Government of Western Australia
Department of Water and Environmental Regulation

Licence

Licence number	L8612/2011/1
Licence holder	Pantoro South Pty Ltd
ACN	633 003 737
Registered business address	1 Phoenix Road Norseman WA 6443
DWER file number	DER2011/010196-1
Duration	17/11/2011 to 18/11/2030
Date of transfer	30 April 2021
Premises details	Norseman Gold Project Being part mining tenements M63/11, M63/13, M63/14, M63/15, M63/29, M63/48, M63/68, M63/133, M63/140, M63/142, M63/155, M63/156, M63/173 and M63/257 as depicted in Attachment 1.

Prescribed premises category description (Schedule 1, ***Environmental Protection Regulations 1987***)	**Assessed production capacity**
Category 5: Processing or beneficiation of metallic or non-metallic ore	700 000 tonnes per annual period
Category 6: Mine dewatering	2 000 000 tonnes per annual period
Category 52: Electric power generation	10MWe
Category 64: Class II or III putrescible landfill site	500 tonnes per annual period

This licence is granted to the licence holder, subject to the attached conditions, on 30 April 2021, by:

Terrel MacGregor

Digitally signed by Terrel MacGregor
Date: 2021.04.30 07:48:04 +08'00'

Terrel MacGregor
A/MANAGER – RESOURCE INDUSTRIES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Contents

Introduction

This Introduction is not part of the Licence conditions.

DWER's industry licensing role

The Department of Water and Environment Regulation (DWER) is a government department for the state of Western Australia in the portfolio of the Minister for Environment. DWER's purpose is to advise on and implement strategies for a healthy environment for the benefit of all current and future Western Australians.

DWER has responsibilities under Part V of the *Environmental Protection Act 1986* (the Act) for the licensing of prescribed premises. Through this process DWER regulates to prevent, control and abate pollution and environmental harm to conserve and protect the environment.DWER also monitors and audits compliance with works approvals and licence conditions, takes enforcement action as appropriate and develops and implements licensing and industry regulation policy.

Licence requirements

This Licence is issued under Part V of the Act. Conditions contained within the Licence relate to the prevention, reduction or control of emissions and discharges to the environment and to the monitoring and reporting of them.

Where other statutory instruments impose obligations on the Premises/Licence Holder the intention is not to replicate them in the licence conditions. You should therefore ensure that you are aware of all your statutory obligations under the Act and any other statutory instrument. Legislation can be accessed through the State Law Publisher website using the following link: https://www.legislation.wa.gov.au/legislation/statutes.nsf/default.html

For your Premises relevant statutory instruments include but are not limited to obligations under the:

- *Environmental Protection (Unauthorised Discharges) Regulations 2004* – these Regulations make it an offence to discharge certain materials such as contaminated stormwater into the environment other than in the circumstances set out in the Regulations.

- *Environmental Protection (Controlled Waste) Regulations 2004* - these Regulations place obligations on you if you produce, accept, transport or dispose of controlled waste.

- *Environmental Protection (Noise) Regulations 1997* – these Regulations require noise emissions from the Premises to comply with the assigned noise levels set out in the Regulations.

You must comply with your licence. Non-compliance with your licence is an offence and strict penalties exist for those who do not comply. Licence holders are also reminded of the requirements of section 53 of the Act which places restrictions on making certain changes to prescribed premises unless the changes are in accordance with a works approval, licence, closure notice or environmental protection notice.

Licence fees

If you have a licence that is issued for more than one year, you are required to pay an annual licence fee prior to the anniversary date of issue of your licence. Non payment of annual licence fees will result in your licence ceasing to have effect meaning that it will no longer be valid and you will need to apply for a new licence for your Premises.

Ministerial conditions

If your Premises has been assessed under Part IV of the Act you may have had conditions imposed by the Minister for Environment. You are required to comply with any conditions imposed by the Minister.

Premises description and licence summary

Central Norsemen Gold Corporation Limited (CNGC) is a gold mining and exploration company that own the Norseman Gold Project (the premises), located adjacent to the town of Norseman approximately 725 km east of Perth. Pantoro South Pty Ltd (ACN 633 003 737) has entered into a 50/50 unincorporated joint venture agreement with Central Norseman Gold Corporation Pty Ltd, in which Pantoro South has been appointed the operator. The site has been in care and maintenance since 2016. Previous operational areas of the Project include the North Royal open pit, Harlequin underground mine, Bullen underground mine and the Phoenix Processing Plant and associated tailings infrastructure, TSF4.

Dewatering ceased at the North Royal open pit in August 2014, despite continued mining at the pit. Similarly dewatering of the Harlequin underground mine and HV1 open pit ceased in mid-June 2014 with mining at Harlequin continuing until 16 July 2014. However, dewatering at the Bullen underground mine has continued through periods of low operations. Due to low volumes of ore mined at the Project, the Phoenix Processing Plant (Phoenix Mill) was only operational on average two days a week in the 2014 annual period. The majority of dewatering effluent is discharged to a salt lake, Lake Cowan, via an HDPE lined rock riffle channel used to prevent erosion and gullying, with the remainder being used in the processing plant. Dewatering discharge into Lake Cowan ceased in 2015 when the site entered care and maintenance.

Pantoro South also operate two landfills including the Harlequin Landfill and the Bullen Landfill. Harlequin Landfill only accepts tyres from mining operations while the Bullen Landfill accepts clean fill, inert waste and putrescible wastes such as pallets and small volumes of kitchen waste.

DWER initiated amendment

The CEO initiated an amendment to the type and style of the licence during July 2019 to consolidate changes made under Amendment Notices issued between 2016 to 2019 (as detailed in the instrument log below), where relevant. The obligations of the Licence Holder have not changed in making this amendment. During the consolidation of this licence; DWER

has not undertaken any additional risk assessment of the Premises.

In consolidating the licence, the CEO has:

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

The licences and works approvals issued for the Premises prior to issue of this licence are:

Date	Reference number	Summary of changes
22/09/2011	W4954/2011/1	Works approval for a category 85 sewage facility.
05/02/2011	R2238/2011/1	Registration for abrasive blasting. Category has since been removed from the *Environmental Protection Regulations 1987.*
11/04/2011	W4406/2007/1	Amendment to TSF4 works approval to extend expiry.
01/06/2006	R1867/2006/1	Registration for landfill, later placed on licence L6043/1967/8.
22/10/2015	L8612/2011/1	Conversion of licence to new template and increase in landfill throughput
25/06/2019	L8612/2011/1	Amendment notice 1 Amend the frequency of dewatering discharge monitoring, remove monitoring requirements associated with inactive TSFs, require an inspection of the integrity of the Phoenix Processing Plant prior to recommencing operations, correct administrative errors and update the improvement condition. Parameters for groundwater and surface water have been amended to include the full suite of major ions and metal(loid)s expected to be associated with gold deposits.
30 April 2021	L8612/2011/1	Transfer of licence from Central Norseman Gold Pty Ltd to Pantoro South Pty Ltd. Consolidation of amendment notices and administrative amendments.

Severance

It is the intent of these licence conditions that they shall operate so that, if a condition or a part of a condition is beyond the power of this licence to impose, or is otherwise *ultra vires* or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within the power of this licence to impose and are not otherwise *ultra vires* or invalid.

END OF INTRODUCTION

Licence conditions

1. General

1.1 Interpretation

1.1.1 In the licence, definitions from the *Environmental Protection Act 1986* apply unless the contrary intention appears.

1.1.2 For the purposes of this licence, unless the contrary intention appears:

'AACR' means Annual Audit Compliance Report, a report in a format approved by the CEO as presented by the Licence Holder or as specified by the CEO from time to time and published on the Department's website and a copy of the AACR form is accessible from the DWER website

'ACN' means Australian Company Number as registered with the Australian Securities & Investments Commission

'Act' means the *Environmental Protection Act 1986;*

'**AER**' means Annual Environmental Report

'annual period' means the inclusive period from 1 October until 30 September in the following year;

'AS/NZS 5667.1' means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples;*

'AS/NZS 5667.4' means the Australian Standard AS/NZS 5667.4 *Water Quality – Sampling – Guidance on sampling from lakes, natural and man-made;*

'AS/NZS 5667.11' means the Australian Standard AS/NZS 5667.11 *Water Quality – Sampling – Guidance on sampling of groundwaters;*

'AS/NZS 5667.12' means the Australian Standard AS/NZS 5667.12 *Guidance on sampling of bottom sediments;*

'averaging period' means the time over which a limit is measured or a monitoring result is obtained;

'**care and maintenance'** means the period during which active operations are suspended;

'Clean Fill' has the meaning defined in Landfill Definitions;

'CEO' means Chief Executive Officer of the Department of Water and Environmental Regulation;

'CEO' for the purpose of correspondence means:

Chief Executive Officer
Department Administering the *Environmental Protection Act 1986*
Locked Bag 10
JOONDALUP DC WA 6027
Telephone: (08) 6367 7000

Facsimile: (08) 6367 7001
Email: info@dwer.wa.gov.au;

'controlled waste' has the definition in *Environmental Protection (Controlled Waste) Regulations 2004*;

'**Department'** means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V Division 3 of the EP Act.

'**DWER'** the Department of Water and Environmental Regulation as established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V Division 3 of the EP Act.

'HDPE' means high density polyethylene;

'Inert Waste Type 1' has the meaning defined in Landfill Definitions;

'Inert Waste Type 2' has the meaning defined in Landfill Definitions;

'licence' means this licence numbered L8612/2011/1 and issued underthe Act;

'Licence Holder' means the person or organisation named as Licence Holder on page 1 of the licence;

'MFLM' means maximum flood level markers;

'NATA' means the National Association of Testing Authorities, Australia;

'NATA accredited' means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis;

'Premises' means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the licence;

'**Prescribed premises**' has the same meaning given to that term under the EP Act.

'quarterly' means the 4 inclusive periods from 1 October to 31 December and in the following year 1 January to 31 March, 1 April to 30 June and 1 July to 30 September;

'Schedule 1' means Schedule 1 of this licence unless otherwise stated;

'Schedule 2' means Schedule 2 of this licence unless otherwise stated;

'six monthly' means the 2 inclusive periods from 1 April to 30 September and 1 October to 31 March in the following year;

'TSF' means an engineered containment pond or dam used to store tailings; and

'usual working day' means 0800 – 1700 hours, Monday to Friday excluding public holidays in Western Australia.

1.1.3 Any reference to an Australian or other standard in the licence means the relevant parts of the standard in force from time to time during the term of this licence.

1.1.4 Any reference to a guideline or code of practice in the licence means the version of that guideline or code of practice in force from time to time, and shall include any

amendments or replacements to that guideline or code of practice made during the term of this licence.

1.1.5 Nothing in the licence shall be taken to authorise any emission that is not mentioned in the licence, where the emission amounts to:
(a) pollution;
(b) unreasonable emission;
(c) discharge of waste in circumstances likely to cause pollution; or
(d) being contrary to any written law.

1.2 General conditions

1.2.1 The Licence Holder shall operate and maintain all pollution control and monitoring equipment to the manufacturer's specification or any relevant and effective internal management system.

1.2.2 The Licence Holder shall immediately recover, or remove and dispose of spills of environmentally hazardous materials outside an engineered containment system.

1.2.3 The Licence Holder shall:
(a) implement all practical measures to prevent stormwater run-off becoming contaminated by the activities on the Premises; and
(b) treat contaminated or potentially contaminated stormwater as necessary prior to being discharged from the Premises.[1]

Note1: *The Environmental Protection (Unauthorised Discharges) Regulations 2004* make it an offence to discharge certain materials into the environment.

1.3 Premises operation

1.3.1 The Licence Holder shall ensure all above ground pipelines containing saline water, acidic or alkaline liquors or tailings and tailings return water are:

(a) provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections; and
(b) when in operation are equipped with telemetry systems and pressure sensors along pipelines to allow for the detection of leaks and failures; or/and
(c) equipped with automatic cut-outs in the event of a pipeline failure.

1.3.2 The Licence Holder shall ensure that any saline dewatering effluent shall only be managed in the following manner:
(a) used for dust suppression in a manner that minimises damage to surrounding vegetation;
(b) discharged to Lake Cowan at discharge points defined in Schedule 1; or
(c) used in the Phoenix Mill.

1.3.3 The Licence Holder shall ensure that tailings, decant water and/or industrial wash waters are only discharged into containment infrastructure with the relevant infrastructure requirements and at the locations specified in Table 1.3.1 and identified in Schedule 1.

Table 1.3.1: Containment infrastructure

Containment point reference	Material	Infrastructure requirements
Venture TSF	Tailings	None specified

Phoenix TSF	Tailings	
Butterfly TSF	Tailings	
TSF Cells 1-3	Tailings	
TSF4	Tailings	Clay lined
OK Pond 1 and 2	Oils and industrial wash water	HDPE lined
Harlequin Ponds 1 and 2	Oily water from vehicle wash area	
TSF1-3 Return Water Dam (pond)	Saline groundwater	HDPE lined
Bullen oily water separator pond	Treated oily water from the vehicle wash area	HDPE lined
Lake Bower	Process water and contaminated stormwater	Periodically cleaned of silt to maintain capacity
Bioremediation treatment cells	Hydrocarbon contaminated soil	Clay lined (or equivalent) with a permeability of 10-9 m/s or less; All leachate runoff is directed to, and contained within, an impermeable leachate collection sump with capacity to contain an 1 in 100 year, 72 hour duration rainfall event; The leachate collection sump is lined in accordance with Water Quality Protection Note 27, Liners for containing pollutants, using engineered soils, June 2010 or Water Quality Protection Note 26, Liners for containing pollutants, using synthetic membranes, February 2009

1.3.4 The Licence Holder shall manage containment infrastructure in Table 1.3.1 such that:
- (a) a minimum top of embankment freeboard of 300 mm or a 1 in 100 year/72 hour storm event (whichever is greater) is maintained;
- (b) methods of operation minimise the likelihood of erosion of the embankments by wave action;
- (c) no vegetation is growing on the inner embankments of any ponds.

1.3.5 The Licence Holder shall:
- (a) undertake inspections as detailed in Table 1.3.2;
- (b) where any inspection identifies that an appropriate level of environmental protection is not being maintained, take corrective action to mitigate adverse environmental consequences as soon as practicable; and
- (c) maintain a record of all inspections undertaken.

Table 1.3.2: Inspection of infrastructure[1]

Scope of inspection	Type of inspection	Frequency of inspection
Tailings pipelines	Visual integrity	Daily
Return water lines	Visual integrity	
Dewatering pipelines	Visual integrity	
Embankment freeboard of actively used containment infrastructure defined in Table 1.3.1	Visual to confirm required freeboard capacity is available	Weekly and as soon as practicable after a 1 in 100 year, 72 hour duration rainfall event

Note 1: Infrastructure only to be inspected when in use.

1.3.6 The Licence Holder shall undertake the assessment of vegetation health as detailed in Table 1.3.3. The assessments shall:

(a) photograph and record the presence and condition of vegetation at the locations defined in Table 1.3.3;
(b) measure plants species richness, cover and health;
(c) compare the results of the assessment against previous years assessments and identify whether any deterioration in the presence and/or quality of vegetation has taken place;
(d) be undertaken by a person suitably qualified in vegetation identification and sampling.

Table 1.3.3: Vegetation health monitoring	
Monitoring point reference and location	**Frequency**
Lake Cowan dune vegetation: Photographic Monitoring Points: CT1, CT2, CT3, CT4, CT5, CT8 **Lake Cowan woodland vegetation:** Photographic Monitoring Points: CT6, CT7, CT9, CT10, CT11, CT12	Annually between the months October to December

1.3.7 The Licence Holder shall undertake the assessment of vegetation health as detailed in Table 1.3.4. The assessments shall:

(a) photograph at the photographic monitoring locations defined in Table 1.3.4;
(b) record the qualitative tree condition and quantitative foliage cover of sample trees at locations defined in Table 1.3.4;
(c) compare the results of the assessment against previous years assessments and identify whether any deterioration in the presence and/or quality of vegetation has taken place;
(d) be undertaken by a person suitably qualified in vegetation identification and sampling.

Table 1.3.4: TSF tree health monitoring

Monitoring point reference and location	Frequency
TSF Cells 1-3: Photographic Monitoring Points: PH1, PH2, PH3, PH4, PH5, PH6, PH7 **Venture TSF:** Photographic Monitoring Points: VVH1, VVH2, VVH3, VVH4, VVH5 **TSF4:** Sample trees that are flagged and numbered **Control Site:** Sample trees that are flagged and numbered. Photographic Monitoring Points: CPP1, CPP 2, CPP 3	Six-monthly between the months of April to June and October to December
TSF4: Photographic Monitoring Points: 1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B, 5A, 5B	Quarterly

1.3.8 The Licence Holder shall undertake an annual water balance for TSF4. The water balance shall as a minimum consider the following:
(a) site rainfall;
(b) evaporation;
(c) decant water recovery volumes;
(d) seepage recovery volumes; and
(e) volumes of tailings deposited.

1.3.9 The Licence Holder shall ensure that where wastes produced on the Premises are not taken off-site for lawful use or disposal, they are managed in accordance with the requirements in Table 1.3.5.

Table 1.3.5: Waste processing

Waste type	Process(es)	Process limits[1, 2]
Inert Waste Type 1 Clean Fill Putrescible Waste Inert Waste Type 2	Receipt, handling, associated storage and disposal of waste by landfilling	<u>All waste types</u> Cumulative waste disposal shall not exceed 500 tonnes per annual period. Disposal of waste (other than tyres) by landfilling shall only take place within the Bullen landfill area shown on the Bullen Landfill Area Map in Schedule 1. The separation distance between the base of the landfill and the highest groundwater level shall not be less than 2 m.

		Inert Waste Type 2 Disposal of tyres by landfilling shall only take place within the Harlequin landfill area shown on the Harlequin Landfill Area Map in Schedule 1. The Licence Holder shall ensure that: (d) no burnt tyres (or tyres that appear burnt) are disposed at the Premises; and (e) no tyres are burnt on the Premises.
Hydrocarbon contaminated waste	Bioremediation	All bioremediation areas are located: (a) at least 50 m from surface water bodies; (b) at least 50 m from any odour sensitive receptors; and (c) in an area where groundwater is at a depth of greater than 3 m below ground surface. Ensure soil is bioremediated by: (a) maintaining an appropriate moisture content and nutrient level within the soil which sustains biological activity; and (b) at least monthly soil aeration when facility is in use.

Note 1: Requirements for landfilling tyres are set out in Part 6 of the *Environmental Protection Regulations 1987*.

Note 2: Additional requirements for the acceptance and landfilling of controlled waste (including asbestos and tyres) are set out in the *Environmental Protection (Controlled Waste) Regulations 2004*.

1.3.10 The Licence Holder shall ensure that cover is applied and maintained on landfilled wastes in accordance with Table 1.3.6 and that sufficient stockpiles of cover are maintained on site at all times.

Table 1.3.6: Cover requirements[1]

Waste Type	Material	Depth	Timescales
Inert Waste Type 2	Type 1 Inert waste or soil	100mm	Monthly or as soon as practicable after deposit and prior to compaction
Putrescible Waste	Type 1 Inert waste or soil	100mm	Weekly
Inert Waste Type 1	No cover required		

Note 1: Additional requirements for the covering of tyres are set out in Part 6 of the *Environmental Protection Regulations 1987.*

1.3.11 The Licence Holder shall:

(a) implement security measures at the landfill area to prevent as far as is practical, unauthorised access to the site;
(b) undertake regular inspections of all security measures at the landfill area and repair damage as soon as practicable; and
(c) ensure that any entrance gates to the landfill area are securely locked when the landfill area is unattended.

1.3.12 The Licence Holder shall take measures to ensure that no wind-blown waste escapes from the Premises and that wind-blown waste is collected on at least a weekly basis and returned to the tipping area.

1.3.13 Prior to the recommencement of operation of the Phoenix Processing Plant, the Licence Holder shall submit to the CEO a report assessing the integrity of processing liquor and contaminated stormwater containment facilities (for example bunding and tank compounds). The report shall be completed by a qualified civil engineer or equivalent. Where any deficiencies are identified, the Licence Holder shall conduct works to establish adequate containment systems prior to operation.

2. Emissions

2.1 General

2.1.1 The Licence Holder shall record and investigate the exceedance of any descriptive or numerical limit specified in any part of section 2 of this licence.

2.2 Point source emissions to air

2.1.2 The Licence Holder shall ensure that where waste is emitted to air from the emission points in Table 2.2.1 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this licence.

Table 2.2.1: Emission points to air

Emission point reference and location on Map of emission points	Emission Point	Emission point height (m)	Source, including any abatement
A1 – A10	Stack	5.5	Diesel power generators

2.3 Point source emissions to surface water

2.3.1 The Licence Holder is permitted, subject to conditions in the licence, to emit wastes to water from the emissions point listed in Table 2.3.1 and identified in the Map of emission points in Schedule 1.

Table 2.3.1: Emission points to surface water

Emission point reference and location on Map of emission points	Description	Source including abatement
W1	Discharge to Lake Cowan	Mine dewater from North Royal Pit, HV1 Pits and North Royal and Harlequin underground operations. Discharged via an HDPE lined rock riffle channel.

2.3.2 The Licence Holder shall not cause or allow point source emissions to surface water greater than the limits listed in Table 2.3.2.

Table 2.3.2: Point source emission limits to surface water

Emission point reference	Parameter	Limit (including units)	Averaging Period
W1	Volumetric flow rate	2,000,000 kL	Annual
W1	pH[1]	Between 5.0 and 8.0	N/A

Note 1: In-field non-NATA accredited analysis permitted.

2.4 Fugitive emissions

2.4.1 The Licence Holder shall ensure that no tailings are processed or beneficiated at the Premises.

3. Monitoring

3.1 General monitoring

3.1.1 The Licence Holder shall ensure that:
- (a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
- (b) all groundwater sampling is conducted in accordance with AS/NZS 5667.11;
- (c) all sediment sampling is conducted in accordance with AS/NZS 5667.12;
- (d) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured unless indicated otherwise in the relevant table.

3.1.2 The Licence Holder shall ensure that :
- (a) monthly monitoring is undertaken at least 15 days apart;
- (b) quarterly monitoring is undertaken at least 45 days apart;
- (c) six monthly monitoring is undertaken at least 5 months apart; and
- (d) annual monitoring is undertaken at least 9 months apart between the months October to December.

3.2 Monitoring of point source emissions to surface water

3.2.1 The Licence Holder shall undertake the monitoring in Table 3.2.1 according to the specifications in that table and record and investigate results that do not meet any limit specified.

Table 3.2.1: Monitoring of point source emissions to surface water

Emission point reference	Parameter[2]	Limit	Units	Averaging Period	Frequency
W1	Volumetric flow	N/A	kL	Monthly	Continuous during dewater discharge
	pH[1]	5 to 8	N/A	Spot sample	Six-monthly during dewater discharge
	Electrical Conductivity		µS/cm		
	Total Dissolved Solids		mg/L		
	Nitrite + Nitrate				
	Total Nitrogen				
	Total Phosphorous				
	Sulphate				
	Arsenic				
	Cadmium				
	Chromium				
	Cobalt				
	Copper				
	Lead				
	Manganese				
	Mercury				
	Nickel				
	Selenium				
	Zinc				

Note 1: In-field non-NATA accredited analysis permitted.

Note 2: All metals to be analysed as dissolved metals

3.3 Monitoring of inputs and outputs

3.3.1 The Licence Holder shall undertake the monitoring in Table 3.3.1 according to the specifications in that table.

Table 3.3.1: Monitoring of inputs and outputs

Input/Output	Parameter	Units	Averaging period	Frequency
Waste Inputs	Inert Waste Type 1, Inert Waste Type 2, Putrescible Waste	m^3 (where no weighbridge is present)	N/A	Each load arriving at the landfill
Waste Outputs	Waste type as defined in the Landfill Definitions	m^3 (where no weighbridge is present) or kL		Each load leaving or rejected from the Premises

3.4 Ambient environmental quality monitoring

3.4.1 The Licence Holder shall undertake the monitoring in Tables 3.4.1, 3.4.2 and 3.4.3 according to the specifications in those tables and record and investigate results that do not meet any limit specified.

Table 3.4.1: Monitoring of ambient groundwater quality

Monitoring point reference and location	Parameter[1, 3]	Limit	Units	Averaging period	Frequency
Venture TSF: V1, V2, V3, V7, V8, V9 and V10 **TSF Cells 1-3:** P1, P2, P3, P4, P5, P7, P8 and P9 **TSF4:** MB1, MB2, MB3, MB4, MB5, MB6, MB7, MB8, MB10, MB12 and MB13	Standing water level	4	mbgl	Spot sample	Monthly
	pH[2]	N/A	N/A		Quarterly
	Electrical Conductivity		µS/cm		
	Total Dissolved Solids		mg/L		
	Weak Acid Dissociable Cyanide	0.8			
	Total Cyanide	N/A			
	Free Cyanide				
	Bicarbonate				
	Carbonate				
	Calcium				

	Magnesium				
	Potassium				
	Sodium				
	Chloride				
	Sulfate				
	Cadmium				
	Cobalt				
	Copper				
	Lead				
	Manganese				
	Mercury				
	Nickel				
	Aluminium				
	Arsenic				
	Antimony				
	Iron				
	Selenium				
	Zinc				

Note 1: Metals shall be analysed as dissolved metals.

Note 2: In-field non-NATA accredited analysis permitted.

Note 3: All metals to be analysed as dissolved metals

3.4.2 The Licence Holder shall ensure the Groundwater, Seepage and Dewatering Management Plan is implemented when the standing water level in the monitoring bores are shallower than six (6) m below ground level.

Table 3.4.2: Monitoring of ambient surface water quality

Monitoring point reference and location	Parameter[2]	Units	Averaging period	Frequency
CM1, CM2, CM3, CM4, CM5, CM6, CM7	pH[1]	N/A	Spot sample	Annually
	Electrical Conductivity	µS/cm		
	Total Dissolved Solids	mg/L		

	Nitrite and Nitrate			
	Total Nitrogen			
	Total Phosphorous			
	Sulphate			
	Bicarbonate			
	Carbonate			
	Calcium			
	Magnesium			
	Sodium			
	Chloride			
	Arsenic			
	Antimony			
	Cadmium			
	Chromium			
	Cobalt			
	Copper			
	Manganese			
	Mercury			
	Nickel			
	Selenium			
	Zinc			

Note 1: In-field non-NATA accredited analysis permitted.

Note 2: All metals to be analysed as dissolved metals

Table 3.4.3: Monitoring of ambient sediment quality				
Monitoring point reference and location	**Parameter**	**Units**	**Averaging Period**	**Frequency**
CM1, CM2, CM3, CM4, CM5, CM6	pH[1]	N/A	Spot sample	Annually in between October and December in
	Salt crust thickness	cm		

and CM7	Moisture Content	%		the same year
	Electrical Conductivity	µS/cm		
	Total Dissolved Solids			
	Nitrite and Nitrate			
	Total Nitrogen			
	Total Phosphorus			
	Bicarbonate			
	Carbonate			
	Calcium			
	Magnesium			
	Sodium			
	Sulphate			
	Chloride	mg/kg		
	Arsenic			
	Cadmium			
	Chromium			
	Cobalt			
	Copper			
	Mercury			
	Nickel			
	Lead			
	Selenium			
	Zinc			

Note 1: In-field non-NATA accredited analysis permitted.

Note 2: All metals to be analysed as dissolved metals.

4. Improvements

4.1 Improvement program

4.1.1 The Licence Holder shall complete the improvements in Table 4.1.1 by the date of completion in Table 4.1.1.

4.1.2 The Licence Holder for improvements not specifically requiring a written submission, shall write to the CEO stating whether and how the Licensee is compliant with the improvement within one week of the completion date specified in Table 4.1.1.

Table 4.1.1: Improvement program

Improvement reference	Improvement	Date of completion
IR3	The Licence Holder shall manage TSF4 such that: (a) an additional monitoring bore is installed in the location of the proposed seepage recovery bores; and (b) pending monitoring results, the monitoring bore will be converted to a seepage recovery bore and operated to capture seepage from the TSF; (c) seepage is returned to the TSF or re-used in process;	30 September 2019

5 Information

5.1 Records

5.1.1 All information and records required by the licence shall:
- (a) be legible;
- (b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval;
- (c) except for records listed in 5.1.1(d) be retained for at least 6 years from the date the records were made or until the expiry of the licence or any subsequent licence; and
- (d) for the following records, be retained until the expiry of the licence and any subsequent licence:
  - (i) off-site environmental effects; or
  - (ii) matters which affect the condition of the land or waters.

5.1.2 The Licence Holder shall ensure that:
- (a) any person left in charge of the Premises is aware of the conditions of the licence and has access at all times to the licence or copies thereof; and
- (b) any person who performs tasks on the Premises is informed of all of the conditions of the licence that relate to the tasks which that person is performing.

5.1.3 The Licence Holder shall complete an Annual Audit Compliance Report indicating the extent to which the Licence Holder has complied with the conditions of the licence, and any previous licence issued under Part V of the Act for the Premises for the previous annual period.

5.1.4 The Licence Holder shall implement a complaints management system that as a minimum records the number and details of complaints received concerning the environmental impact of the activities undertaken at the Premises and any action taken in response to the complaint.

5.2 Reporting

5.2.1 The Licence Holder shall submit to the CEO an Annual Environmental Report by 30 November after the end of the annual period. The report shall contain the information listed in Table 5.2.1 in the format or form specified in that table.

Table 5.2.1: Annual Environmental Report

Condition or table	Parameter	Format or form[1]
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
5.1.3	Compliance	Annual Audit Compliance Report (AACR)
5.1.4	Complaints summary	None specified
-	Volumes of ore processed	
Table 1.3.3	Lake Cowan dune and woodland vegetation monitoring	
1.3.7	TSF4 vegetation monitoring	
1.3.8	Annual water balance for TSF4	
Table 3.2.1	Monitoring of point source discharges to surface water	
Table 3.3.1	Monitoring of inputs and outputs	
Table 3.4.1	Monitoring of ambient groundwater quality	
3.4.1	Implementation of the Groundwater, Seepage and Dewatering Management Plan	
Table 4.1.1	Performance against improvement conditions	

Note 1: Forms are in Schedule 2

5.2.2 The Licence Holder shall ensure that the Annual Environmental Report also contains:
(a) an assessment of the information contained within the report against previous monitoring results and licence limits;

(b) a summary of issues raised from inspections or incident responses during the reporting period and details of how these have been, or are scheduled to be, addressed and/ or rectified; and
(c) if a dewatering discharge to the environment has occurred in the reporting period, a Dewatering Discharge Report.

5.2.3 The Dewatering Discharge Report required by condition 5.2.2(c) shall address the environmental effects of mine dewater discharge to the Lake Cowan environment and include but not be limited to:
a) the monthly cumulative volumes and average discharge rates of mine dewater discharged to Lake Cowan, as identified by the mine water discharges from the North Royal and HV1 mines:
   i) monthly total volumes shall be reported in cubic metres; and
   ii) average discharge rate shall be reported in litres per second for each quarter.
b) contaminant loading to the area of impact measured in kilograms per hectare per year for all parameters listed in Table 3.3.1;
c) salt crust monitoring (depth, percentage cover and rates of spread) along the lake bank in the impact and control zones;
d) ambient sediment monitoring data required by Table 3.4.3;
e) flood level monitoring data of the MFLM regularly logged and reported where exceeded;
f) discussion of the impact of any alteration of the receiving environment, especially with respect to how these will be managed, including requirements of the monitoring program;
g) ongoing dewatering plans including an estimate of future dewatering volumes and timeframes.

5.3 Notification

5.3.1 The Licence Holder shall ensure that the parameters listed in Table 5.3.1 are notified to the CEO in accordance with the notification requirements of the table.

Table 5.3.1: Notification requirements

Condition or table (if relevant)	Parameter	Notification requirement[1]	Format or form[2]
2.1.1	Breach of any limit specified in the licence	Part A: As soon as practicable but no later than 5pm of the next usual working day. Part B: As soon as practicable	N1

Note 1: Notification requirements in the licence shall not negate the requirement to comply with s72 of the Act
Note 2: Forms are in Schedule 2

Schedule 1: Maps

Premises map

The Premises is shown in the map below. The pink line depicts the Premises boundary. Norseman townsite is excluded from the Premises.

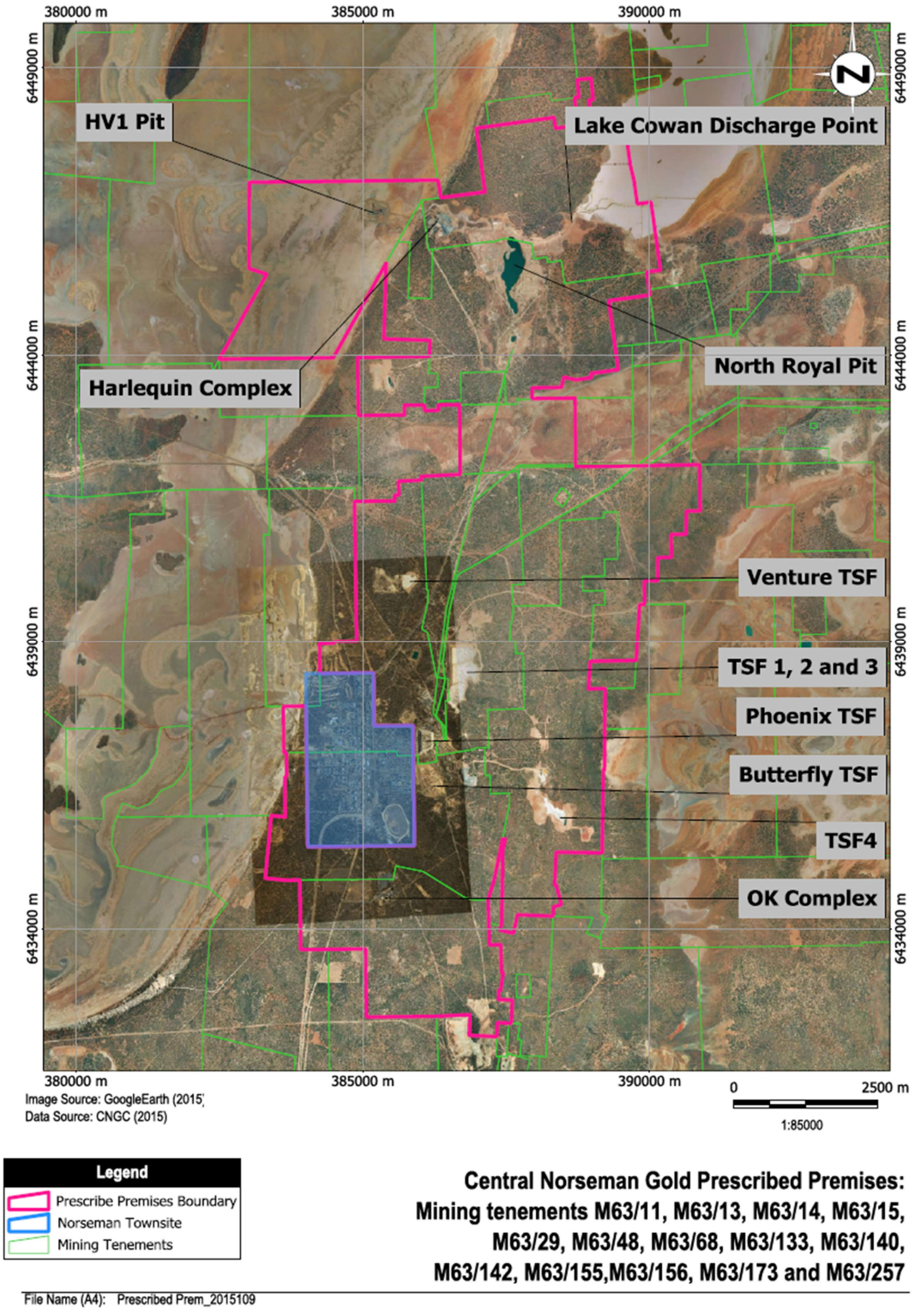

Figure 1: Map of the boundary of the prescribed premises

Map of emission points

The locations of the emission points and containment infrastructure defined in Tables 1.3.1 and 2.2.1are shown below.

Figure 2 Emission points and containment infrastructure defined in Tables 1.3.1 and 2.2.1

Maps of monitoring locations

The locations of the control monitoring points defined in Table 1.3.3 are shown below.

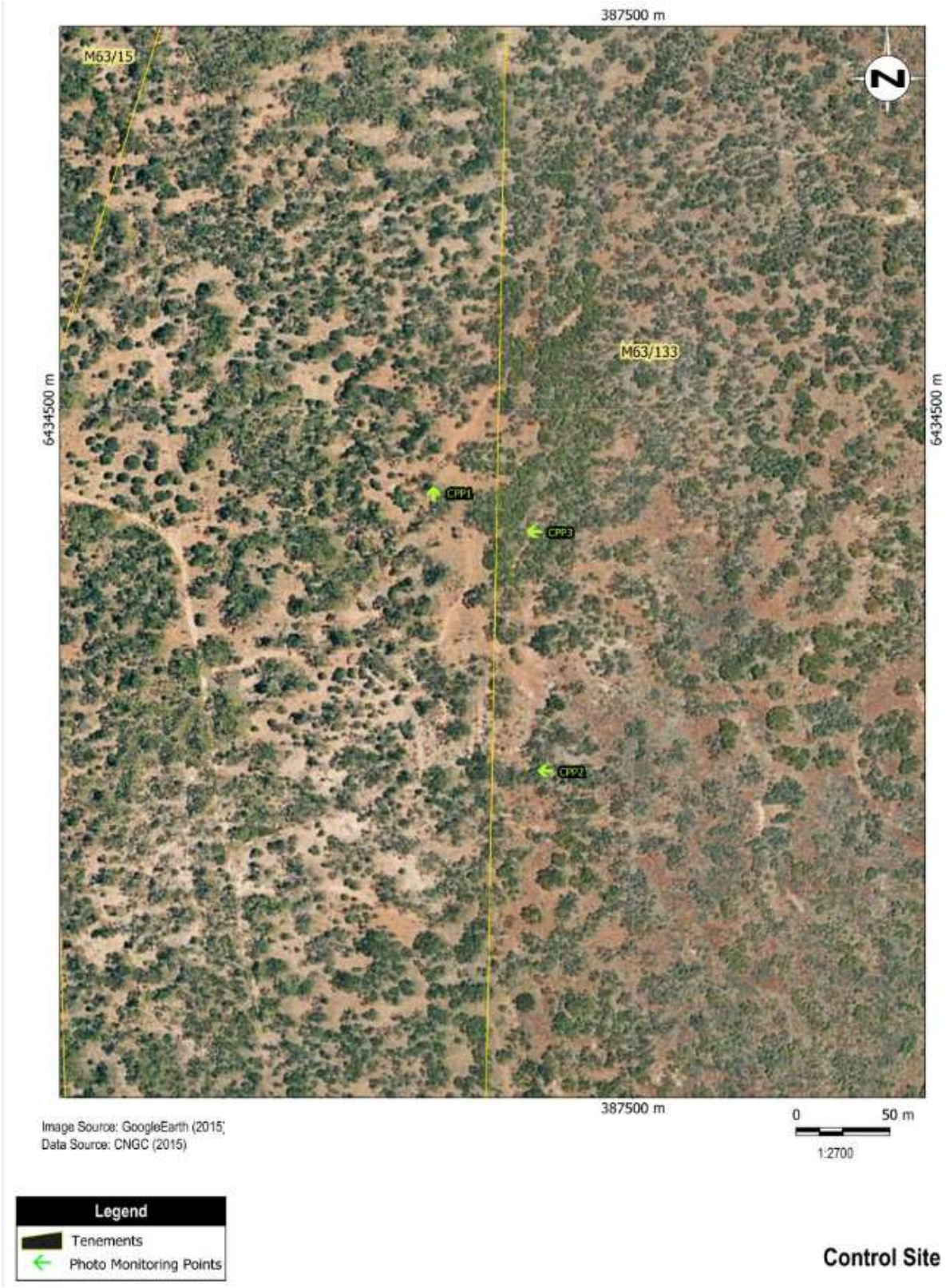

Figure 3 control monitoring points defined in Table 1.3.3

The locations of the monitoring points for Venture TSF defined in Tables 1.3.3 and 3.4.1 are shown below.

Figure 4 Monitoring points for Venture TSF defined in Tables 1.3.3 and 3.4.1

The locations of the monitoring points for TSF 1-3 defined in Tables 1.3.3 and 3.4.1 are shown below.

Figure 5 Locations of the monitoring points for TSF 1-3 defined in Tables 1.3.3 and 3.4.1

The locations of the monitoring points for TSF 4 defined in Tables 1.3.3 and 3.4.1 are shown below.

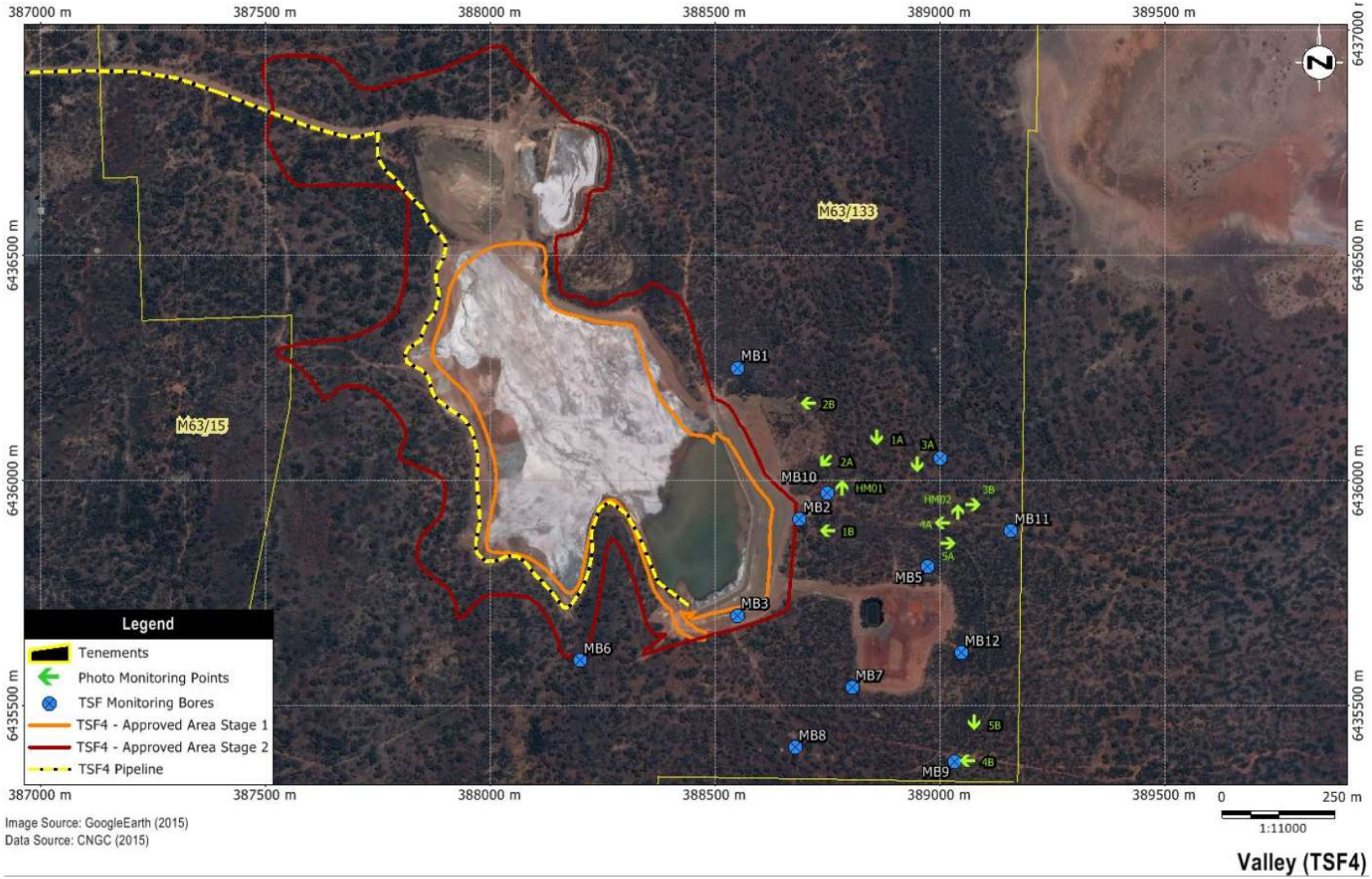

Figure 6 Locations of the monitoring points for TSF4 defined in Tables 1.3.3 and 3.4.1

Lake Cowan ambient surface water and sediment quality monitoring

The locations of the monitoring points on Lake Cowan defined in Tables 3.4.2 and 3.4.3 are shown below

Figure 7 Locations of the monitoring points on Lake Cowan defined in Tables 3.4.2 and 3.4.3

Lake Cowan dune vegetation monitoring

The locations of the monitoring points on Lake Cowan defined in Table 1.3.3 are shown below

Figure 8 Locations of the monitoring points on Lake Cowan defined in Table 1.3.3

Bullen Landfill Area Map

The location of Bullen Landfill Area is shown below.

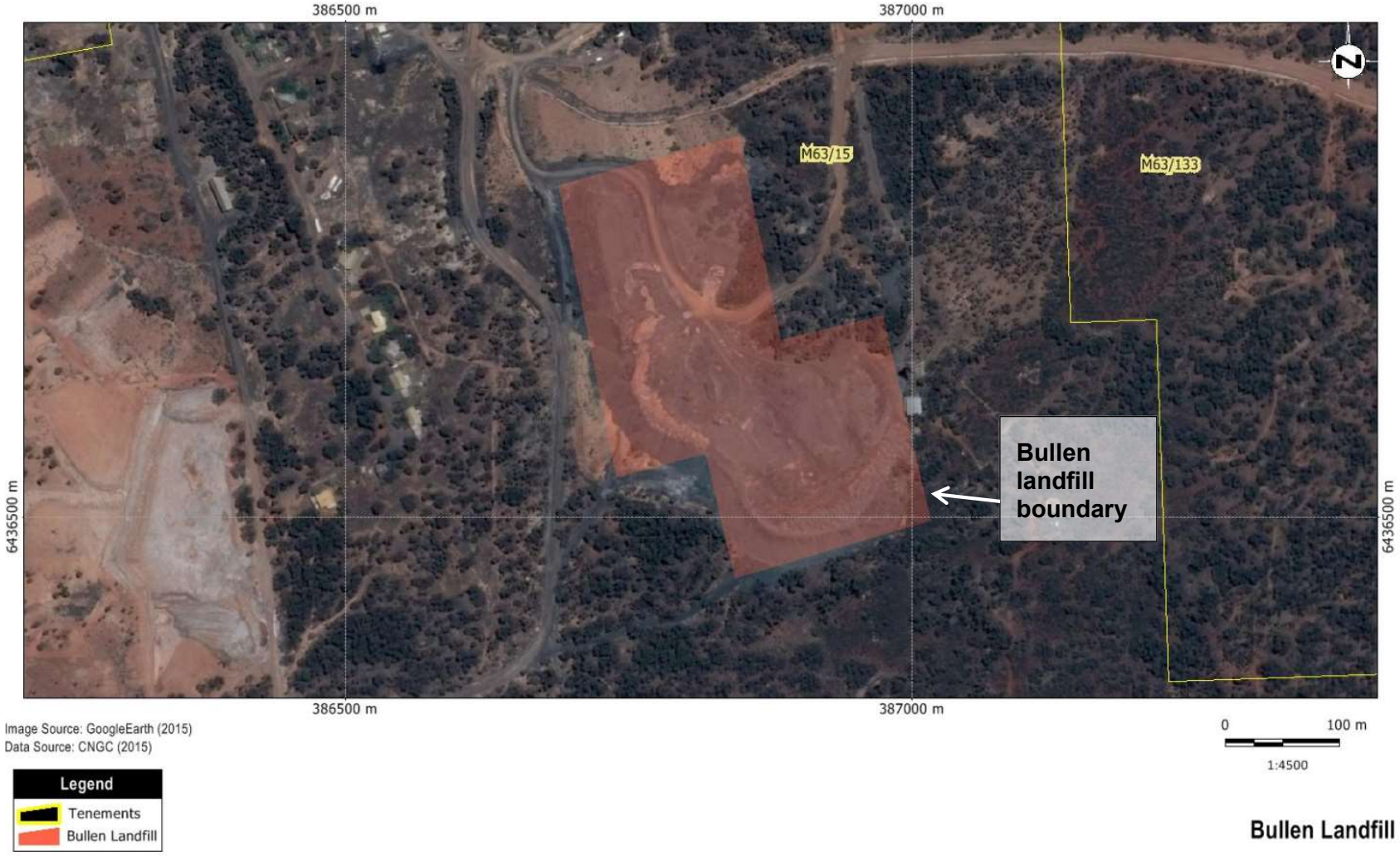

Figure 9 Bullen Landfill Area

Harlequin Landfill Area Map

The location of containment infrastructure defined in Table 1.3.1 and the Harlequin Landfill Area is shown below.

Figure 10 Location of containment infrastructure defined in Table 1.3.1 and the Harlequin Landfill Area

The locations of containment infrastructure defined in Table 1.3.1 are shown below:

Figure 11 Locations of containment infrastructure defined in Table 1.3.1

Schedule 2: Notification and Form

Licence: L8612/2011/1 Licensee: Pantoro South Pty Ltd

Form: N1 Date of breach:

Notification of detection of the breach of a limit.

These pages outline the information that the operator must provide. Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

Part A

Licence number	
Name of operator	
Location of Premises	
Time and date of the detection	

Notification requirements for the breach of a limit	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Part B

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident.	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission.	
The dates of any previous N1 notifications for the Premises in the preceding 24 months.	

Name	
Post	
Signature on behalf of Pantoro South Pty Ltd	
Date	