



Works approval number	W6475/2020/1
Works approval holder	Coburn Resources Pty Ltd
ACN	165 036 537
Registered business address	Level 9, 216 St Georges Terrace, PERTH WA 6000
DWER file number	DER2020/000541
Duration	21/06/2021 to 20/06/2026
Date of transfer	05/11/2021
Premises details	Coburn Mineral Sands Project Coburn Road, COBURN Legal description - Mining tenements M 09/102, M 09/103, M 09/104, M 09/105, M 09/106, M 09/111 and M 09/112

Prescribed premises category description (Schedule 1, <i>Environmental Protection Regulations 1987</i>)	Assessed production / design capacity
Category 8: Mineral sands mining or processing: premises on which mineral sands ore is mined, screened, separated or otherwise processed.	23.4 million tonnes per year
Category 52: Electric power generation: premises (other than premises within category 53 or an emergency or standby power generating plant) on which electrical power is generated using a fuel.	20 MW
Category 85B: Water desalination plant: premises at which salt is extracted from water if waste water is discharged onto land or into waters (other than marine waters).	0.62 GL per year

This works approval is transferred to the works approval holder, subject to the attached conditions, on 5 November 2021, by:

A/Manager, Resource Industries

REGULATORY SERVICES

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Works approval history

Date	Reference number	Summary of changes
21/06/2021	W6475/2020/1	New works approval granted.
05/11/2021	W6475/2020/1	Works approval transferred from Strandline Resources Limited to Coburn Resources Pty Ltd.

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 - general

1. The works approval holder must:
 - (a) construct and/or install the infrastructure;
 - (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.	Wet Concentrate Plant (WCP)	Settling and process water ponds to be compacted then lined with minimum 1.0 mm HDPE liner. Compacted and contoured so that all stormwater runoff reports to a sediment trap.	Labelled as 'Wet Concentrator plant location (Year 1-8)' in Schedule 1 Figure 1.
2.	Mineral Separation Plant (MSP)	Process water ponds to be compacted then lined with minimum 1.0 mm HDPE liner. Compacted and contoured so that all stormwater runoff reports to a sediment trap.	Within area labelled as 'Mineral Separation Plant and Power Generation site (fixed)' in Schedule 1 Figure 1.
3.	Stripping and stockpiling of overburden for initial mining area ¹	NA	Within the initial mining area specified in Schedule 1 Figure 1.
4.	Off path Tailings Storage Facility	<ul style="list-style-type: none"> Area cleared and grubbed of vegetation Bund constructed around the facility perimeter to contain tailings material and runoff Sump pump installed at the low point for water recovery to process water dam 	Labelled as 'Off Path Tails Site' in Schedule 1 Figure 1.
5.	Initial pipelines for ore, tailings and return water between initial mining area, processing plants and off-path TSF	Constructed with: <ul style="list-style-type: none"> automatic cut-outs in the event of a pipe failure; OR secondary containment sufficient to contain any spill for a period equal to the time between routine inspections; OR telemetry systems and pressure sensors along pipelines to allow the detection of leaks and failures 	Between the initial mining area on M09/102, the WCP and MSP and the off-path TSF (Schedule 1 Figure 1)

	Infrastructure	Design and construction / installation requirements	Infrastructure location
6.	Pipelines for tailings and return water from processing plants to mine voids	Constructed with: <ul style="list-style-type: none"> • automatic cut-outs in the event of a pipe failure; OR • secondary containment sufficient to contain any spill for a period equal to the time between routine inspections; OR • telemetry systems and pressure sensors along pipelines to allow the detection of leaks and failures 	Between the WCP and MSP and the off-path TSF and mine voids in the initial mining area on M09/102 (Schedule 1 Figure 1: Map of the prescribed premises)
7.	Reverse osmosis desalination plant	<ul style="list-style-type: none"> • Brine output to be fed into the process water circuit 	'RO Plant Site' on Schedule 1 Figure 1.
8.	10 x 2.0 MW gas generator units	<ul style="list-style-type: none"> • Installed to manufacturer's specifications • Exhaust stack height to be approximately 10m • Designed to meet Australian Standard AS 3814 • Include air emissions monitoring points 	Within area labelled as 'Mineral Separation Plant and Power Generation site (fixed)' in Figure 1.
9.	LNG unloading storage vaporisation facility with four (4) 300 kL LNG Storage tanks;	<ul style="list-style-type: none"> • Installed to manufacturer's specifications • Exhaust stack height to be approximately 10m • Designed to meet Australian Standard AS 3814 • Include emissions monitoring points 	

Note 1: Topsoil and subsoil stripping are not considered to fall within Category 8 Mineral sands mining and processing, so are outside the scope of this works approval.

Infrastructure and equipment – groundwater monitoring bores

- 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 wells MMB1-MMB27	<p><u>Well design and construction:</u></p> <p>Designed and constructed in accordance with <i>ASTM D5092/D5092M-16: Standard practice for design and installation of groundwater monitoring bores</i>.</p> <p>Well screens must target the part, or parts, of the aquifer most likely to be affected by contamination¹. Where temporary/seasonal perched features are present, wells must be nested, and the perched features individually screened.</p>	As depicted in Schedule 1, Figure 2: Mounding Monitoring Bore Locations.	Must be constructed, developed (purged), and determined to be operational prior to the commencement of environmental commissioning

Infrastructure	Design, construction, and installation requirements	Monitoring well location(s)	Timeframe
	<p><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.</p> <p><u>Well construction log:</u> Well construction details must be documented within a well construction log to demonstrate compliance with <i>ASTM D5092/D5092M-16</i>. 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.</p> <p><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.</p> <p><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.</p> <p><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.</p>		activities under condition 7.

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 60 calendar days of the last monitoring well identified in condition 2 being constructed, submit to the CEO a well construction report evidencing compliance with the requirements of condition 2.
4. The works approval holder must within 60 calendar days of an item of infrastructure 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.
5. The Environmental Compliance Report required by condition 4, must include as a minimum the following:
- (a) certification by a professional engineer 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.

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 condition 4 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
Initial pipelines for ore, tailings and return water between initial mining area, processing plants and off-path TSF	Flush to capacity with process water to check for leaks Corrective measures taken for early detection of leaks.	For a period not exceeding 30 calendar days in aggregate.
Pipelines for tailings and return water from processing plants to mine voids	Flush to capacity with process water to check for leaks Corrective measures taken for early detection of leaks.	For a period not exceeding 30 calendar days in aggregate.

8. During environmental commissioning, the works approval holder must ensure that the emission(s) specified in Table 4, are discharged only from the corresponding discharge point(s) and only at the corresponding discharge point location(s).

Table 4: Authorised discharge points during commissioning

Emission	Discharge point	Discharge point location
Process water	Off path TSF	Labelled as 'Off Path Tails Site' in Figure 1
	Mine void	Mine voids within the initial mining area defined in Schedule 1, Figure 1

9. 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.

Time limited operations phase

Commencement and duration

10. The works approval holder may only commence time limited operations for an item of infrastructure identified in condition 1:
- (a) After submission of groundwater modelling for the authorised initial mining area shown in Schedule 1: Figure 1; and
 - (b) where the item of infrastructure is not authorised to undertake environmental commissioning under condition 7, the Environmental Compliance Report as required by condition 4 has been submitted by the works approval holder for that item of infrastructure; and
 - (c) 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 9 has been submitted by the works approval holder.
11. The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 12 (as applicable):
- (a) for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 10 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*, if one is granted before the end of the period specified in condition 11(a).

Time limited operations requirements

12. During time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 5 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 5.

Table 5: Infrastructure and equipment requirements during time limited operations

	Site infrastructure and equipment	Operational requirement	Infrastructure location
1.	Pipelines for ore, tailings and return water	Maintained with: <ul style="list-style-type: none"> automatic cut-outs in the event of a pipe failure; OR secondary containment sufficient to contain any spill for a period equal to the time between routine inspections; OR telemetry systems and pressure sensors along pipelines to allow the detection of leaks and failures 	Between the initial mining area on M09/102 and the WCP and MSP. Pipelines may be realigned and extended as required as mining progresses

13. During time limited operations, the works approval holder must ensure that the emissions specified in Table 6, are discharged only from the corresponding discharge points and only at the corresponding discharge point location(s).

Table 6: Authorised discharge points

	Emission	Discharge point	Discharge point location
1.	Mineral sands tailings	Off Path TSF	Labelled as 'Off Path Tails Site' in Schedule 1: Figure 1.
		Mine voids	Within the mining area specified in Schedule 1: Figure 1.
2.	Process water	WCP settling pond	Within the area labelled as 'Wet Concentrator plant location (Year 1-8)' in Figure 1.
		WCP process water pond	
		MSP process water pond	Within area labelled as 'Mineral Separation Plant and Power Generation site (fixed)' in Figure 1.

Compliance reporting

14. 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.
15. The works approval holder must ensure the report required by condition 14 includes the following:
- a summary of the time limited operations, including timeframes and amount of ore processed;
 - a summary of groundwater monitoring results obtained during time limited operations under condition 20.

- (c) a summary of the environmental performance of all infrastructure as constructed or installed (as applicable);
- (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.

General conditions (throughout all phases of this works approval)

- 16. The works approval holder must take all reasonable and practicable measures to prevent stormwater run-off, including that used for process water, becoming contaminated by the activities and operations undertaken at the premises.
- 17. The works approval holder shall immediately recover, or remove and dispose of, spills of environmentally hazardous materials including fuel, oil, or other hydrocarbons, whether inside or outside an engineered containment system.
- 18. The works approval holder shall ensure that all material used for the recovery, removal, and/or disposal of environmentally hazardous materials is stored in an impermeable container prior to disposal at an appropriately authorised facility.
- 19. The works approval holder shall:
 - (a) undertake inspections as detailed in Table 7;
 - (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 7: Inspection of infrastructure

Scope of inspection	Type of inspection	Frequency of inspection
Tailings and return water pipelines	Visual integrity and leak assessment	Daily whilst operating

Monitoring (throughout all phases of this works approval)

20. The works approval holder must monitor the groundwater throughout the duration of this works approval for concentrations of the identified parameters in accordance with Table 8.

Table 8: Monitoring of ambient groundwater

Monitoring location	Parameter	Unit	Frequency
Groundwater monitoring wells MMB1-MMB27	Standing Water Level ¹	mbgl	<u>Pre mining:</u> Every second weekly period for one year providing background data prior to mining; then each monthly period until the commencement of time limited operations. <u>Time limited operations:</u> each weekly period
	pH ¹	-	<u>Pre mining:</u> Every second weekly period for one year prior to mining; then monthly until mining commences <u>Time limited Operations:</u> Each quarterly period
	EC ¹	µS/cm	
	TDS ¹	ppm	
	Total Alkalinity, Total Hardness, Cl, CO ₃ /HCO ₃ , SO ₄ , NO ₃ , NO ₂ , Na, K, Ca, Mg, Fe, SiO ₂ , Al, Mn, As, Cd, Cu, Pb, Se and Zn.	mg/L	Annually

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

21. The works approval holder must record the results of all monitoring activity required by condition 20.
22. The works approval holder must ensure that:
- monitoring is undertaken in each weekly period such that there are at least 4 days in between the days on which samples are taken in successive weeks;
 - monitoring is undertaken in each monthly period such that there are at least 15 days in between the days on which samples are taken in successive months;
 - monitoring is undertaken in each quarterly period such that there are at least 45 days in between the days on which samples are taken in successive quarters.
23. The works approval holder shall ensure that:
- all water samples are collected and preserved in accordance with AS/NZS 5667.11; and
 - 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.

Records and reporting (general)

24. 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:
- 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.
- 25.** 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 Table 5;
 - (c) monitoring programmes undertaken in accordance with condition 20; and
 - (d) complaints received under condition 24.
- 26.** The books specified under condition 25 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 9 have the meanings defined.

Table 9: Definitions

Term	Definition
AS/NZS 5667.11	The most recent version of Australian Standard <i>AS/NZS 5667.11 Water quality – sampling – guidance on sampling groundwater</i> .
books	has the same meaning given to that term under the EP Act.
calendar days	All days on the calendar, including weekends and public holidays.
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department administering the <i>Environmental Protection Act 1986</i> Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au
condition	a condition to which this works approval is subject under section 62 of the EP Act.
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> 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.
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	<i>Environmental Protection Act 1986</i> (WA).
EP Regulations	<i>Environmental Protection Regulations 1987</i> (WA).

Term	Definition
HDPE	means high density polyethylene;
mbgl	metres below ground level
monthly period	means a one-month period commencing from the first day of a month until the last day of that month.
MSP	Mineral Separation Plant
premises	the premises to which this works approval applies, as specified at the front of this works approval 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.
quarterly period	means a three-month period <ul style="list-style-type: none"> • from the first day of January until the last day of March; or • from the first day of April until the last day of June; or • from the first day of July until the last day of September; or • from the first day of October until the last day of December of that same year.
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.
weekly period	means a seven-day period commencing from any Monday until the Sunday of the following week.
WCP	Wet Concentrate Plant
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 prescribed premises is shown in the map below (Figure 1). The premises boundary is shown in pink.

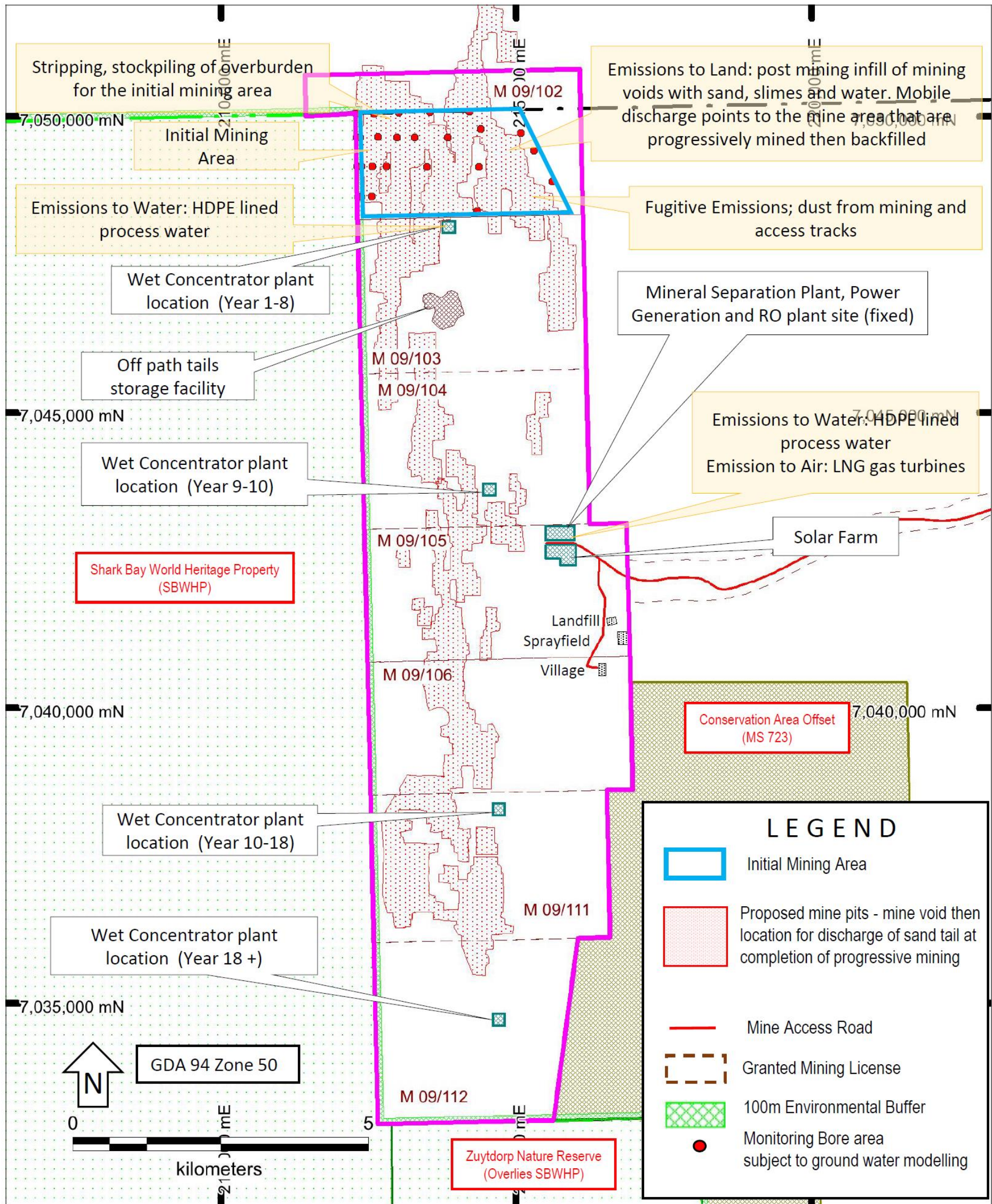


Figure 1: Map of the prescribed premises

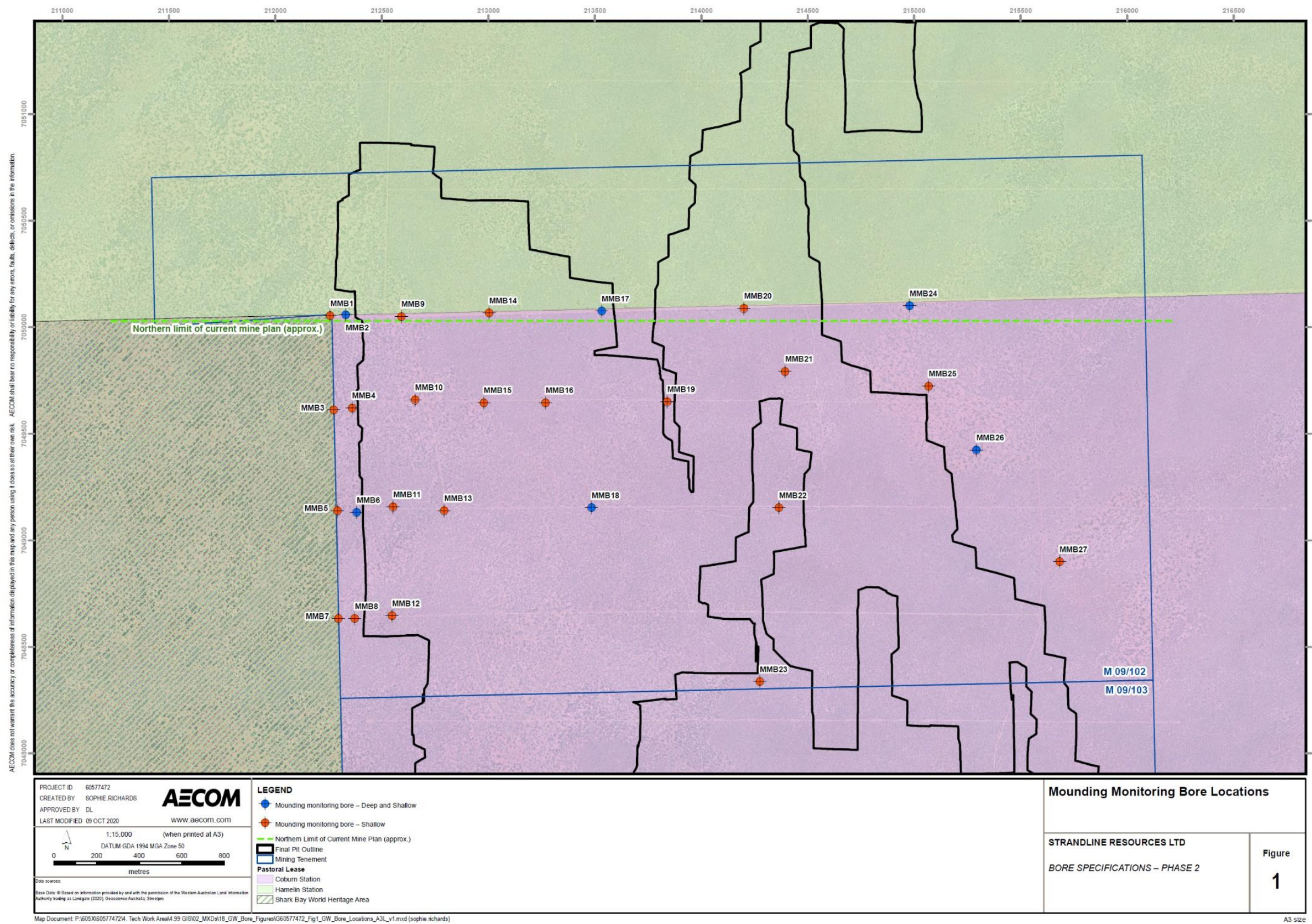


Figure 2: Mounding Monitoring Bore Locations

W6475/2020/1 (Date of transfer: 5/11/2021)
IR-T05 Works approval template (v5.0) (February 2020)