Government of Western Australia
Department of Water and Environmental Regulation

Licence

Licence number	L8008/2004/3
Licence Holder	FQM Australia Nickel Pty Ltd
ACN	135 761 465
Registered business address	Level 1, 24 Outram Street WEST PERTH WA 6005
DWER file number	DER2014/000631
Duration	14/05/2013 to 13/05/2026
Date of issue	22/08/2023
Premises details	Ravensthorpe Nickel Operations RAVENSTHORPE WA 6346 Legal description – Mining tenements M74/54, M74/108, M74/114, M74/115, M74/116, M74/123, M74,142, M74/144, M74/145, M74/167, M74/168, M74/173, M74/174, M74/175 and G74/08 as depicted in schedule 1

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	21 500 000 tonnes per annual period
Category 31: Chemical manufacturing	1 606 000 tonnes per annual period
Category 52: Electric power generation	70 mw in aggregate
Category 54: Sewage Facility	300m^3 per day

This licence is granted to the Licence Holder, subject to the attached conditions, on 22 August 2023, by:

Carmen Standring
Digitally signed by Carmen Standring
Date: 2023.08.22 12:09:57 +08'00'

A/MANAGER, RESOURCE INDUSTRIES

REGULATORY SERVICES

Officer delegated under section 20 of the Environmental Protection Act 1986)

Contents

Licence History

Date	Reference number	Summary of changes
14/05/2005	L8008/2004/1	New Licence issued to Ravensthorpe Nickel Operations Pty Ltd to produce nickel cobalt hydroxide intermediate with commissioning occurring in second half of 2007 with expected life of 25 years.
07/02/2008	W4397/2007/1	Works Approval for construct of 5 additional evaporation ponds (10, 11, 14, 15 & 17) beside the 4 existing ponds (9,12,13 & 16) plus a new stilling basin to supply process liquors to the expanded evaporation ponds.
20/10/2008	W4452/2008/1	Works Approval for upgrade to the beneficiation plant by improving the physical separation, classification and rejection of course low grade ore.
21/11/2008	W4463/2008/1	Works Approval for construction of 2 additional evaporation ponds (ponds 18 & 19).
14/05/2010	L8008/2004/2	Licence re-issued to new owners First Quantum Minerals (FQM) by BHP Billiton with takeover occurring on February 2010.
02/08/2010	W4715/2010/1	Works Approval for the construction of two new beneficiation plant buffer ponds and modification to two existing crushers.
26/10/2010	W4767/2010/1	Works Approval to raise the TSF wall heights of stage 1 and stage 2 to 132.5m RL.
21/03/2011	W4873/2011/1	Works Approval to construct a sands reject storage facility (SRSF) to store Limonite and Saprolite sands rejects from the beneficiation process.
30/05/2011	W4937/2011/1	Works Approval for installation 5 by 2 MW diesel fuelled power generators.
21/07/2011	R2250/2011/1	Registration of category 89 Abrasive Blasting operations at the Premises.

18/03/2013	W5364/2013/1	Works Approval to expand the existing TSF to include TSF stage 3 area of 223 ha where land clearing was approved under Ministerial Statement 633.
14/05/2013	L8008/2004/3	Licences re-issue.
26/01/2015	W5754/20014/1	Works approval for construction of evaporation pond number 20.
29/04/2016	L8008/2004/3	DER amendment by notice extends the licence expiry to 13 May 2026.
01/09/2016	L8008/2004/3	This amendment includes raising of Tailings Storage Facility (TSF) 1 and TSF 2 to RL 147m and RL 137m respectively and administrative changes including the removal of redundant conditions.
03/02/2017	L8008/2004/3	Amendment Notice 1: To authorise use of the limonite pond of the Sands Reject Storage Facility (SRSF) as an additional evaporation pond for tailings decant water.
27/09/2019	L8008/2004/3	Amendment Notice: 2 Added Definition of monitoring, reporting and notification requirements for operational and non-operational periods. Requirement for investigation into integrity and use of Dam 2 ('Mine Drainage- North' – 'Map Reference 25).
4/10/2022	L8008/2004/3	Licence amendment to include the Shoemaker-Levy Mine (SML) into the licence operations as assessed in W6303/2019/1. Amendment includes amalgamation of amendment notice 1 and 2 into the licence, which includes an update to the format, and removal of redundant conditions.
22/08/2023	L8008/2004/3	Licence amendment to include the TSF 2 embankment height raise to allow additional TSF deposition. Licence amendment to operate TSF 2 Stage 3 at RL 126.4m. Constructed under W6578/2021/1. Transfer of Licence from Ravensthorpe Nickel Operations Pty Ltd to FQM Australia Nickel Pty Ltd included with amendment.

Amalgamation of amendment notices

This amended licence includes consolidation of amendment notices issued between 2016 to 2019 (as detailed in the instrument log), where relevant. The obligations of the Licence Holder have not changed in making this administrative amendment. During the consolidation of amendment notices, 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 2 of the previous licence and advised the Licence Holder to obtain the form from the Department's website;
- Revised the licence condition numbers, removed any redundant conditions and realigned condition numbers for numerical consistency; and
- Corrected clerical mistakes and unintentional errors.

Interpretation

In this licence:

(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 licence:

  (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 licence requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this licence.

Licence conditions

General conditions

1 The Licence Holder shall immediately recover, or remove and dispose of spills of saline, alkaline or acidic liquors (including process liquors, tailings, or decant water) outside an engineered containment system.

Construction of seepage recovery wells

2 The Licence Holder must design, construct and install the seepage recovery wells in accordance with the requirements specified in Table 1.

Table 1: Design and construction/installation requirements – seepage recovery bores

Infrastructure	Design and construction/installation requirements	Seepage recovery well locations	Timeframe
Groundwater recovery wells	Well design and construction: Designed and constructed in accordance with *ASTM D5092/D5092M-16: Standard practice for design and installation of groundwater monitoring bores*. to be constructed as per design submitted in Technical Specification Report RNO TSF 2 Groundwater Recovery Well, project no. 21493687-017-S-Rev0.	GWR01 and GWR02 Schedule 1, Figure 7	Must be constructed and determined to be operational by no later than 31 May 2024
	Logging of borehole: 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.		
	Well construction log: 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.		
	Well development:		

Infrastructure	Design and construction/installation requirements	Seepage recovery well locations	Timeframe
	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 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.		

3 The Licence Holder must, within 60 calendar days of the production bores being completed, submit to the CEO a well construction report evidencing compliance with the requirements of condition 2.

Evaporation ponds

4 The Licence Holder must ensure that the Premises infrastructure listed in Table 2 is repaired and operated in accordance with the requirements specified in Table 2.

Table 2: Repair and re-establishment of the damaged Evaporation Ponds at the Premises

Infrastructure	Construction and operational requirements	Evaporation pond locations	Timeframe
Evaporation ponds 12	• The synthetic liners of evaporation pond 12 at the Premises must be repaired and maintained in an intact an unperforated state with a seepage rate of 10^{-9}m/s or less. • Evaporation pond 12 must be repaired before they are permitted to receive treated process water from the TSF and Process Plant. • Installation of wave breakers in evaporation pond 12 to reduce wave action against embankment walls.	Evaporation pond 12 are shown in Figure 1 of Schedule 1.	Evaporation ponds 12, must be repaired and determined to be operational by 31 December 2023

Premises operation

5 The Licence Holder shall ensure that all pipelines containing tailings, process liquors including decant water or saline water are either:

(a) equipped with telemetry systems and pressure sensors along pipelines to allow the detection of leaks and failures;

(b) equipped with automatic cut-outs in the event of a pipe failure; or

(c) provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections.

6 The Licence Holder must only deposit tailings sourced from the premises into TSF2.

7 The Licence Holder shall ensure that tailings, process liquors, decant water and saline waters are only discharged into containment cells, dams or ponds with the relevant infrastructure requirements and at the locations specified in Table 3 and identified in Figures 2a, 2b and 2c within Schedule 1. The Licence Holder is authorised to discharge 4.56 Mtpa tailings in total to TSF1 and TSF2.

Table 3: Containment Infrastructure

Containment point reference	Containment Name	Material stored	Infrastructure requirements
Map reference 1	Saprolite Buffer Pond	Saline slurry of crushed saprolite based ore	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 2	Limonite Buffer Pond	Saline slurry of crushed limonite-based ore	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 3	Northern Stormwater Pond	Stormwater and process water	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 4	Desalination Pond	Desalinated water	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 5	Hypersaline Pond	Hypersaline water (reject stream from the desalination plant)	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 6	Raw Water Pond	Seawater imported from Mason Bay	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 7	Southern Stormwater South – Top	Stormwater and process water	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less

Containment point reference	Containment Name	Material stored	Infrastructure requirements
Map reference 8	Southern Stormwater South – Bottom	Stormwater and process water	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 9	Saprolite Benefication Pond	Hypersaline water	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 10	Limonite Beneficiation Pond	Hypersaline water	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 11	RO Brine Pond	Hypersaline rejects from the Reverse Osmosis plant	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 12	RNO HV Workshop Stormwater Pond	Stormwater	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 13	HV Workshop Pond Oily Water Pond	Hydrocarbon Wastewater	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 14	Halleys Dam 2	Saline water	Integrity of the clay liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 15	Rejects Facility Dam	Saline water	Integrity of the clay liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 16	Mine Drainage South	Stormwater	Integrity of the clay liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 17	Farm Dam	Stormwater	Integrity of the clay liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 18	Halleys Dam 1	Stormwater	Integrity of the clay liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 19	Mining Turkey's Nest	Saline water	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 20	WWTP Ponds	Domestic wastewater (sewage)	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less

Containment point reference	Containment Name	Material stored	Infrastructure requirements
Map reference 21	Sewage Contingency Pond (Decommissioned)	Rain water	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 22	Bioremediation Pad	Hydrocarbon contaminated soil	Integrity of the concrete liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 23	Pipeline Drain Pond (North)	Tailings / Seawater	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 24	Pipeline Drain Pond (South)	Tailings / Seawater	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 25	Seawater Pipeline Transfer Station Pond 2	Seawater	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 26	SML Stormwater Dam NPI	Rainwater	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 27	SML HV Workshop Ponds	Hydrocarbon wastewater	Integrity of the concrete liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map reference 28	SML HV Workshop Oily Water Pond	Stormwater	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a permeability of less than $2x10^{-10}$ m/s
Map reference 29	SML Mining Turkeys Nest	Seawater	Flow detection with low-flow alarms
Map Reference 30	Tailings Storage Facility	Tailings from Process Plant	Integrity of the 300mm clay liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map Reference 31	Evaporation ponds	Treated process water from TSF and Process Plant	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less
Map Reference 32	Limonite Pond (Sands Rejects Storage Facility)	Rainwater	Integrity of the synthetic liner to be maintained in an intact and unperforated state with a seepage rate of 10^{-9} m/s or less

Containment point reference	Containment Name	Material stored	Infrastructure requirements
-	SML Pipeline	Seawater	Flow detection with low-flow alarms
-	Stormwater infrastructure associated with TSF2	Stormwater	• The existing diversion drain along the western flank of the TSF to be maintained to provide protection from stormwater runoff and potential erosion impacts to TSF2; • A natural sediment trap to be maintained at the discharge point of the reinstated stormwater diversion drain; and • TSF2 (Stage 3) maintained so that all embankment crests will have a 2% inward crossfall to direct surface water runoff into the TSF basin.

8 The Licence Holder shall maintain the following freeboards for specified containment infrastructure in Table 3:

- 300 mm a minimum top of embankment operational freeboard for all evaporation and wastewater treatment ponds;
- an operational freeboard of 300 mm for TSF1 and TSF2 as measured from the bottom of the spillway of TSF1 and 2 respectively, to the tailings beach;
- 800 mm for all stormwater ponds, process ponds, the limonite pond and mine dams; and
- 1 000 mm for all buffer ponds.

9 The Licence Holder shall:

(a) undertake inspections as detailed in Table 4;

(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 written log of all inspections undertaken with each inspection to be signed by the responsible person.

Table 4: Inspection of infrastructure

Scope of inspection	Type of inspection	Frequency of inspection
Tailings pipelines	Visual inspection for pipeline integrity	Daily during operations
Seawater pipeline	Visual inspection for pipeline integrity	
Return water lines	Visual inspection for pipeline integrity	
Embankment freeboard	Visual inspection using freeboard markers to confirm required freeboard of 300 mm	Daily during operations; or Weekly during care and maintenance

Scope of inspection	Type of inspection	Frequency of inspection
Tailings decant/supernatant ponds	Visual assessment of pond size and position	
Evaporation ponds/ wastewater treatment ponds/ buffer ponds/limonite pond	Visual inspection using freeboard markers to confirm required freeboard of 1 m	
Limonite Pond - Leakage Detection Pit	Check pit for liquor collection	

10 The Licence Holder shall manage the irrigation of treated wastewater such that:

(a) no irrigation generated run-off, spray drift or discharge occurs beyond the boundary of the defined irrigation area(s);

(b) treated wastewater is evenly distributed over the irrigation area;

(c) no soil erosion occurs;

(d) irrigation does not occur on land that is waterlogged; and

(e) vegetation cover is maintained over the irrigation area.

11 The Licence Holder is authorised to construct embankment raises and operate the TSF 1 and TSF 2 until the end of Stage 2 to the heights as listed in Table 5 below.

Table 5: RNO TSF1 and TSF2 Construction & Operating Heights

Stages	TSF	Construction Height (m)	Operating Height (m)
Stage 1	TSF 1 southern, eastern and western embankments (upstream or downstream construction)	RL 132.5(+3m) = RL 135.5	RL 135.2
	TSF 2 eastern, western and southern embankment (upstream or downstream construction)	RL 120 (+3m) = RL 123	RL 122.7
Stage 2	TSF 1 (upstream construction)	RL 137	RL 136.7
	TSF 2 downstream construction	RL 124.5	RL 124.2
Stage 3	TSF 1 (upstream construction)-	RL 138.5	
	TSF 2 downstream construction	RL 126.7	RL 126.4
Stage 4	TSF 1 (upstream construction)	RL 140	Not permitted at this time.
	TSF 2 (upstream construction)	RL 127.5	
Stage 5	TSF 1 (upstream construction)	RL 141.5	
	TSF 2 (upstream construction)	RL 129	
Stage 6	TSF 1 (upstream construction)	RL 143	
	TSF 2 (upstream construction)	RL 130.5	
Stage 7	TSF 1 (upstream construction)	RL 144.5	
	TSF 2 (upstream construction)	RL 132	
Stage 8	TSF 1 (upstream construction)	RL 146	
	TSF 2 (upstream construction)	RL 133.5	
Stage 9	TSF 1 (upstream construction)	RL 147	

Stages	TSF	Construction Height (m)	Operating Height (m)
	TSF 2 (upstream construction)	RL 135	
Stage 10	TSF 2 (upstream construction)	RL 137	

12 The Licence Holder shall conduct an annual assessment of standing water levels and groundwater quality in groundwater bores surrounding TSF 1 and TSF2 and evaluate the results against modelled predictions made in the report Golder (2012) *Stage 3 Expansion Seepage and Solute Modelling Ravensthorpe Nickel Operations Tailings Storage Facility*, December 2012. A contour map indicating the actual extent and concentrations of the magnesium sulphate plume shall be included in the Annual Environmental Report.

13 The Licence Holder shall only start-up the sulfuric acid plant where the wind speed is equal to or more than 3 m/s, as measured by the meteorological station located at site 'DDG4', as shown in Figure 6 of Schedule 1.

14 The Licence Holder shall only start-up the sulfuric acid plant where the wind speed is less than 3 m/s If the wind direction originates within one of the following true compass arcs, as measured by the meteorological station located at site 'DDG04', as shown in Figure 6 in Schedule 1:

(a) between 0^o and 40^o;

(b) between 60^o and 285^o; and

(c) between 305^o and 360^o.

15 The Licence Holder shall immediately shut-down the sulfuric acid plant if either of the following circumstances occur for more than 60 consecutive minutes:

(a) the flow in the Final Absorption Tower is equal to or less than 250 m^3/h; or

(b) the percentage concentration of acid circulating in the sulfuric acid plant is equal to or more than 99.6%.

16 The Licence Holder shall ensure that where the sulfuric acid plant has been shut-down in accordance with condition 15, that it shall remain shut-down until:

(a) the cause of the circumstance(s) leading the shut-down has been rectified; and

(b) the CEO has been notified of the need for troubleshooting and how this troubleshooting is likely to rectify the problem.

Seepage Management

17 The Licence Holder must install additional seepage recovery infrastructure designed to recover seepage to reduce groundwater levels below 6 m below ground level (mbgl) by 24 August 2024. This must include as a minimum:

(a) Installation of at least one additional seepage recovery trench; and

(b) Investigation of additional seepage recovery infrastructure (e.g. seepage recovery bores / wells) as determined by a suitably qualified hydrogeologist.

Note 1: If additional seepage recovery bores are installed, they must adhere to the requirements as listed in Schedule 2.

18 The Licence Holder must ensure that the site infrastructure and equipment listed in Table 6 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 6.

Table 6: Infrastructure and equipment requirements

Site infrastructure and equipment	Operational requirement	Infrastructure location
Seepage recovery bores / wells	• Maintained for continued recovery of seepage so that standing groundwater levels as monitored in condition 36, Table 15 are below 6 m below ground level	Figure 7 and 8 of Schedule 1
Seepage interception trench	• Trench and sump associated to the Seepage Collection system located along the southern flank of TSF2 are to be maintained for the collection and recovery of seepage. • Natural sediment trap located at the discharge point of the reinstated stormwater diversion drain to be maintained.	Referred to as 'Seepage Collection Trench' as shown in the Stormwater and Seepage Management Map in Figure 9 of Schedule 1.

Emissions

Emissions to land

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

Point source emissions to air

20 The Licence Holder shall ensure that where waste is emitted to air from the emission points in Table 7 and identified on Figure 3 in Schedule 1 it is done so in accordance with the conditions of this Licence.

Table 7: Point source emissions to air

Emission point reference (as shown in Figure 3)	Emission Point and source	Emission point height (m)	Source, including any abatement
A1	Acid Plant main stack	80	Acid Plant after the final absorber tower which includes a candle type mist eliminator
A2	Sulphur melter stack	10.5	Sulphur melter in Acid Plant
A3	PAL (pressure acid leach) 1 vent stack	30	Vent and pressure relief gases via gas scrubber
A4	PAL 2 vent stack	30	Vent and pressure relief gases via gas scrubber
A5	AL (Atmospheric Leach) vent stack	22	Interconnected vent system between Pre-Leach and AL tanks with a mist eliminator

Emission point reference (as shown in Figure 3)	Emission Point and source	Emission point height (m)	Source, including any abatement
A6	Secondary Neutralisation (SN) vent stack	22	SN tanks via mist eliminator

Emissions to land

21 The Licence Holder shall ensure that where waste is emitted to land from the emission points in Table 8 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this Licence.

Table 8: Emissions to land

Emission point reference and location	Description	Source including abatement
Irrigation Area	Discharge from irrigation pump station to on-site irrigation area	Treated wastewater pumped from wastewater treatment plant

22 The Licence Holder shall not cause or allow emissions to land greater than the limits listed in Table 9.

Table 9: Emission limits to land

Emission point	Parameter	Limit (including units)	Averaging Period
Irrigation Area	Total Nitrogen as (N)	88 kg/ha	Annual
	Total Phosphorus as (P)	20 kg/ha	Annual
	Total Biochemical Oxygen Demand	30 kg/ha	Daily

Fugitive emissions

23 From 1 November to 30 April, when the average wind speed is equal to or more than 15 metres per second between 0900 hours and 1600 hours for more than 30 consecutive minutes (as measured by the meteorological station located at site DDG 04, as shown in Schedule 1) the Licence Holder shall visually inspect the TSFs for fugitive dust emissions. The Licence Holder shall record the results of the inspection in a TSF dust monitoring log. The log shall include:

(a) the date and time of the inspection;

(b) the environmental conditions at the time of inspection, including wind direction and speed;

(c) actions taken in response by the Licence Holder; and

(d) the name and signature of the inspector.

24 The Licence Holder shall ensure that a high-capacity water truck is always available at the Shoemaker-Levy primary crushing facility stockpiles to supress fugitive dust from the stockpiles.

25 The Licence Holder shall ensure the dust suppression water sprays at the Shoemaker-Levy primary crushing facility are maintained and operated to minimise fugitive dust from

the facility.

Monitoring

General monitoring

26 The Licence Holder shall ensure that:

(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;

(b) all wastewater sampling is conducted in accordance with AS/NZS 5667.10;

(c) all groundwater sampling is conducted in accordance with AS/NZS 5667.11; and

(d) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured.

27 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; and

(c) six monthly monitoring is undertaken at least 5 months apart.

28 The Licence Holder shall record production or throughput data and any other process parameters relevant to any non-continuous or CEMS monitoring undertaken.

29 The Licence Holder shall ensure that all monitoring equipment used on the Premises to comply with the conditions of this Licence is calibrated in accordance with the manufacturer's specifications.

30 The Licence Holder shall, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the CEO accompanied with a report comprising details of any modifications to the methods.

Monitoring of point source emissions to air

31 The Licence Holder shall undertake the monitoring in Table 10 according to the specifications in that table.

Table 10: Monitoring of point source emissions to air

Emission point reference	Parameter	Reporting Units[1]			Averaging Period	Frequency[2]	Method
A1 (Acid Plant Main Stack)	Volumetric flowrate	Nm^3/s			60 minutes	Six monthly during operations	USEPA Method 2
	Sulfuric acid mist (H_2SO_4)	kg (expressed as SO_3)/ tonne of 100% acid or equivalent	mg/m^3	g/s			USEPA Method 6[3]
	Sulfur dioxide (SO_2)	kg/tonne of 100% acid or equivalent	mg/m^3	g/s			USEPA Method 6

Note 1: All units are referenced to STP dry

Note 2: Monitoring shall be undertaken to reflect normal operating conditions and any limits or conditions on inputs or production.

Note 3: Modified USEPA Method 6 permitted to obtain an SO_3 concentration.

32 The Licence Holder shall ensure that monitoring required under condition 31 of the Licence is undertaken at sampling locations in accordance with the AS 4323.1 or relevant part of the CEMS Code.

33 The Licence Holder shall ensure that all non-continuous monitoring and analysis undertaken pursuant to condition 31 is undertaken by a holder of NATA accreditation for the relevant methods of sampling and analysis.

Monitoring of emissions to land

34 The Licence Holder shall undertake the monitoring in Table 11 according to the specifications in that table.

Table 11: Monitoring of emissions to land

Emission point reference	Parameter	Units	Averaging Period	Frequency
WWTP ponds	Volumetric flow rate (cumulative)	m^3	Monthly	Continuous during operations
	pH	-	Spot sample	Monthly during operations
	Total suspended solids (TSS)	mg/L		
	Total dissolved solids (TDS)	mg/L		
	Biochemical oxygen demand	mg/L		
	Total nitrogen	mg/L		
	Total phosphorus	mg/L		
	Electrical conductivity	dS/m		

Process Monitoring

35 The Licence Holder shall undertake the monitoring in Table 12 according to the specifications in that table.

Table 12: Process monitoring

Process description	Parameter	Units	Frequency	Method
Tailings deposition	Volumes of tailings deposited into the TSF1 East Cell, TSF 1 West Cell and TSF2	m^3	Cumulative Monthly during operations	None specified
	Volumes of decant water recovered from the TSF1 and TSF2	m^3	Cumulative Monthly during operations	

Ambient environmental quality monitoring

36 The Licence Holder shall undertake the monitoring in Table 13 and Table 14 and identified in Schedule 1 according to the specifications in that table and record and investigate results that do not meet any limit or target specified.

Table 13: Monitoring of ambient air quality

Monitoring point reference and location	Parameter	Target	Units	Averaging period	Frequency	Method
DDG1, DDG2 DDG3, DDG4, DDG5, DDG6, DDG7, DDG8, DDG9, DDG10, DDG11, DDG12	Particulate matter (Total Insoluble Solids)	4	g/m^2/ month	Monthly during operations and three monthly when in care and maintenance	Continuous	AS/NZS 3580.10.1

Table 14: Monitoring of ambient groundwater quality

Monitoring point reference and location	Parameter	Trigger level	Limit	Units	Averaging period	Frequency
Irrigation Area RWC52, RWC53, RWC54, RWC55	Standing water level	-	-	mbgl	Spot sample	Quarterly
	pH	-		-		
	Electrical conductivity	-		dS/m		
	Total suspended solids, total nitrogen, total phosphorus	-	-	mg/L		
TSFs and evaporation ponds: MB1, MB2, MB4, MB5, MB6, MB7, MB8, MB9, MB10, MB11, MB12, MB13, MB14, MB15, MB61, MB62, MB63, MB64, MB65, MB66, MB67, MB68 RWB01, RWC20, RWC27(D), RWC30, RWC35, RWC 42. Buffer ponds: MB17, MB18, MB21, MB22, MB23. Limonite Pond (Sands Reject Storage Facility): MB24, MB25, MB34.	Standing water level	6	4	mbgl	Spot sample	Quarterly
	pH	-		-		
	Electrical conductivity	-		dS/m		
	Total dissolved solids, carbonate, bicarbonate, hydroxide, total alkalinity, calcium. chloride, potassium, magnesium, sulfur, sulfate. Aluminium, arsenic, barium, beryllium, cadmium, cobalt, copper, iron, lead, manganese, mercury, nickel, selenium, tin, vanadium, zinc.	-	-	mg/L		

Monitoring point reference and location	Parameter	Trigger level	Limit	Units	Averaging period	Frequency
TSFs PZ1, PZ2, PZ3, PZ4, PZ5, PZ7, PZ8, PZ9. PZ10. PZ11. PZ12. RWC49, RWC50, RWC56, MB60.	Standing water level	-	-	mbgl	Spot sample	Quarterly

37 In the event that the trigger level for standing water level is exceeded in any of the bores listed in Table 14, the Licence Holder must submit a seepage management plan to the CEO within 3 months of the exceedance occurring. The management plan must include installation of fit-for-purpose[1] seepage recovery bores, including justification for the number of bores and locations (as determined by a suitably qualified hydrogeologist).

Note 1: Monitoring bores should be kept separate from seepage recovery to ensure continuity and reliability of monitoring data. Conversion of monitoring bores into seepage recovery bores will therefore not be accepted.

38 The Licence Holder, following an exceedance of the target in Table 14, shall provide a report to the CEO within 28 days of becoming aware of the exceedance. The report shall include but not be limited to:

(a) time, date, gauge number and GPS location;

(b) the nickel content of the exceedance results; and

(c) an assessment of the cause of the exceedance.

Meteorological monitoring

39 The Licence Holder shall undertake the meteorological monitoring specified in Table 15.

Table 15: Meteorological monitoring

Monitoring station location	Parameter	Units	Method
DDG04 as shown on map in Schedule 1	Wind speed	m/s	AS 3580.14
	Wind direction	Degrees	
	Air temperature	°C	

40 The Licence Holder shall ensure that the meteorological monitoring station is:

(a) available for 90% of the time per calendar month;

(b) maintained to the manufacturer's specifications; and

(c) maintained by persons that are trained and approved by the manufacturer to service the monitoring station.

Monitoring of tailings storage facility water balance:

41 The Licence Holder must undertake monitoring of the water balance for all tailings storage facilities on-site each monthly period, and (as a minimum) record the following information:

(a) site rainfall;

(b) evaporation rate;

(c) volume of tailings deposited;

(d) percentage solids to liquids in the tailings slurry;

(e) volume of decant water recovered from the combined TSF infrastructure and subsequently stored within the series of evaporation ponds;

(f) volume of decant water transported to the process plant for re-use;

(g) estimate of seepage losses, for the following infrastructure:

(i) combined TSF infrastructure; and

(ii) series of evaporation ponds; and

(iii) volumes of seepage recovered via the following infrastructure:

(iv) seepage collection trench;

(v) toe drains;

(vi) series of catchment ponds; and

(vii) seepage recovery bore network.

Information

Records

42 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) 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 those 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.

43 The Licence Holder must submit to the CEO an Annual Audit Compliance Report within 60 days after the annual period, indicating the extent to which the Licence Holder has complied with the conditions in this Licence for the annual period.

44 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.

Reporting

45 The Licence Holder shall submit to the CEO an Annual Environmental Report within 60 calendar days after the end of the annual period. The report shall contain the information listed in Table 16 in the format or form specified in that table.

Table 16: Annual Environmental Report

Condition or table (if relevant)	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
Condition 12	Annual assessment of groundwater mounding due to seepage in the vicinity of TSF1 and TSF2	Groundwater plume contour map
Table 12	Annual average loads of each contaminant in the effluent discharged from the WWTP to the irrigation area during operations	None specified
Table 11	Monitoring of acid plant point source emissions to air during operations	
Table 12	Monitoring of emissions to land	
Table 13	Monitoring of tailings deposition and decant water recovered during operations	
Table 14	Monitoring of ambient air quality	
Table 15	Ambient groundwater monitoring	
Table 16	Meteorological monitoring	
Condition 41	Water balance monitoring	
Condition 44	Complaints summary	None specified
Condition 48	Compliance	Annual Audit Compliance Report (AACR)

Note 1: Forms are in Schedule 2

46 The Licence Holder must submit to the CEO, with the Annual Environmental Report required by condition 45 a review of monitoring undertaken, and must include but not be limited to:

(a) a clear statement of the scope of work carried out;

(b) a detailed description of the field methodologies employed;

(c) a summary of the field and laboratory quality assurance / quality control (QA/QC) program;

(d) copies of the field monitoring records and field QA/QC documentation;

(e) laboratory certificates including QA/QC documentation;

(f) an assessment of reliability of field procedures and laboratory results;

(g) a tabulated summary of results, as well as all raw data provided in an accompanying Microsoft Excel spreadsheet digital document/file (or a compatible equivalent digital document/file), with all results being clearly referenced to laboratory certificates of analysis;

(h) a diagram with aerial image overlay showing all monitoring locations and depicting groundwater level contours, flow direction and hydraulic gradient (relevant site features including discharge points and other potential sources of contamination must also be shown);

(i) any relevant process, production or operational data recorded under Condition 35;

(j) an interpretive summary and assessment of the results against relevant environmental guidelines and licence management triggers/limits;

(k) an interpretive summary and assessment of results against previous monitoring results;

(l) spatial assessments: where mean data are presented (e.g. time or distance), range and variability should also be presented, e.g. standard deviation or percentiles; and

(m) trend graphs to provide a graphical representation of historical results and to support the interpretive summary. Use of appropriate scales on axes is required to ensure any trends are visible and relevant to environmental guidelines.

47 The Licence Holder shall submit the information in Table 17 to the CEO according to the specifications in that table.

Table 17: Non-annual reporting requirements

Condition or table (if relevant)	Parameter	Reporting period	Reporting date (after end of the reporting period)	Format or form
-	Copies of original monitoring reports submitted to the Licence Holder by third parties	Not Applicable	Within 14 days of the CEOs request	As received by the Licence Holder from third parties

48 The Licence Holder shall submit a compliance document to the CEO, following the construction of each stage of the works as listed in Table 1 and Table 2.

49 The compliance document shall:

(a) certify that the works were constructed in accordance with the conditions of the Licence;

(b) be signed by a person authorised to represent the Licence Holder and contain the printed name and position of that person within the company.

Notification

50 The Licence Holder shall ensure that the parameters listed in Table 18 are notified to the CEO in accordance with the notification requirements of the table.

Table 18: Notification requirements

Condition or table (if relevant)	Parameter	Notification requirement[1]	Format or form[2]
Condition 19	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
Condition 5	Any failure or suspected failure of the integrity of a clay or HDPE liner for any containment pond		
Condition 15	Any event where the sulfuric acid plant is required to be shut-down according to condition 15.	Not required during care and maintenance	
Condition 36	Exceedance report in response to condition 38 target exceedance	Within 28 days of becoming aware of the exceedance	None specified

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

Definitions

In this Licence, the terms in Table 19 have the meanings defined.

Table 19: Definitions

Term	Definition
ACN	Australian Company Number
EP Act	*Environmental Protection Act 1986*
Annual Audit Compliance Report	a report in a format approved by the CEO as presented by the licensee or as specified by the CEO from time to time and published on the Department's website
annual period	means the inclusive period from 1 May until 30 April in the following year
AS/NZS 3580.10.1	means the Australian Standard AS/NZS 3580.10.1 *Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method*
AS 4323.1	Australian Standard AS4323.1 *Stationary Source Emissions Method 1: Selection of sampling positions*
AS/NZS 5667.1	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 5667.10	Australian Standard AS/NZS 5667.10 *Water Quality – Sampling – Guidance on sampling of waste waters*
AS/NZS 5667.11	Australian Standard AS/NZS 5667.11 *Water Quality – Sampling – Guidance on sampling of groundwaters*
averaging period	the time over which a limit or target is measured or a monitoring result is obtained
buffer ponds	the 'saprolite buffer pond' and 'limonite buffer pond' as depicted in Figure 2a in Schedule 1
Care and maintenance	the period during the suspension of mining operations as defined in the *Mining Act 1978*.
CEMS	continuous emissions monitoring system
CEMS Code	the current version of the Continuous Emission Monitoring System (CEMS) Code for Stationary Source Air Emissions, Department of Environment

	& Conservation, Government of Western Australia
CEO	Chief Executive Officer of the Department of Water and Environmental Regulation
Department	Administering the *Environmental Protection Act 1986*
dS/m	deci-Siemens per metre
EP Act	*Environmental Protection Act 1986 (WA)*
EP Regulations	*Environmental Protection Regulations 1987 (WA*)
freeboard	the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point
fugitive emissions	all emissions not arising from point sources identified
Licence	this Licence numbered L8008/2004/3 and issued under the Act
Licence Holder	the person or organisation named as Licence Holder on page 1 of the Licence
mine dams	the dams labelled 'Northern Saline Pond, 'Central Saline Pond, 'Southern Saline Pond' and 'Eastern Sediment Ponds' as depicted in Figure 2a in Schedule 1
mgbl	metres below ground level
NATA	National Association of Testing Authorities, Australia
NATA accredited	in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis
normal operating conditions	any operation of a particular process (including abatement equipment) excluding start-up, shut-down and upset conditions, in relation to stack sampling or monitoring
Operation/'s	the period during mining operations as defined in the Mining Act 1978
Premises	the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Licence
process ponds	'Northern Stormwater Pond', 'Desalination Pond', 'raw water pond' and 'hypersaline pond' as

	depicted in Figure 2a in Schedule 1
quarterly	the 4 inclusive periods from 1 January to 31 March, 1 April to 30 June, 1 July to 30 September, and 1 October to 31 December in the same year
Schedule 1	Schedule 1 of this Licence unless otherwise stated
Schedule 2	Schedule 2 of this Licence unless otherwise stated
Shut-down	means the period when plant or equipment is brought from normal operating conditions to inactivity
six monthly	the 2 inclusive periods from 1 January to 30 June and 1 July to 31 December in the same year
spot sample	a discrete sample representative at the time and place at which the sample is taken
stack test	a discrete set of samples taken over a representative period at normal operating conditions
start-up	the period when plant or equipment is brought from inactivity to normal operating conditions
STP dry	standard temperature and pressure (0^{o}Celsius and 101.325 kilopascals respectively), dry
Suitably qualified hydrogeologist means a person who:	a person who: a) Holds a Bachelor of Science, or a hydrogeology related tertiary level qualification; and b) Has a minimum of at least 3 years experience working in the field of hydrogeology
TSF	an engineered containment pond or dam used to store tailings (Tailings Storage Facility)
USEPA	United States (of America) Environmental Protection Agency
USEPA Method 2	the USEPA's *Method 2 – Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)*
USEPA Method 6	the USEPA's *Method 6 – Determination of Sulfur Dioxide Emissions from Stationary Sources*
usual working day	0800 – 1700 hours, Monday to Friday excluding public holidays in Western Australia

wastewater treatment ponds	the set of three ponds labelled ‘wastewater treatment plant pond’ as depicted in Figure 2a in Schedule 1
WWTP	waste water treatment plant and includes the treatment plant and pond system, which treats wastewater from the camp

Schedule 1: Maps

Figure 1: Prescribed Premises Map

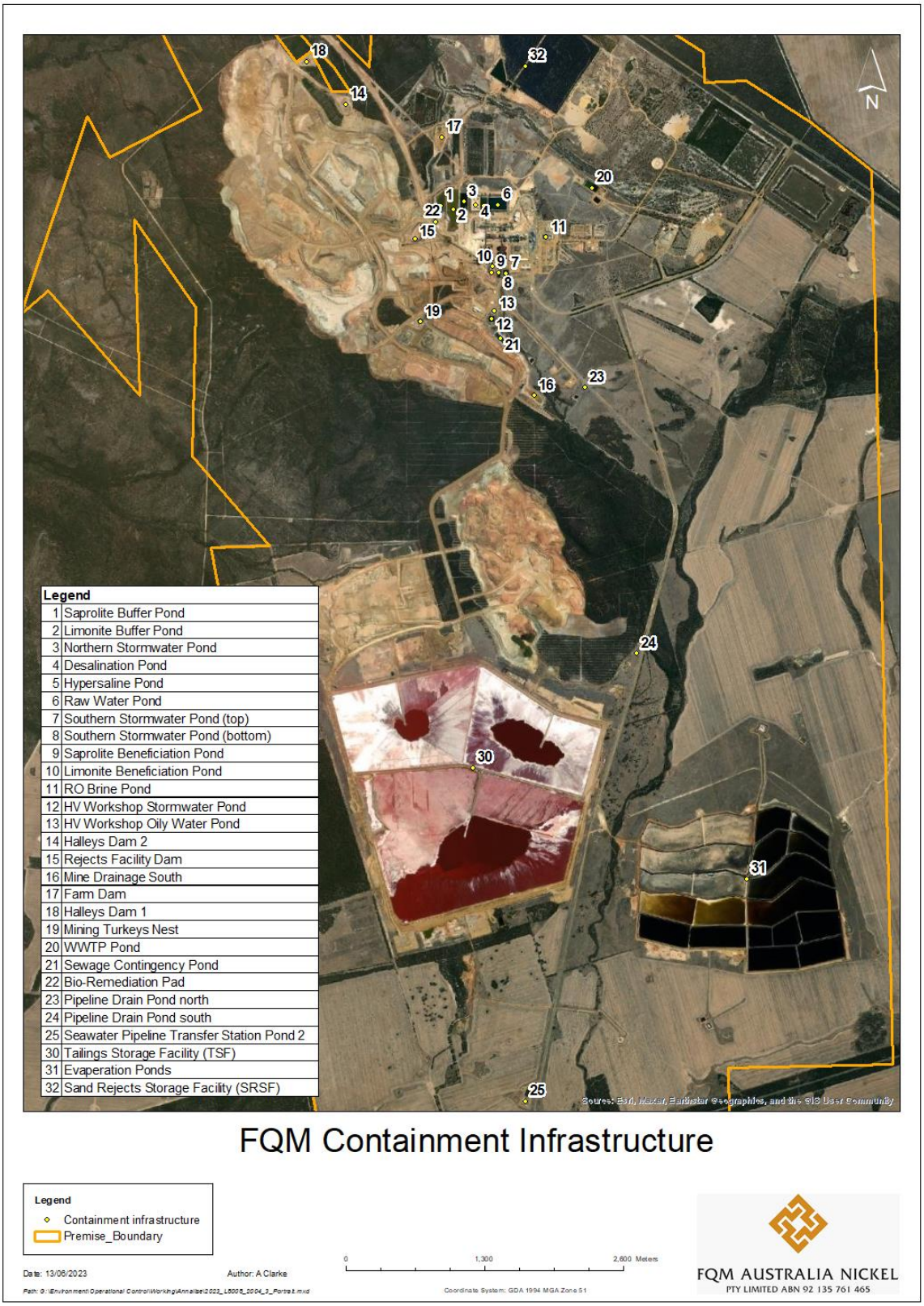

Figure 2a: Site map showing locations of process plant containment.

Figure 2b: Site map showing locations of SML containment infrastructure

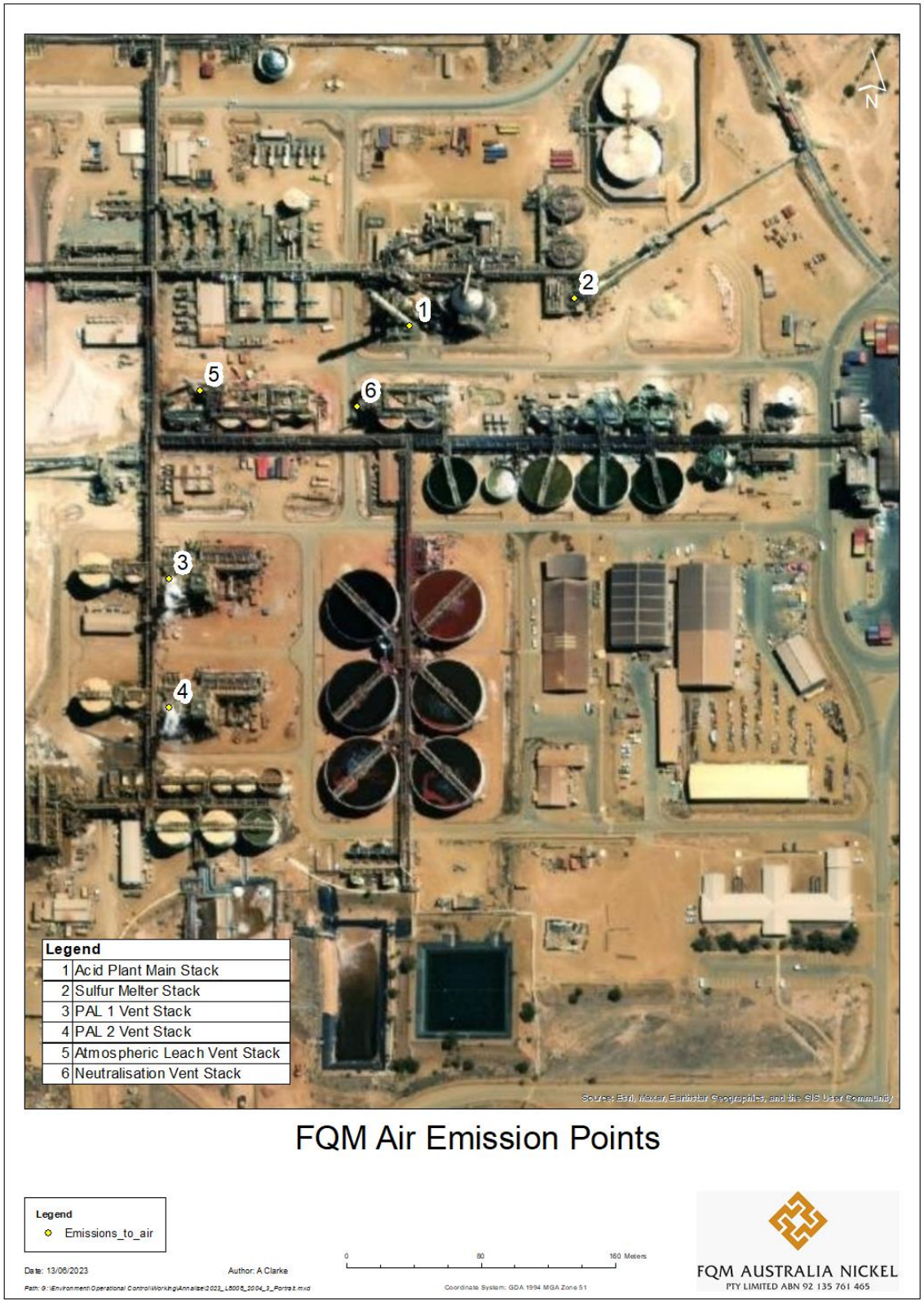

Figure 3: Locations of emission points to air

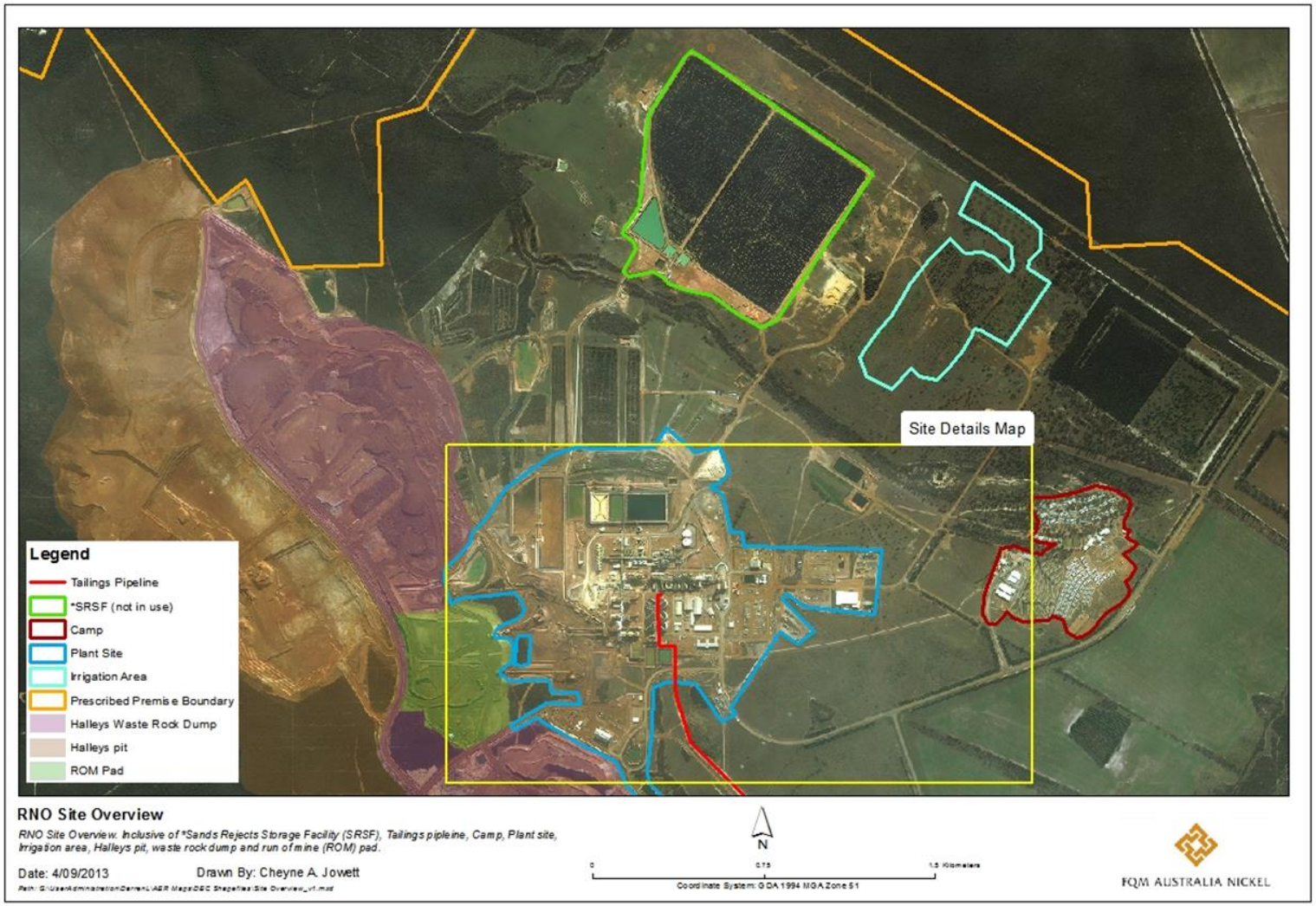

Figure 4: RNO Site overview map showing the location of the WWTP irrigation area in blue

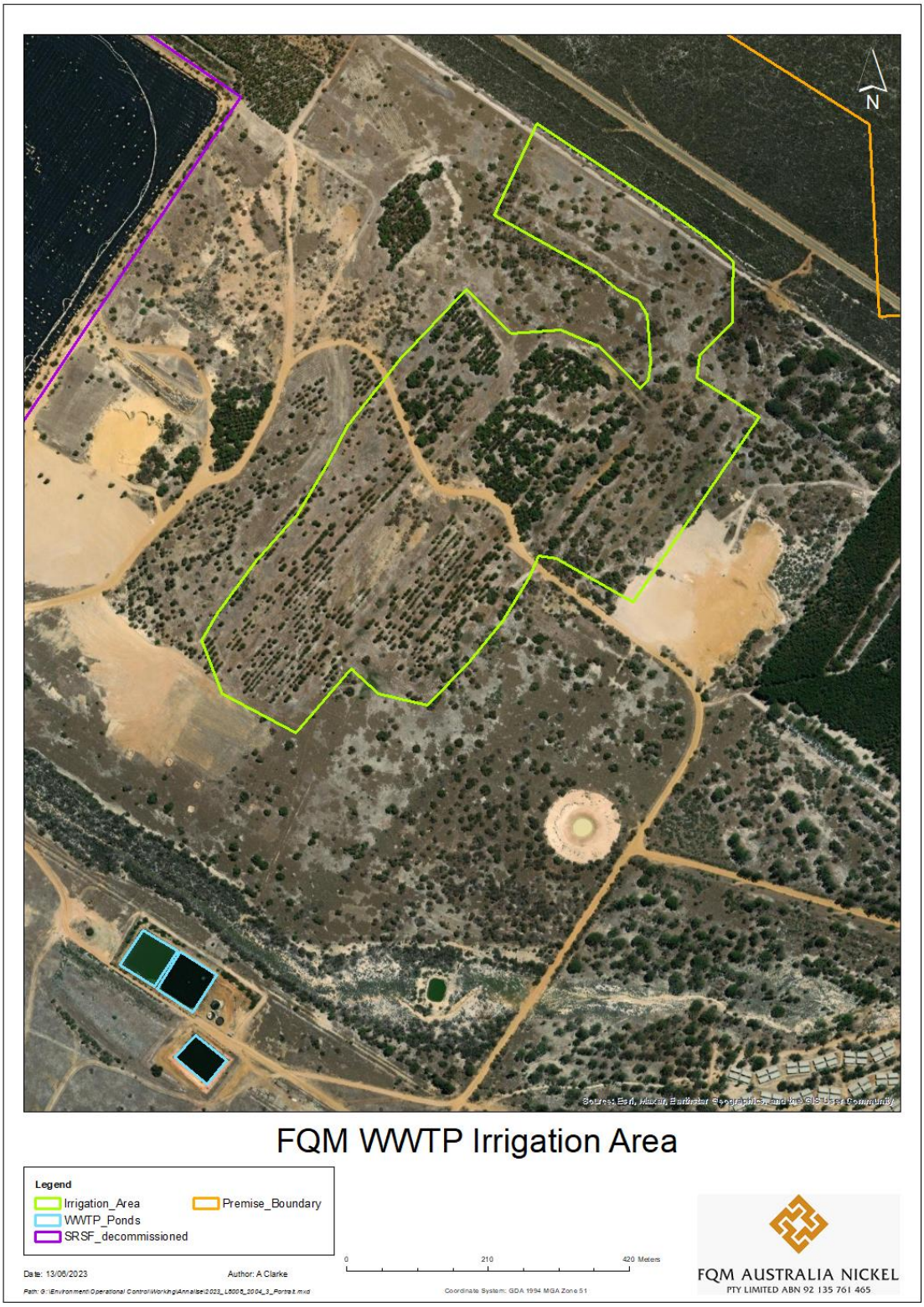

Figure 5: WWTP Irrigation Area

Figure 6: Location of dust deposition gauge (DDG) monitoring locations.

Figure 7: Locations of groundwater monitoring bores

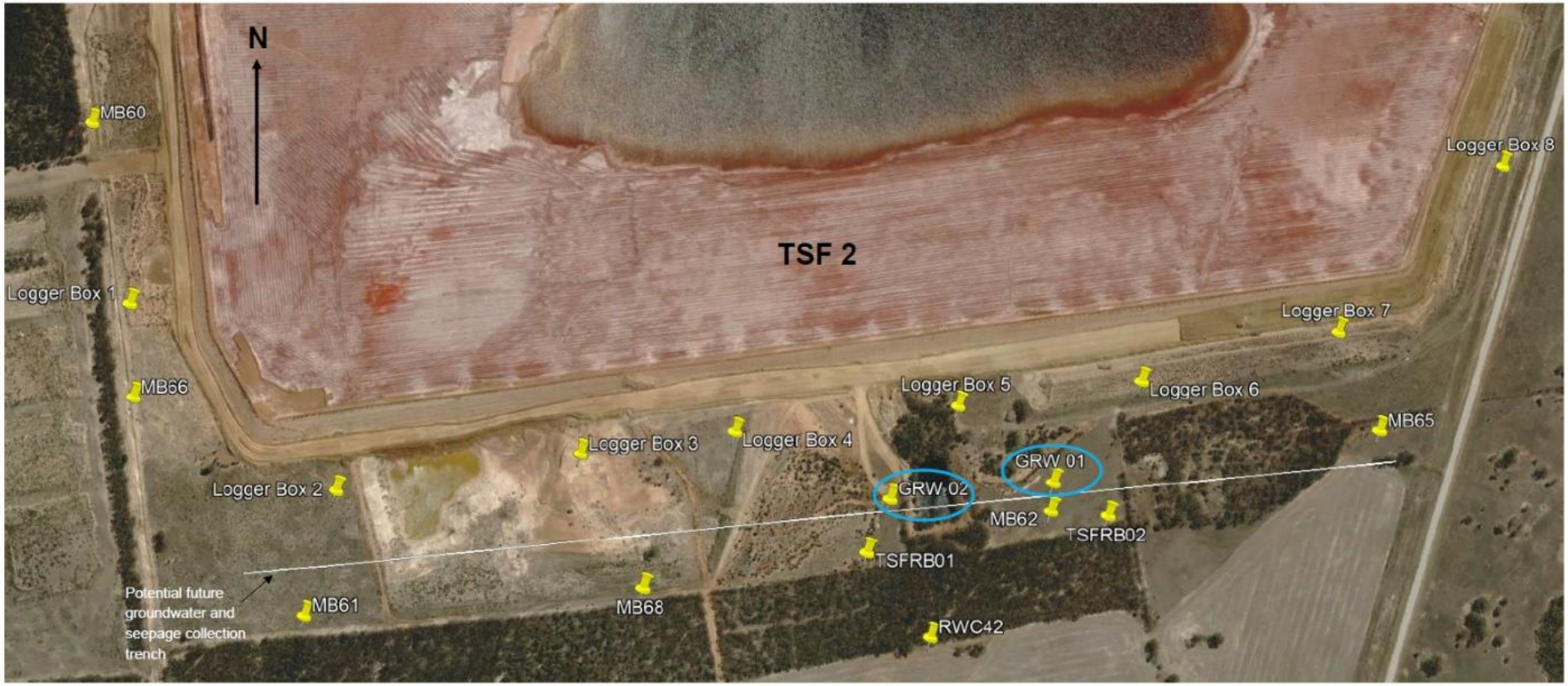

Figure 8: Map demonstrating location of additional seepage recovery wells proposed to be installed

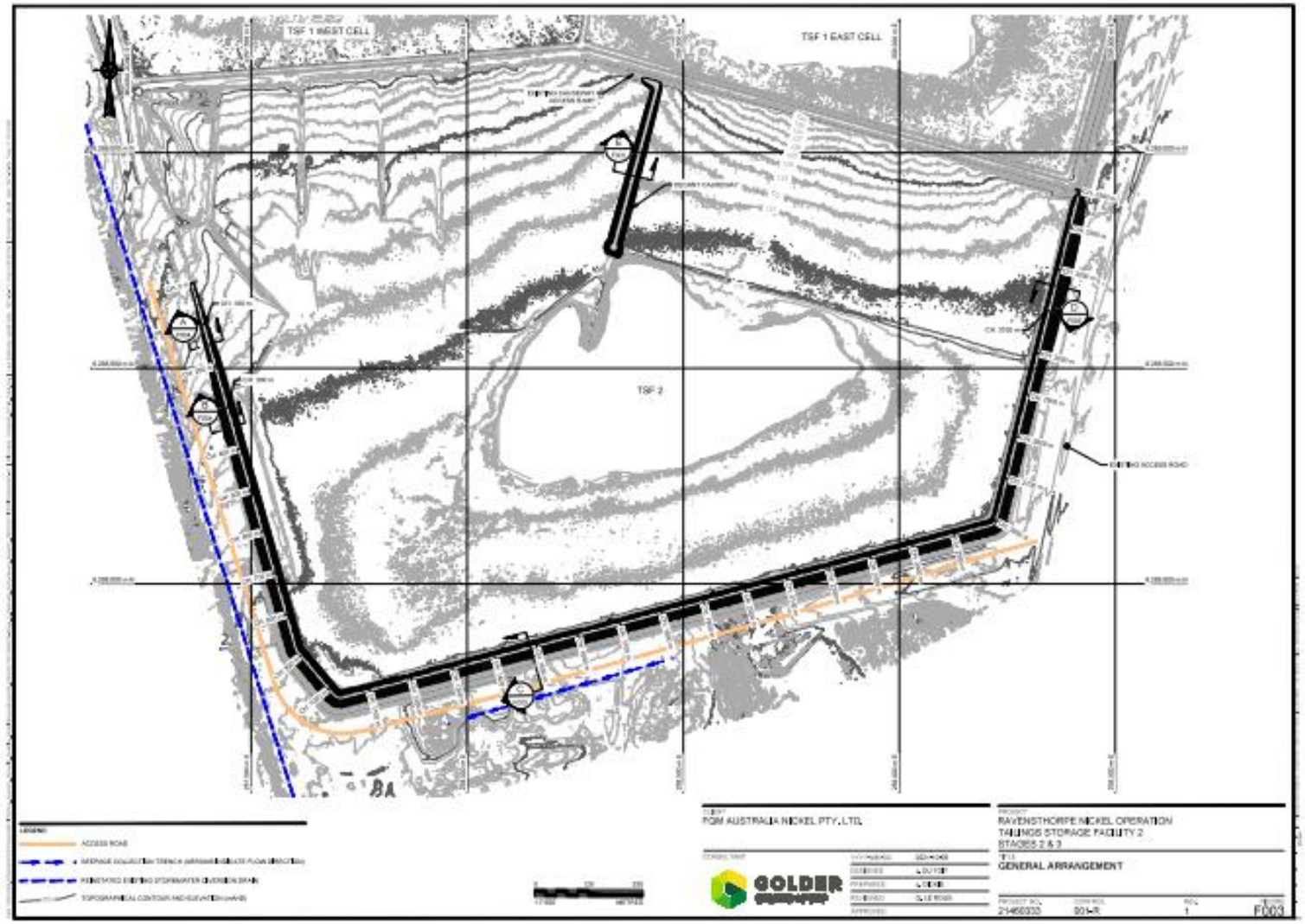

Figure 9 Stormwater and Seepage Management Infrastructure Plan

Schedule 2: Seepage well and trench construction requirements

The licence holder must install seepage recovery infrastructure in accordance with the requirements specified in Table S1.

Table S1: Seepage Recovery Infrastructure - Design and construction requirements / installation requirements

Infrastructure	Installation requirements	Infrastructure location
Seepage recovery infrastructure	Installed for recovery of seepage so that standing groundwater levels as monitored in condition 36, Table 14 are less than 6 m below ground level	Appropriate location of the infrastructure to be assessed and identified by suitably qualified hydrogeologist, supported by groundwater flow modelling and hydrogeological assessments.

Schedule 3: Notification Forms

Licence: L8008/2004/3 Licensee: FQM Australia Nickel Pty Ltd

Form: N1 Date of breach:

Notification of detection of the breach of a limit or any failure or malfunction of any pollution control equipment or any incident which has caused, is causing or may cause pollution.

1.1 These pages outline the information that the operator must provide.

2.1 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	

Notification requirements for any failure or malfunction of any pollution control equipment or any incident which has caused, is causing or may cause pollution	
Date and time of event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken , or intended to be taken, to stop any emission	
Description of the failure or accident	

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 FQM Australia Nickel Pty Ltd	
Date	