Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6425/2020/1
Works approval holder	Robe River Mining Co. Pty Limited
ACN	008 694 246
Registered business address	Level 18, Central Park 152-158 St Georges Terrace PERTH WA 6000
DWER file number	DER2020/000158
Duration	26/10/2020 to 25/10/2025
Amendment date	21/04/2021
Premises details	Mesa J and Mesa K Iron Ore Mine Fortescue, Western Australia 6716 Within Mining Lease AML248SA

Prescribed premises category description **(Schedule 1, *Environmental Protection Regulations 1987*)**	**Assessed production / design capacity**
Category 5: Processing or beneficiation of metallic or non-metallic ore	13 000 000 tonnes/year
Category 64: Class II or III putrescible landfill site	2000 tonnes/year

This works approval is granted to the works approval holder, subject to the attached conditions, on 21 April 2021, by:

Alana Kidd

Digitally signed by Alana Kidd
Date: 2021.04.21 11:27:02 +08'00'

Alana Kidd
MANAGER, RESOURCE INDUSTRIES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Premises history since 2016

Reference number	Date	Summary of changes
L6820/1993/12	29/04/2016	Licence granted
L6820/1993/12	18/01/2018	Amendment Notice 1: • Authorisation of the Mesa J Secondary Sizer constructed under works approval W5634/2014/1; • Addition of TSF5 Stage 2 monitoring bores constructed under W5535/2013/1; • Re-categorisation and expansion of the current category 63 Inert Landfill to a category 64 Waste Dump Landfill; • Addition of category 12 to allow for the use of a Mobile Crushing and Screening Plant; and • Other administrative amendments.
L6820/1993/12	10/07/2019	Amendment Notice 2: • Addition of category 54 • Authorisation of wastewater treatment plant operations
W6425/2020/1	26/10/2020	This works approval
W6425/2020/1	21/04/2021	DWER initiated amendment to correct ambient monitoring requirement for polyacrylamide.

Interpretation

In this works approval:

(a) the words 'including', 'includes' and 'include' in conditions mean "including but not limited to", and similar, as appropriate;

(b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;

(c) where tables are used in a condition, each row in a table constitutes a separate condition;

(d) any reference to an Australian or other standard, guideline, or code of practice in this works approval:

  (i) if dated, refers to that particular version; and

  (ii) if not dated, refers to the latest version and therefore may be subject to change over time;

(e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and

(f) unless specified otherwise, all definitions are in accordance with the EP Act.

NOTE: This works approval requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this works approval.

Works approval conditions

The works approval holder must ensure that the following conditions are complied with:

Construction phase

Infrastructure and equipment

1. The works approval holder must:

(a) construct and/or install the infrastructure and/or equipment;

(b) in accordance with the corresponding design and construction / installation requirements; and

(c) at the corresponding infrastructure location

as set out in Table 1

Table 1 Design and construction / installation requirements

	Infrastructure	Design and construction / installation requirements	Infrastructure location
1.	Secondary sizer	• Dust suppression sprays fitted at all material transfer points including primary sizer discharge conveyor, secondary sizer, IPS stacker conveyor, TLO conveyor • Concrete hardstand under facilities • Concrete bunds to contain surface water flows and retain release • collection sumps for sedimentation & designed to drive-in for sediment removal	Added to existing primary sizer circuit Figure 1
2.	in-pit primary sizing circuit (IPS) stacker		Figure 1
3.	Rescreening facility including scavenger tank, scavenger screens, rescreened product transfer conveyor, transfer station		
4.	Thickener plant including thickener feed tank, thickener feed lines, transfer pumps, flocculant dosing plant, process water tank, process water return pipeline from processing plant 2 (PP2) to processing plant 1 (PP1)		
5.	Landfill	• Putrescible landfill facility to be fenced to an appropriate height, gated and locked • surface water management structures (bunding) will divert surface water flows away from landfill • sump or bunding to collect surface water which is potentially contaminated	

	Infrastructure	Design and construction / installation requirements	Infrastructure location
		• Vertical distance to groundwater more than 3 m below ground level for waste dump landfill and 10 m for putrescible landfill • Minimum of 100 m distance of landfill to permanent or perennial watercourse	
6.	Fuel storage and refuelling facilities	• Fuel storage tanks designed, constructed and tested according to AS 1940-2004 • Fuel storage tanks above ground, self bunded or within bunded area/ secondarily contained to ensure any spills are contained • Concrete hardstand installed under proposed fuel storage and facilities where there is potential for hydrocarbon spills	Figure 1

2. The works approval holder must design, construct, and install groundwater monitoring wells in accordance with the requirements specified in Table 2

Table 2 Infrastructure requirements – groundwater monitoring wells

Infrastructure	Design, construction, and installation requirements	Monitoring well location(s)	Timeframe
Groundwater monitoring well(s) MB15MEJ004 MB14MEJ004 MB14MEJ006 MB14MEJ005 JMB04 MB14MEJ002 JMB09 JMB01 MB14MEJ001 MB16MEJ008	<u>Well design and construction:</u> Designed and constructed in accordance with *ASTM D5092/D5092M-16: Standard practice for design and installation of groundwater monitoring bores*. Well screens must target the part, or parts, of the aquifer most likely to be affected by contamination[1]. Where temporary/seasonal perched features are present, wells must be nested, and the perched features individually screened.	As depicted in Schedule 1 Figure 2: Map of groundwater monitoring well locations.	Must be constructed, developed (purged), and determined to be operational by prior to the commencement of environmental commissioning activities under conditions 6 and 7.
	<u>Logging of borehole:</u> Soil samples must be collected and logged during the installation of the monitoring wells. A record of the geology encountered during drilling must be described and classified in accordance with the Australian Standard Geotechnical Site Investigations AS1726. Any observations of staining / odours or other indications of contamination must be included in the bore log.		
	<u>Well construction log:</u> Well construction details must be documented within a well construction log to demonstrate compliance with *ASTM D5092/D5092M-16*. The construction logs shall include elevations of the top of casing position to be used as the reference point for water-level measurements, and the elevations of the ground surface protective installations.		
	<u>Well development:</u> All installed monitoring wells must be developed after drilling to remove fine sand, silt, clay and any drilling mud residues from around the well screen to ensure the hydraulic functioning of the well. A detailed record should be kept of well development activities and included in the well construction log.		
	<u>Installation survey:</u> the vertical (top of casing) and horizontal position of each monitoring well must be surveyed and subsequently mapped by a suitably qualified surveyor.		
	<u>Well network map:</u> a well location map (using aerial image overlay) must be prepared and include the location of all monitoring wells in the monitoring network and their respective identification numbers.		

Note 1: Refer to Section 8 of Schedule B2 of the *Assessment of Site Contamination NEPM* for guidance on well screen depth and length.

Compliance reporting

3. The works approval holder must within 30 calendar days of an item of infrastructure or equipment required by condition 1 being constructed and/or installed:

(a) undertake an audit of their compliance with the requirements of condition 1; and

(b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.

4. The Environmental Compliance Report required by condition 3, must include as a minimum the following:

(a) certification by a person who has qualifications and/or a minimum 5 years of experience in installing and constructing that specific item of infrastructure, that the items of infrastructure or component(s) thereof, as specified in condition 1, have been constructed in accordance with the relevant requirements specified in condition 1;

(b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 1; and

(c) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

5. The works approval holder must, within 30 calendar days of the monitoring wells being constructed, submit to the CEO a well construction report evidencing compliance with the requirements of condition 2.

Environmental commissioning phase

Environmental commissioning requirements and emission limits

6. The works approval holder may only commence environmental commissioning of an item of infrastructure listed in condition 7 once the Environmental Compliance Report has been submitted for that item of infrastructure in accordance with conditions 3 , 4 and 5 of this works approval.

7. Any environmental commissioning activities undertaken for an item of infrastructure specified in Table 3 may only be carried out:

(a) in accordance with the corresponding commissioning requirements; and

(b) for the corresponding authorised commissioning duration.

Table 3 Environmental commissioning requirements

Infrastructure	Commissioning requirements	Authorised commissioning duration
Secondary sizer	Commissioning is comprised of following stages: 1) Construction verification 2) Pre-commissioning- functional testing of equipment 3) No-load commissioning 4) Load commissioning 5) Care custody and control 6) Performance verification <u>Plant 1 - PP2 Rescreening plant works</u> • construction start November 2020 • Stages 1-3: April 2021 to September 2021 • Stages 4-6: October 2021 to April 2022 <u>Plant 2 - Secondary sizer, train load out primary sizer</u> • construction start January 2021 • Stages 1-3: February 2021 to August 2021 • Stages 4-6: September 2021 to February 2022	For a period not exceeding 14 months in aggregate.
IPS stacker		
Rescreening facility including scavenger tank, scavenger screens, rescreened product transfer conveyor, transfer station		
Thickener plant including thickener feed tank, thickener feed lines, transfer pumps, flocculant dosing plant, process water tank, process water return pipeline from PP2 to PP1		

Monitoring during environmental commissioning

8. The works approval holder must monitor the groundwater

(a) within 30 calendar days following construction of the item(s) of infrastructure specified in condition 2; and

(b) during all stages of environmental commissioning for concentrations of the identified parameters in accordance with Table 7.

9. The works approval holder must record the results of all monitoring activity required by condition 8.

Environmental commissioning reporting

10. The works approval holder must submit to the CEO an Environmental Commissioning Report within 30 calendar days of the completion date of environmental commissioning for each item of infrastructure specified in Table 3.

11. The works approval holder must ensure the Environmental Commissioning Report required by condition 10 of this works approval includes the following:

(a) a summary of the environmental commissioning activities undertaken, including timeframes and amount of material processed;

(b) the ambient concentrations monitoring results recorded in accordance with condition 9;

(c) a summary of the environmental performance of each item of infrastructure or equipment as constructed or installed (as applicable), which at minimum includes records detailing the:

(i) environmental commissioning of the infrastructure;

(ii) testing the infrastructure,

(iii) performance verification; and

(iv) commissioning of the process control system;

(d) a contingency plan setting out actions if flocculant is detected in groundwater monitoring bores during time limited operations;

(e) Confirmation of the implantation of requirements set out in the contingency plan described in condition 11(d);

(f) a review of the works approval holder's performance and compliance against the conditions of this works approval; and

(g) where they have not been met, measures proposed to meet the manufacturer's design specifications and the conditions of this works approval, together with timeframes for implementing the proposed measures

Time limited operations phase

Commencement and duration

12. The works approval holder may only commence time limited operations for an item of infrastructure identified in condition 1:

(a) where the item of infrastructure is not authorised to undertake environmental commissioning, the Environmental Compliance Report as required by condition 3 and report required by condition 5 has been submitted by the works approval holder for that item of infrastructure; and

(b) where the item of infrastructure is authorised to undertake environmental commissioning under condition 7, the Environmental Commissioning Report for that item of infrastructure as required by condition 10 has been submitted by the works approval holder.

13. The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 14 (as applicable):

(a) for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 12 for that item of infrastructure; or

(b) until such time as a licence for that item of infrastructure is granted in accordance with Part V of the *Environmental Protection Act 1986*.

Time limited operations requirements and emission limits

14. During time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 4 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 4

Table 4 Infrastructure and equipment requirements during time limited operations

	Site infrastructure and equipment	Operational requirements additionally to ones set out in condition 1	Infrastructure location
1.	Secondary sizer	• Dust suppression sprays fitted at all material transfer points including: primary sizer discharge conveyor, secondary sizer, IPS stacker conveyor, TLO conveyor • Regular inspection and maintenance to collect/remove material if potential dust risk • Controls currently set out in L6820/1993/12 (Condition 3, 4) • surface water contained by bunds will be pumped to collection sumps or allowed to evaporate • process water release collected by bunds is directed to collection sumps via concrete spillways • potentially contaminated surface water is directed to oily water collection and treatment system • Daily integrity inspections of pipelines, pit walls, embankments, discharge location • In case of pipe break or leak, spill to be contained within corridor and remediated	Figure 1
2.	IPS stacker		
3.	Rescreening facility including scavenger tank, scavenger screens, rescreened product transfer conveyor, transfer station		
4.	Thickener plant including thickener feed tank, thickener feed lines, transfer pumps, flocculant dosing plant, process water tank, process water return pipeline from PP2 to PP1		

	Site infrastructure and equipment	Operational requirements additionally to ones set out in condition 1	Infrastructure location
		• Deposition of waste fines at northern end of TSF3, decant pond located southern side (furthest from iron deposit geology representing hydraulic connection to Robe River) to reduce seepage • Thickened tailings may be deposited into TSF4 and TSF5 as contingency storage • Monitoring during deposition to assess groundwater and pond water levels and quality, comparison to baseline conditions, compare with model predictions as provided in • Monthly inspection of decant pond location and level	
5.	Landfill	• surface water management structures (bunding) will divert surface water flows away from landfill • sump or bunding to collect surface water which is potentially contaminated • dust suppression (water trucks, control of vehicle movements, restricted speeds) implemented during operations • restrict activities potentially generating high dust levels during windy conditions • Firebreak at least 3 m in width around landfill • Fire wastewater to be contained on site, contaminated surrounding soil to be removed	Figure 1
6.	Fuel storage and refuelling facilities	• Potentially contaminated surface water directed to oily water collection and treatment system	Figure 1

Monitoring during time limited operations

15. The works approval holder must monitor the

(a) groundwater; and

(b) TSF supernatant

during time limited operations for concentrations of the identified parameters in accordance with Table 7 in Schedule 3.

16. The works approval holder must record the results of all monitoring activity required by condition 15.

Compliance reporting

17. The works approval holder must submit to the CEO a report on the time limited operations within 60 calendar days of the completion date of time limited operations or 60 calendar days before the expiration date of the works approval, whichever is the sooner.

18. The works approval holder must ensure the report required by condition 17 includes the following:

(a) a summary of the time limited operations, including timeframes and amount of material processed (i.e. tailings deposited, volume of thickened tailings produced, deposited waste);

(b) a summary of monitoring parameter results obtained during time limited operations under condition 15

(c) comparison of the monitoring results to relevant guidelines;

(d) a review of performance and compliance against the conditions of the works approval and the Environmental Commissioning Report; and

(e) where the manufacturer's design specifications and the conditions of this works approval have not been met, what measures will the works approval holder take to meet them, and what timeframes will be required to implement those measures.

19. The works approval holder must notify the CEO within 48 hours of occurrence of:

(a) any fire within the landfill area; and/or

(b) any accident, malfunction, or emergency which results or could result in the discharge of fire-fighting washwater or other wastes from the landfill area within the premises.

Records and reporting (general)

20. The works approval holder must record the following information in relation to complaints received by the works approval holder (whether received directly from a complainant or forwarded to them by the Department or another party) about any alleged emissions from the premises:

(a) the name and contact details of the complainant, (if provided);

(b) the time and date of the complaint;

(c) the complete details of the complaint and any other concerns or other issues raised; and

(d) the complete details and dates of any action taken by the works approval holder to investigate or respond to any complaint.

21. The works approval holder must maintain accurate and auditable books including the following records, information, reports, and data required by this works approval:

(a) the works conducted in accordance with conditions 1 and 2

(b) any maintenance of infrastructure that is performed in the course of complying with this works approval;

(c) monitoring programmes undertaken in accordance with conditions 8 and 15 and

(d) complaints received under condition 20

22. The books specified under condition 21 must:

(a) be legible;

(b) if amended, be amended in such a way that the original version(s) and any subsequent amendments remain legible and are capable of retrieval;

(c) be retained by the works approval holder for the duration of the works approval; and

(d) be available to be produced to an inspector or the CEO as required.

Definitions

In this works approval, the terms in Table 5 have the meanings defined.

Table 5: Definitions

Term	Definition
Assessment of Site Contamination NEPM	means the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended from time to time
AS1726	means the Australian Standard AS1762 Geotechnical site investigations, as amended from time to time
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 Water quality - Sampling - Guidance on the design of sampling programs, sampling techniques and the preservation and handling of sample
ASTM D5092/D5092M-16	means the ASTM international standard for Standard practice for design and installation of groundwater monitoring wells (Designation: ASTM D5092/D5092M-16), as amended from time to time
books	has the same meaning given to that term under the EP Act.
calendar days	Any day of the week from Monday through to Sunday inclusive
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department administering the *Environmental Protection Act 1986* Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au
condition	A condition to which this works approval is subject to under section 62 of the EP Act
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.
discharge	has the same meaning given to that term under the EP Act.
emission	has the same meaning given to that term under the EP Act.
environmental commissioning	means the sequence of activities to be undertaken to test equipment integrity and operation, or to determine the environmental performance, of equipment and infrastructure to establish or test a steady state operation and confirm design specifications.

Term	Definition
Environmental Commissioning Report	means a report on any commissioning activities that have taken place and a demonstration that they have concluded, with focus on emissions and discharges, waste containment, and other environmental factors.
Environmental Compliance Report	means a report to satisfy the CEO that the conditioned infrastructure and/or equipment has been constructed and/or installed in accordance with the works approval.
EP Act	*Environmental Protection Act 1986* (WA).
EP Regulations	*Environmental Protection Regulations 1987* (WA).
monthly period	means a one-month period commencing from the last day of a month until the first day of the immediately following month.
premises	the premises to which this licence applies, as specified at the front of this licence and as shown on the premises map Figure 1 in Schedule 1 to this works approval.
prescribed premises	has the same meaning given to that term under the EP Act.
time limited operations	refers to the operation of the infrastructure and equipment identified under this works approval that is authorised for that purpose, subject to the relevant conditions.
waste	has the same meaning given to that term under the EP Act.
works approval	refers to this document, which evidences the grant of the works approval by the CEO under section 54 of the EP Act, subject to the conditions.
works approval holder	refers to the occupier of the premises being the person to whom this works approval has been granted, as specified at the front of this works approval.

END OF CONDITIONS

Schedule 1: Maps

Premises map

The boundary of the prescribed premises and location of proposed works is shown in the map below (Figure 1).

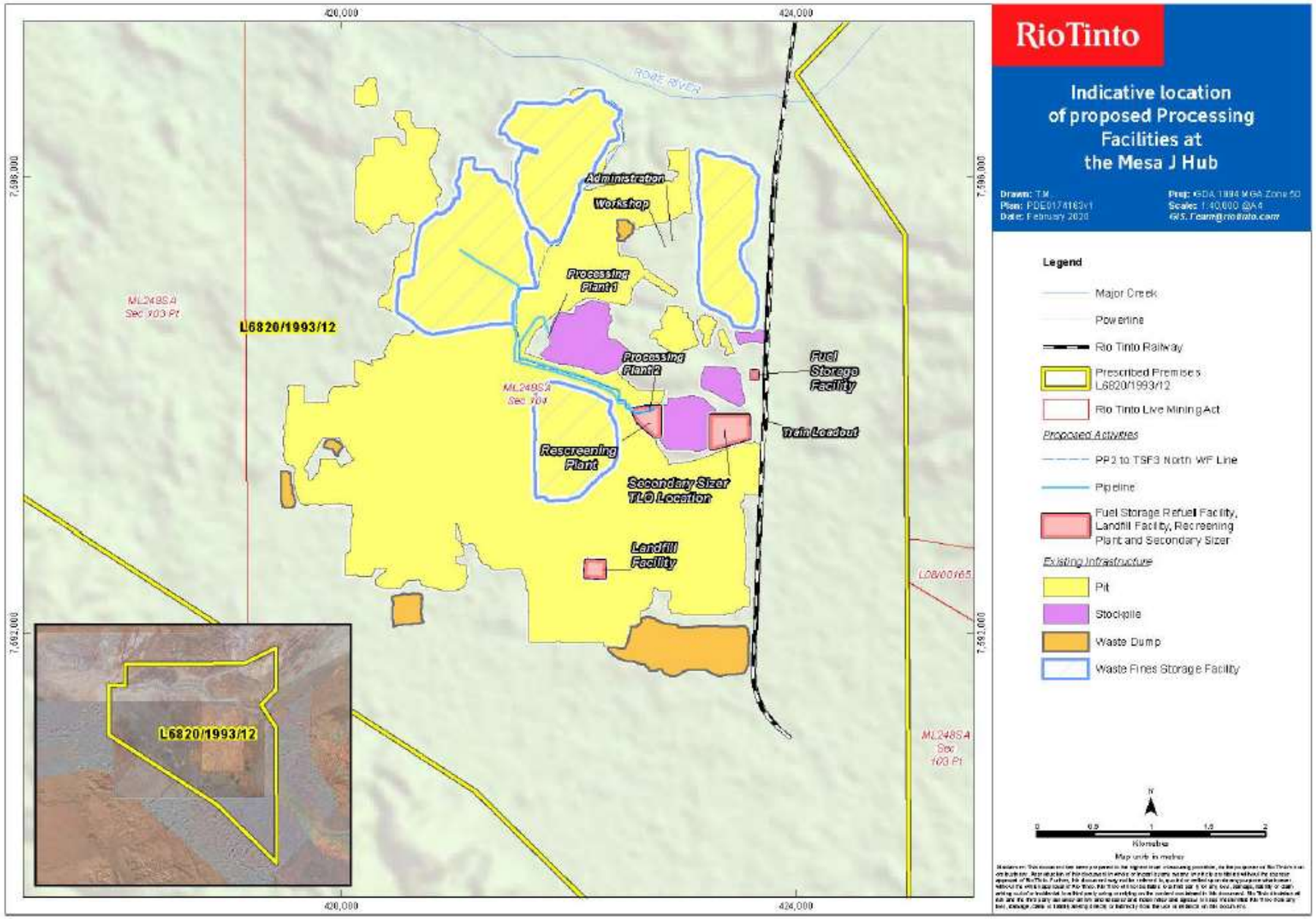

Figure 1 Premises boundary and proposed work locations

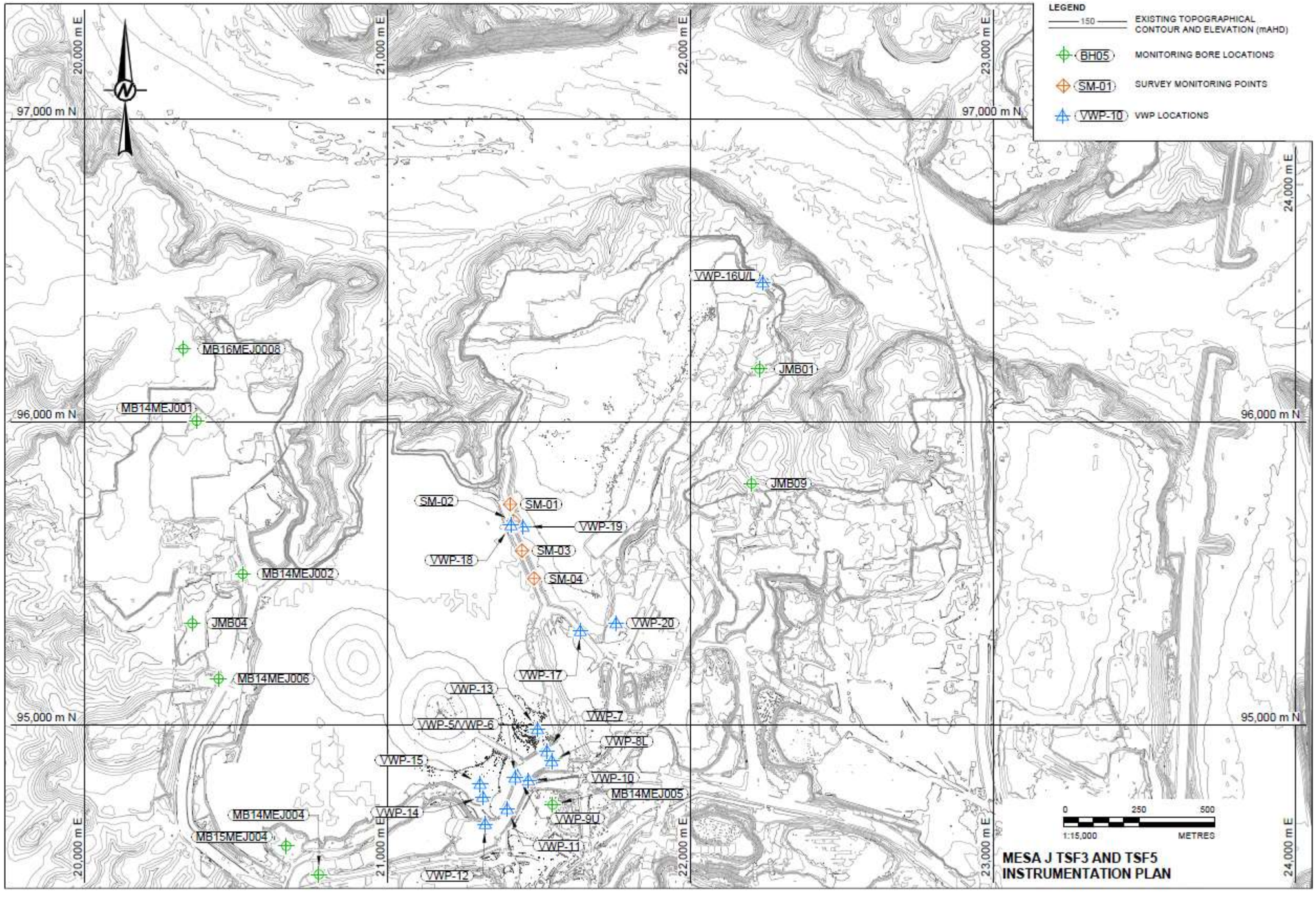

Figure 2 Proposed groundwater monitoring bore locations

Schedule 2: Premises boundary

The premises boundary is defined by the coordinates in Table 6 (GDA94) .

Table 6: Premises boundary coordinates

Point (Figure 3)	Lat ˚S	Lon ˚E
1	21.70684	116.19387
2	21.70461	116.25360
3	21.69599	116.27386
4	21.73044	116.27455
5	21.72980	116.26493
6	21.74256	116.27386
7	21.82067	116.27455
8	21.78624	116.23781
9	21.74671	116.17155
10	21.71864	116.17121
11	21.71769	116.19284

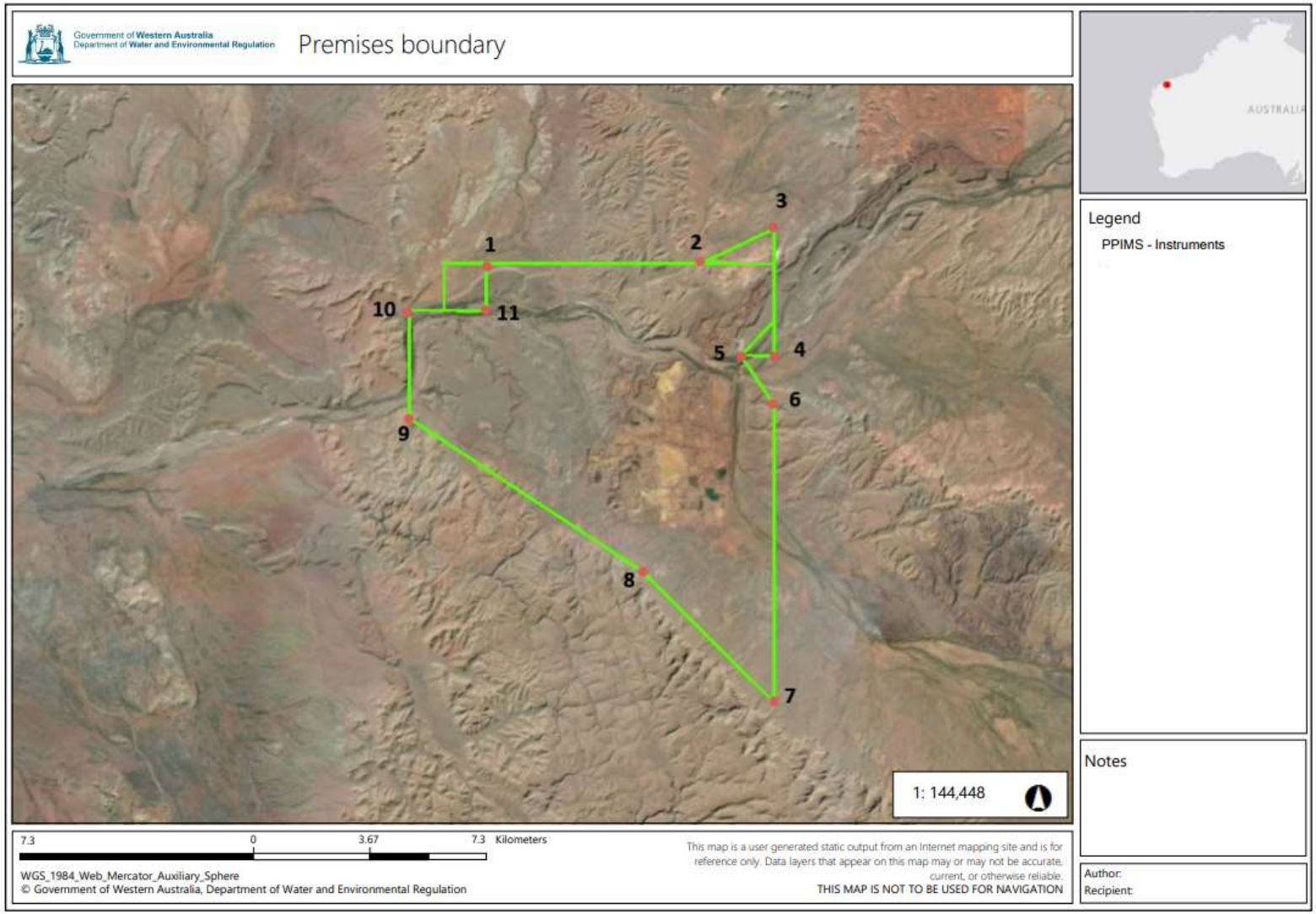

Figure 3 Premises boundary

Schedule 3: Monitoring

Table 7 Monitoring of ambient concentrations during environmental commissioning and time limited operations

Monitoring location	Parameter	Unit	Frequency	Method
BH01, BH02, BH03, BH04, BH05, BH06, BH07, BH08, BH09, BH10	Depth to groundwater[1]	mbgl	Condition 8(a) At least one campaign Condition 8(b) quarterly for duration of commissioning Condition 15 monthly for duration of time limited operations	Collection and preservation in accordance with AS 5667 Analyses conducted by NATA accredited organisation unless stated otherwise. All analyses in accordance with current Standard Methods
	pH[1]			
	EC	µS/cm		
	TDS	mg/L		
	$CaCO_3$			
	Major ions: Na, K, Ca, Cl, Mg, SO4			
	Metals: Cu, Fe, Mn, As, Cd, Cr, Ni, Co, Mn, Se, B, Hg, Mo, Sb, Zn, TI			
	NO_3, Total Nitrogen			
	Polyacrylamide	µg/L		
	Acrylamide			
TSF3, TSF4, TSF5 supernatant water	Polyacrylamide		Monthly in TSFs which are receiving thickened tailings	In accordance with AS/NZS 5667.1
	Acrylamide			

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