrestrial Ecosystems	Pests	Introduction of pest animals by machinery and equipment	Reduced habitat quality and competition with native species	C	2	Moderate Risk (8)	8	Visual inspection of machinery and equipment will be undertaken prior to arrival and departure from site.	B	2	Low Risk (5)	5
LAND	Terrestrial Ecosystems	Pests	Increase of pest species such as rats, cats and dogs at site during operations	Reduced habitat quality and competition with native species	B	2	Low Risk (5)	5	Any putrescible waste will be correctly managed under the EMP and stored onsite in contained bins, and disposed of offsite within licenced waste facilities.	B	2	Low Risk (5)	5
LAND	Terrestrial Ecosystems	Noise	Noise emissions from machinery and equipment	Reduced habitat quality for fauna due to noise disturbance	B	2	Low Risk (5)	5	No sensitive habitats in proximity to site (i.e. wetlands, roost sites). Machinery and equipment will be maintained.	A	1	Low Risk (1)	1
LAND	Terrestrial Ecosystems	Dust	Dust emissions caused by operation of machinery and equipment	Reduced habitat quality due to smothering of plants	C	2	Moderate Risk (8)	8	Dust controls will be implemented on site including use of a water cart for dust suppression, minimising tip heights, and fill heights of trucks during removal and transport of stockpile material. No sensitive habitats in proximity to site (i.e. wetlands, roost sites), and little native vegetation present on site within proximity to the proposed works.	B	1	Low Risk (2)	2
LAND	Terrestrial Ecosystems	Bushfire	Uncontrolled bushfire caused by operation of equipment, lighting fires, discarded cigarette.	Change of vegetation community due to changes in fire frequency.	B	3	Moderate Risk (9)	9	The bushfires will be managed in accordance with the Bushfires Management Act 2016 and will be incorporated into the EMP. The EMP will include: <ul style="list-style-type: none"> <li>• No fires will be lit on site</li> <li>• Material will not be burnt on site</li> <li>• Water cart on standby during periods of high fire danger and/or any high risk work</li> <li>• If any fires are accidentally started, they will be extinguished immediately, as appropriate and safe to do so</li> <li>• Hot works such as welding not to be undertaken on days of total fire ban or high winds</li> <li>• Smokers use of appropriate disposal of cigarettes</li> <li>• Vehicles will be well maintained</li> <li>• Fire breaks installed on site as per requirements of the Bushfires Management Act 2016.</li> </ul>	B	2	Low Risk (5)	5
WATER	Inland Water Environmental Quality	Storage and handling of hazardous materials	Leaks and spills from existing contaminants stored on site (e.g. oil drums) entering surface or groundwater	Contamination of downstream surface waterways or groundwater from hazardous materials	B	3	Moderate Risk (9)	9	Storage and use of fuel and any other hazardous materials will be stored and handled in accordance with AS1940 and WHS Regulations Fit for purpose spill kits located on site in re fuelling areas and areas where hazardous substances are stored. All workers to be trained in use of spill kits.	A	2	Low Risk (3)	3
WATER	Inland Water Environmental Quality	Storage and handling of hazardous materials	Leaks and spills from vehicles and machinery operating on site entering surface or groundwater	Contamination of downstream surface waterways or groundwater from hydrocarbons	B	2	Low Risk (5)	5	Vehicles will be maintained. Spill trays will be used during any maintenance works performed on site. Fuel storage and handling in designated areas and accordance with AS1940 and WHS Regulations. Fit for purpose spill kits located on site in re fuelling areas and areas where hazardous substances are stored. All workers to be trained in use of spill kits.	B	1	Low Risk (2)	2
WATER	Inland Water Environmental Quality	Erosion	Erosion of site due to disturbance and exposure of ground surface during and following removal of infrastructure.	Increased turbidity and sediment loads in ephemeral watercourses	B	2	Low Risk (5)	5	Undertake daily visual monitoring during all infrastructure removal works. Implement temporary drainage controls if erosion is evident during works.	A	2	Low Risk (3)	3

WATER	Aquatic ecosystems	Contaminated water (surface and groundwater)	Increased nutrients or contaminants in surface water and groundwater from sedimentation discharge from site	Decrease in aquatic ecosystems health downstream of site	B	2	Low Risk (5)	5	Undertake daily visual monitoring during all infrastructure removal works. Implement temporary drainage controls if erosion is evident during works. Contain and remove from site any stored or disturbed hazardous materials encountered during removal of infrastructure.	A	2	Low Risk (3)	3
WATER	Inland water environmental quality	Contaminated water (surface and groundwater)	Leaks from temporary ablutions into groundwater or surface water	Bacterial contamination of groundwater or surface water affects environmental values and/or other users	B	2	Low Risk (5)	5	Spill response procedures in EMP Waste water system to be installed and maintained as per manufacturers specifications. On-site waste water system will be installed by a licensed plumber in accordance with NT Code of Practice for onsite wastewater management. Approval for wastewater treatment system under the Building Act prior to installation	B	1	Low Risk (2)	2
AIR	Air Quality	Dust	Dust emissions from cleared/disturbed ground and movement of vehicles and material	Increase in air particulates exceeding guidelines values for environmental values	D	2	Moderate Risk (12)	12	Dust will be managed through the Site EMP. Mitigation measures include: Dust suppression using water carts where required during works. Any stockpiles will be covered and kept to heights <3m. Maintain a complaints register. Dust levels will be visually monitored on site during operations, if dust becomes an issue, the frequency of water carts will be increased.	B	2	Low Risk (5)	5
AIR	Air Quality	Bushfire	Smoke emissions from uncontrolled bushfire caused from operation of equipment, lighting fires or discarding cigarette	Increase in air particulates exceeding guidelines values for environmental values (Potential implications include - suffocation of sensitive vegetation - increased fire potential)	C	2	Moderate Risk (8)	8	The bushfires will be managed in accordance with the Bushfires Management Act 2016 and will be incorporated into the EMP. The EMP will include: Fire breaks installed where required Fire emergency response training and plans to be implemented No fires allowed on site. Hot works such as welding not to be undertaken on days of total fire ban or high winds. Smokers appropriate disposal of cigarettes Vehicles maintained Cleared material will not be burnt on site.	B	2	Low Risk (5)	5
AIR	Atmospheric processes	Greenhouse Gas emissions	GHG emissions from use of diesel powered vehicles and generators	Increase in GHG	D	1	Low Risk (7)	7	Greenhouse gas emission from that activity will be on par with any small, short-term construction project. Vehicles and machinery will be kept in good running order i.e. not producing plumes of black smoke and not operating efficiently.	D	1	Low Risk (7)	7
PEOPLE	Communities and economy	Noise	Noise emissions	Noise nuisance to surrounding land users	A	2	Low Risk (3)	3	Machinery maintained to manufacturers specifications . All vehicles and machinery will be fitted with noise attenuating reverse alarms. Noise complaint register to be established pre-construction. Records of noise complaints to be kept and investigation actions undertaken after a complaint is made.	A	1	Low Risk (1)	1
PEOPLE	Communities and economy	Dust	Dust emissions result in exceedance of air quality (particulates) guidelines	Dust nuisance on people accessing areas around proposal area.	D	2	Moderate Risk (12)	12	Dust will be managed through the Site EMP. Mitigation measures include: Dust suppression using water carts where required during works. Any stockpiles will be covered and kept to heights <3m. Maintain a complaints register. Dust levels will be visually monitored on site during operations, if dust becomes an issue, the frequency of water carts will be increased.	B	2	Low Risk (5)	5
PEOPLE	Culture and Heritage	Clearing vegetation / ground disturbance	Disturbance of ground	Damage, desecration or destruction of Aboriginal sacred sites	A	4	Moderate Risk (10)	10	Sacred site clearances will be obtained prior to undertaking any works. All conditions of heritage approvals will be adhered to. A stop works will be implemented if artefacts are located during activities on site. The Project Manager will be notified immediately, who will then liaise with the NT Heritage Branch, for further instructions.	A	3	Low Risk (6)	6

Qualitative measures of likelihood categories		
A	Rare	Highly unlikely, will only occur in exceptional circumstances. Has never occurred in association with an development in the region.
B	Unlikely	Could occur at some time but unlikely. Has only occasionally occurred in association with an development in the region.
C	Moderate	Might occur at some time. Has previously occurred in similar developments.
D	Likely	Known to occur or will probably occur. Has occurred several times in association with recent developments.
E	Almost certain	Common or repeating occurrence. Is expected to occur several times over the duration of an development in the region.

Consequence categories		
1	Insignificant	No measurable impact on the environment or social values
2	Minor	Some, minor, temporary environmental and/or social impact
3	Moderate	Contained temporary, or permanent minor, localised environmental damage or social impact
4	Major	Severe environmental and/or social impacts
5	Catastrophic	Environmental disaster

Risk Matrix									
		Consequence							
		1	2	3	4	5			
Likelihood	A	1	3	6	10	15	Red	Extreme risk	Intolerable
	B	2	5	9	14	19	Orange	High risk	Intolerable or tolerable
	C	4	8	13	18	22	Yellow	Moderate risk	Tolerable or acceptable
	D	7	12	17	21	24	Green	Low risk	Acceptable
	E	11	16	20	23	25			

## Risk Assessment Criteria & Descriptions

Consequence	Score		Terrestrial Flora and Fauna	Terrestrial Environmental Quality	Inland Water Environmental Quality
<b>Severe</b> <b>Permanent</b> = Impact is felt during operations and indefinitely post-closure <b>Regional</b> = Impact occurs over a large area beyond the proposal area <b>Irreversible</b>	5		Impacts to terrestrial flora and fauna that permanently alter biodiversity and/or ecological integrity over a large area beyond the proposal area.	Soil disturbance, erosion or contamination that is irreversible and extends over a larger area beyond the proposal area.	Permanent major exceedance of pre-development water quality criteria and/or criteria for ecosystem protection and/or criteria for beneficial uses downstream of the proposal area.
<b>Major</b> <b>Long-term</b> = Impact that is felt during construction and for some years post-construction <b>Regional</b> = Impact occurs over a larger area than the proposal area <b>Reversible</b> in the medium-long term with significant remedial works	4		Impacts to terrestrial flora and fauna that lead to long term alteration of biodiversity and/or ecological integrity and/or extend over a large area beyond the proposal area.	Soil disturbance, erosion or contamination that occurs over a long period of time and/or extends over a larger area than the proposal area. Significant remedial works required to reverse damage.	Long-term and/or major exceedance of pre-development water quality criteria and/or criteria for ecosystem protection and/or criteria for beneficial uses downstream of the proposal area. Significant remedial works required over an extended period to return to acceptable water quality.
<b>Moderate</b> <b>Medium to long-term</b> = Impact that is felt during operations and for some months to years post-closure <b>Localised</b> = Impact occurs within the disturbance footprint or immediate surrounds within the proposal area or in the ephemeral watercourse downstream of dams <b>Reversible</b> with a moderate level of remedial works	3		Medium-long term impacts to flora and fauna that are confined to the disturbance footprint and immediate surrounds with no measurable impact to biodiversity and/or ecological integrity	Localised soil disturbance, erosion or contamination that continues for months to years post-closure. Damage is reversible with a moderate level of remedial works.	On-going minor exceedances of pre-development water quality criteria and/or criteria for ecosystem protection and/or criteria for beneficial uses. Exceedances will cease within months to a few years following site rehabilitation works.
<b>Minor</b> <b>Short-term</b> = Impact that is felt during the construction phase only <b>Localised</b> = Impact occurs within the proposal area. <b>Reversible</b> without significant remedial works	2		Short-term impact to flora and fauna with no measurable impact to biodiversity and/or ecological integrity outside of the disturbance footprint.	Short-term and/or localised soil disturbance, erosion or contamination that is reversible without significant remedial works.	Minor temporary exceedances of pre-development water quality criteria and/or criteria for ecosystem protection and/or criteria for beneficial uses. Exceedances will cease following mine closure without significant remedial works.
<b>Insignificant</b> No measurable impact outside of the immediate proposal area.	1		No measurable impact to terrestrial flora and fauna outside of the immediate disturbance footprint.	No measurable soil disturbance, erosion or contamination outside of the immediate disturbance footprint.	No measurable exceedance of pre-development water quality conditions attributable to project activities.

Hydrological processes	Social, Economic and Cultural Surrounds	Community Health and Safety
Significant reduction in surface water flow volumes, groundwater levels and/or timing of flows/discharges leading to permanent irreversible impact to ecological health, land-uses and/or amenity downstream of the proposal area.	<p>Irreversible detrimental impact to stakeholder and/or community values.</p> <p>Long-term disruption to way of life that is felt by the majority of the regional population.</p> <p>Unauthorised destruction of Aboriginal Sacred Site and/or sites of heritage significance. Damage is irreversible.</p>	<p>One or more fatalities.</p> <p>More than 1 people injured with permanent disabilities.</p>
Reduction in surface water flow volumes, groundwater levels and/or timing of flows/discharges leading to long-term impact to ecological health, land-uses and/or amenity downstream of the proposal area. Significant remedial works required over an extended period to re-instate hydrological regimes.	<p>Long-term detrimental impact to stakeholder and/or community values.</p> <p>Long-term disruption to way of life that is felt by some of the regional population.</p> <p>Unauthorised damage to Aboriginal Sacred Sites and/or sites of heritage significance that can be remediated.</p>	<p>No fatalities.</p> <p>One injury with permanent disability.</p> <p>More than 10 injuries requiring hospitalisation.</p>
Medium to long-term reduction in surface water flow volumes, groundwater levels and/or timing of flows/discharges that impacts ecological health, land-uses and/or amenity within the disturbance footprint and immediate surrounds.	<p>Medium to long-term detrimental impact to stakeholder and/or community value.</p> <p>Medium-long term disruption to way of life that is felt by a small number of people.</p> <p>Unauthorised damage to Aboriginal Sacred Sites and/or sites of heritage significance that can be remediated.</p>	<p>No fatalities.</p> <p>No permanent disability.</p> <p>5-10 injuries requiring hospitalisation.</p>
Short-term reduction in surface water flow volumes, groundwater levels and/or timing of flows/discharges that impacts ecological health, land-uses and/or amenity only within the disturbance footprint and immediate surrounds. Natural hydrological regimes will return in a short period of time post-closure without significant remedial works.	<p>Short-term detrimental impact to stakeholder and/or community values.</p> <p>Short-term disruption/ nuisance that is felt by a small number of people.</p> <p>Minor damage to Aboriginal Sacred Sites and/or heritage sites that does not require remedial works.</p>	<p>No fatalities.</p> <p>No permanent disability.</p> <p>Less than 5 injuries requiring hospitalisation.</p>
No measurable change to hydrological regimes outside of the immediate disturbance footprint.	<p>No noticeable impact to stakeholder and/or community values.</p> <p>No impact to Aboriginal Sacred Sites and/or heritage sites.</p>	<p>No fatalities.</p> <p>No permanent disability.</p> <p>No injuries requiring hospitalisation.</p>

Theme	NT EPA Factors	Indicative environmental values and sensitivities
Land	Landforms	Distinctive features in the landscape, either geological or anthropogenic Subterranean karstic terrain and faults Craters, gorges, ranges, saves, massifs, escarpments, plateaus Monuments Culturally important features Tourism related landforms
	Terrestrial Environmental Quality	Characteristics of soils, including chemical, physical, biological and aesthetic qualities
	Terrestrial Ecosystems	Sensitive or significant' vegetation Vegetation that provides an important ecological function Listed threatened species and their habitat (NT and Commonwealth) Listed migratory species and their habitat (Commonwealth) Locally endemic species or species with restricted habitat 'iconic' or culturally important animals, plants and vegetation
Water	Hydrological processes	The supply and quantity of water in surface water features including rivers, lakes, wetlands, swamps, creeks, billabongs, intermittent streams, floodplains, mangroves and drainage lines. The supply and quality of water in groundwater features including aquifers, aquitards and water tables declared beneficial uses present and future uses and users of water current or potential water supplies, including regional scale aquifers culturally important water features
	Inland water environmental quality	The quality of water in surface water features including rivers, lakes, wetlands, swamps, creeks, billabongs, intermittent streams, floodplains, mangroves and drainage lines. The quality of water in groundwater features including aquifers and water tables declared beneficial uses present and future uses and users of water current or potential water supplies, including regional scale aquifers culturally important water features RAMSAR wetlands
	Aquatic ecosystems	The health of the biota in inland waterways the habitats that support the lifecycle of aquatic biota Groundwater dependent ecosystems



Sea	Coastal processes	Processes that support coastal benthic communities and habitats such as coral reefs, mangroves, salt marshes, seagrass meadows and sponge gardens. Conservation significant low lying areas including tidal creeks, deltas and river mouths Unique coastal landforms Significant cultural and aesthetic values Active or passive recreation
	Marine environmental quality	Quality of the water, sediment and biota Ecosystem health condition Fishing and aquaculture Recreation and aesthetics Industrial water supply Cultural and spiritual value
	Marine ecosystems	Conservation significant marine and coastal fauna and critical habitat such as nesting, breeding or foraging habitat Conservation significant marine and coastal flora and vegetation Groups of species (species richness and assemblages of species) Ecological functions and processes Species of social, cultural and/or economic significance. Integrity of marine ecosystems and the ecological services they supply Biological diversity Functional diversity Provision of refuge Food supply
Air	Air Quality	The chemical, physical and biological characteristics of air The biological processes that depend on the air quality
	Atmospheric Processes	A contribution to the NT's greenhouse gas emissions Adaptation to a changing climate
People	Society and economy	Communities, towns, private properties and dwellings where people reside Aesthetics and recreation Resources including water supply and food sources Jobs and businesses Agriculture, fisheries and industry
	Culture and heritage	Bush foods Totemic flora and fauna Important or significant country

	<b>Human health</b>	Drinking water Recreational water Air quality Bush tucker Radiological limits
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Hazard/Aspect	
1	Clearing vegetation / ground disturbance
2	Erosion
3	Weeds
4	Pests
5	Noise
6	Dust
7	Greenhouse Gas emissions
8	Bushfire
9	Contaminated soil
10	Traffic
11	Contaminated water (surface and groundwater)
12	Biting insects
13	Power and water supply
14	Storage and handling of hazardous materials
15	Waste
16	Visual
17	Dredging
18	Hydrology



## Appendix C. TCMG Environmental Policy



# Tennant Consolidated Mining Group

## Environmental Policy

### 1. Introduction

Tennant Mining is committed to sustainable development. We recognize that the long-term sustainability of our business is dependent upon good stewardship in both the protection of the environment and our communities. We will ensure that all employees, directors, officers, contractors, agents, consultants and any other party representing Tennant Mining are aware of this policy and the responsibilities which it sets out.

### 2. Policy objectives

Tennant Mining's Environmental objectives include:

- To comply with all applicable environmental laws, regulations and requirements;
- To undertake proactive environmental management practices; and
- To implement effective environmental risk management.

### 3. Scope

This policy applies to all employees, directors, officers, contractors, agents, consultants and any other party representing Tennant Mining wherever it operates across the world.

### 4. Policy statements

- We recognise that sustainability is an integral and multi-disciplinary part of our business that must be considered in all decisions;
- We will comply at all times with environmental laws and regulations with the objective to go beyond compliance to undertake proactive environmental management practices;
- We continuously review our operations to identify, assess and control environmental impact and actively promote the reduction of waste within our operation;
- We will set company-wide environmental targets and performance against these targets will be monitored, measured and reported on to the Board;
- We will report any actual or potential environmental incidents or spills irrespective of the severity and report on our environmental performance;
- We recognize the increasing awareness within our industry of climate change and the need to participate in solutions that address the long-term impact of climate change, including where feasible, the reduction of greenhouse gas emissions;
- We recognize the sensitivity around water management and water scarcity, where we will aim to constantly improve water management systems and their efficiency, and to monitor our usage of water resources in our areas of operation; and
- We are committed to transparent communication and stakeholder engagement with interested and affected parties on environmental aspects of our activities.

### 5. To achieve the objectives we will:

- Develop a culture that recognises the importance of demonstrating environmental leadership behaviour by embedding this as an expectation in all our planning, systems and procedures;
- Work to continually improve our environmental performance over time, including with regard to increasing our energy efficiency and reducing emissions and waste, and to promote sustainable development in the areas in which we operate;
- Undertake all necessary environmental assessments for our operations and use the best available evidence to identify how we can prevent, minimise, mitigate or remediate any harmful effects of our operation on the environment;
- Monitor, maintain and improve, where required, environment risks through the use of robust systems, governance and assurance processes;



- Work to ensure that we have technically sound plant and equipment; and work that is well designed, planned, executed, supervised and approved by trained and competent people;
- Provide appropriate levels of training, development and mentoring to ensure our employees and contractors are aware of the requirements of this policy and how it is implemented;
- Encourage our people to collaborate and share learnings to proactively prevent environmental incidents;
- Learn from incidents and strive to continually improve our environmental performance;
- Strive to be transparent in our public disclosure on environmental matters, particularly those relating to risk management systems in place and mitigation of environmental risk; and
- Conduct effective, meaningful, and comprehensive stakeholder engagement processes throughout the life of operations.

## **6. Policy Review**

This policy will periodically be reviewed by the Board to ensure it continues to meet both regulatory and contemporary industry standards and practices.