Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6707/2022/1
Works approval holder	Anax Metals Limited
ACN	106 304 787
Registered business address	Ground Floor West 20 Kings Park Road WEST PERTH WA 6005
DWER file number	DER2022/000193, APP-0029454
Duration	18/11/2022 to 17/11/2028
Date of issue	17/11/2022
Date of amendment	08/07/2025
Premises details	Whim Creek Copper Project Mining Leases M47/236, M47/237, M47/238, M47/443 North Coastal Highway WHIM CREEK WA 6718 As defined by the coordinates in Schedule 2

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	1,200,000 tonnes per annum
Category 7: Vat or in situ leach of metal	400,000 tonnes per annum
Category 64: Class II or III putrescible landfill site	500 tonnes per annum
Category 85: Sewage facility	40 m^3/day

This works approval is granted to the works approval holder, subject to the attached conditions, on 8 July 2025, by:

Jarrod Abrahams

Digitally signed by Jarrod Abrahams
Date: 2025.07.08 11:50:16 +08'00'

MANAGER, RESOURCE INDUSTRIES

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

Works approval history

Date	Reference number	Summary of changes
17/11/2022	W6707/2022/1	Works Approval granted.
08/07/2025	W6707/2022/1	Works Approval amended to extend the expiry date by three years.

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:

General

1. The works approval holder must monitor vegetation in accordance with the Whim Creek Vegetation Monitoring Plan.

2. The works approval holder must monitor groundwater in accordance with the Whim Creek Groundwater Monitoring Plan.

Construction phase

Infrastructure and equipment

3. 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;

(c) at the corresponding infrastructure location; and

(d) within the corresponding timeframe,

as set out in Table 1.

Table 1: Design and construction / installation requirements

	Infrastructure	Design and construction / installation requirements	Infrastructure location	Timeframe
1.	Overall Site Area	Stormwater controls: • Potentially contaminated runoff from the plant area and W-Drains reporting to Pond 6; • Clean runoff external to the infrastructure areas directed around the Environmental Pond; and • A sediment sump exists at the eastern downstream end of the crushing plant area, to capture stormwater runoff from the crushing facility and reduce sediment loads in runoff from the crushing plant area. The sump has a capacity of 1,000 m^3. The sump will be equipped with an extraction pump and captured water will be added to the processing circuit.	Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Environmental Compliance Report required by condition 9
2.	ROM Pad	• Sized to process up to 1.2 Mtpa of copper bearing ore.	Schedule 1: Maps, Premises	Prior to the submittal of the Environmental

	Infrastructure	Design and construction / installation requirements	Infrastructure location	Timeframe
			map, Figure 1	Compliance Report required by condition 9
3.	Jaw Crusher / Grizzly Feeder	Dust controls: • A sprinkler dust suppression system will be installed to prevent dust emissions during crushing; • Water sprays on the primary crusher discharge chute; • Equipped with automatic misting dust suppression; and • Dust suppression activates as the material is being loaded into the crusher and mists the ore to prevent dust generation.	Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Environmental Compliance Report required by condition 9
4.	Secondary/Tertiary Cone Crusher	Dust controls: • Ore will be damp from the dust control administered at the Jaw Crusher / Grizzly Feeder.	Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Environmental Compliance Report required by condition 9
5.	Triple deck screen	Dust controls: • Crushed ore from the Triple Deck Screen, Dewatering Screens, Ore Sorters is wet screened and fines within the ore removed. The ore discharging from the screens will have a moisture content of approximately 5-10% reducing the potential for dust generation downstream of the screens and through the sorting plant.	Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Environmental Compliance Report required by condition 9
6.	Dewatering Screens		Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Environmental Compliance Report required by condition 9
7.	Ore Sorters		Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Environmental Compliance Report required by condition 9

	Infrastructure	Design and construction / installation requirements	Infrastructure location	Timeframe
8.	In line pressure jigs	Dust controls: • In Line Pressure Jigs, Agglomerator, Conveyors - fines from the ore are slurried with water and recovered using in line pressure jigs. Fines are discharged and dispatched as a moist cake reducing the potential for dust generation.	Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Environmental Compliance Report required by condition 9
9.	Agglomerator	Dust controls: • In Line Pressure Jigs, Agglomerator, Conveyors - fines from the ore are slurried with water and recovered using in line pressure jigs. Fines are discharged and dispatched as a moist cake reducing the potential for dust generation. Leaks/spills: • The Agglomerator, once installed, will be sealed and contained within a concrete bund equipped with a pump to extract any potential raffinate solution spills; and • In the event of a raffinate spill, solution is contained within the bunded area and returned to the raffinate pipeline. Stormwater: • A roof will be constructed over the Agglomerator bund to ensure no stormwater is captured in the bund.	Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Environmental Compliance Report required by condition 9
10.	Bacterial Farm	• Bioleaching of ore via the existing Heap Leach Facility; • Bacterial culture is cultivated in 1000L tanks at the bacterial farm prior to being manually added to raffinate solution; and • Tanks will be sufficiently bunded and any spills will report to a sump equipped with an extraction pump which will pump solution directly to the heap leach pad.	Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Environmental Compliance Report required by condition 9
11.	Conveyors	Dust controls: • In Line Pressure Jigs,	Schedule 1: Maps, Premises	Prior to the submittal of the

	Infrastructure	Design and construction / installation requirements	Infrastructure location	Timeframe
		Agglomerator, Conveyors - fines from the ore are slurried with water and recovered using in line pressure jigs. Fines are discharged and dispatched as a moist cake reducing the potential for dust generation; • A sprinkler dust suppression system will be installed to prevent dust emissions during crushing; and • Water sprays on the primary crusher discharge chute.	map, Figure 1	Environmental Compliance Report required by condition 9
12.	Landfill	• Maximum quantity of putrescible and non-recyclable inert waste to be disposed is 500 tpa; • Maximum quantity of tyres to be disposed is 100 tyres per anuum; • For disposal of Class II wastes; • Located within the footprint of the Whim Creek WRL; • The facility will comprise a series of trenches (~30 m x 10 m x 4 m deep); • Landfill will be fenced; • The WRL landfill will be constructed on a 10m thick oxide waste layer on siting of low permeability compacted silt stones which will inhibit the flow of leachate from the landfill cells; • The landfill sits on a thick layer of oxide waste approximately 30m above groundwater level. The compacted oxide waste layer suggests that the landfill poses a low risk to groundwater resources as infiltration will be negligible; • Earthen bunds will be constructed around the WRL landfill area to contain any potentially contaminated surface water run-off and allow clean surface water to flow around the perimeter of the landfill area; • Waste is placed in a defined trench or within an area or enclosed by earthen bunds; and • When waste material is covered	Schedule 1: Maps, Premises map, Figure 2	Prior to the submittal of the Environmental Compliance Report required by condition 9

	Infrastructure	Design and construction / installation requirements	Infrastructure location	Timeframe
		with sufficient quantities of inert waste, clean fill or other appropriate cover material, the area is traversed by machinery and compacted, reducing the stormwater infiltration risk at the facility and minimising the potential leachate seepage to groundwater. The landfill trenches will be built within a flat section of the WRL that has limited upgradient catchment. Soil excavated from each trench and existing oxide waste rock will be utilised to construct earthen stormwater bunds around the landfill area, diverting stormwater around the landfill and also prevent surface water from entering the trenches.		
13.	WWTP and Irrigation Area	• Activated Sludge Bioreactor (ASBR) WWTP with enclosed tanks; • WWTP will be equipped with a telemetry / instrumentation control room; • WWTP control system alarms when operational parameters are outside normal operating conditions; • Telemetry / instrumentation will include level sensors on the balance tank and treated effluent tanks and high level audible and visual (flashing light) alarms; • Balance tank sized to provide 24 hours buffer at 100% capacity; • Pressure sensors on the treated effluent pipeline will alarm in the event pressure varies outside expected operating parameters indicative of a possible leak, or less likely, blockage; • WWTP provided with Vendor's Premium Instrumentation Package (for Class C / Low Risk effluent), which includes ClearAccessTM remote access with email alerts on alarm conditions; • Effluent quality targeted at the	Schedule 1: Maps, Premises map, Figure 2	Prior to the submittal of the Environmental Compliance Report required by condition 9

	Infrastructure	Design and construction / installation requirements	Infrastructure location	Timeframe
		following values: ➢ pH 6.5 – 8.5 pH units; ➢ BOD <20 mg/L; ➢ TSS <30 mg/L; ➢ Total Nitrogen <40 mg/L; ➢ Total Phosphorus 4 -12 mg/L; and ➢ *E.Coli* <1,000 cfu/100mL; • Irrigation Area will be fenced to prevent ingress of fauna and livestock; • The nitrogen and phosphorus loading rates to the irrigation area will not exceed the *Water Quality Protection Note 22: Irrigation with nutrient-rich wastewater* of 480 kg/ha/yr and 120 kg/ha/yr respectively; • The WWTP will be constructed on a relatively flat area of ground, on a constructed hardstand pad. An earthen bund and small diversion drain will be constructed around the perimeter of the WWTP pad to divert stormwater runoff around the facility; and • The irrigation area will be constructed with earthen bunds around the perimeter of the irrigation area to divert stormwater runoff around the irrigation area and are designed to prevent stormwater ingress into the irrigation area.		
14.	Pipelines	• All pipelines carrying solution, raffinate etc. outside of the bunded SX-EW Plant bunded area will have telemetry installed to detect leaks in the event of a spill; and • All buildings, piping, valves and pumps will be designed and installed as per AS 3780-2008 and AS 4041-2006.	Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Environmental Compliance Report required by condition 9
15.	Heavy and Light Vehicle Workshops and Washdown Bay	• A multi-bay workshop on a concrete pad will be constructed for light and heavy vehicle maintenance located between the	Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Environmental

	Infrastructure	Design and construction / installation requirements	Infrastructure location	Timeframe
		Mons Cupri and Whim Creek pits; • Associated facilities include adjacent stores, tyre changing facility, 10 kL bunded lubrication storage, air compressors and a bunded oil change area on concrete hardstand with a waste oil storage tank; • A separate tank will store waste oil prior to removal from site for recycling; • A vehicle washdown facility exists for the cleaning of mining and mobile equipment and will be refurbished as part of the works. It includes a concrete pad, drive-in sump (for solids removal) and a water management system equipped with a grease trap and oil / water separator; • All chemical reagents will be stored within tanks in appropriately bunded facilities whereby 110% of the largest vessel and 25% of the total volume is contained according to AS 1940:2017 and AS1692-2006; and • All containment / storage bunds are constructed with return sumps. Bunds are designed to allow spills / solution to report to these sumps. All sumps are equipped with extraction pumps. Spills / solution that fall to ground are captured in sumps.		Compliance Report required by condition 9
16.	Bulk fuel storage	• All concrete floors, foundations (e.g. plinths) and floors will be tested/inspected for structural integrity. Bunded areas will be wet tested for permeability (i.e. fill with water and watch over time). Sections not meeting required standards for structural integrity will be replaced. Areas not meeting required containment integrity will be replaced or lined with appropriate coatings; • All tanks onsite will be inspected and tested to confirm the integrity. Where tanks fail testing, the tank	Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Environmental Compliance Report required by condition 9

	Infrastructure	Design and construction / installation requirements	Infrastructure location	Timeframe
		will be changed out, new for old; • All pipelines and valves will be pressure tested to confirm the integrity. Where testing fails the infrastructure will be changed out, new for old; • Six 55kL bunded diesel storage tanks; • Refuelling facility that includes a concrete hardstand under potential spillage/drip points and a low drive-over bunded refuelling apron with runoff directed to a sump and oil water separator, exists onsite and forms part of the sites fuel farm; • Another standalone 55kL bunded diesel storage tank exists for light vehicle refuelling at the rear of the SW-EX plant; • All diesel storage tanks onsite are bunded to comply with AS 1940:2017; • Gas Fired Power Station single bunded 10,000 L diesel tank complete with a dual hose bowser and piping is installed to supply black start and emergency backup generation; and • Accommodation Camp Power Station will have a diesel power station for initial power and backup supply. The camp power station will be self-contained, acoustic enclosed, diesel generators totaling 1.25 MW. The diesel generators will provide camp power prior to connection and commissioning of the Process Plant Gas Power Station. Fuel supply will be a bunded 55,000 L diesel tank complete with hose bowser. The bowser facility includes concrete hardstand under potential spillage/drip points and a low drive-over bunded refuelling apron with runoff directed to a sump.		
17.	Gas Fired Power Station	• An existing 2 MW natural gas fired power plant, supplied from a low	Schedule 1: Maps,	Prior to the submittal of

	Infrastructure	Design and construction / installation requirements	Infrastructure location	Timeframe
		pressure gas spur from the Karratha / Port Hedland link PEPL (PL22) will be recommissioned to provide the majority of site power requirements. Other minor and more remote power requirements will be met by mobile diesel generators; and • A single bunded 10,000 L diesel tank complete with a dual hose bowser and piping is installed to supply black start and emergency backup generation.	Premises map, Figure 1	the Environmental Compliance Report required by condition 9
18.	Accommodation Camp Power Station	• Diesel power station for initial power and backup supply to provide camp power prior to connection and commissioning of the Process Plant Gas Power Station; • Self-contained, acoustic enclosed, diesel generators totaling 1.25 MW; • Fuel supply will be a bunded 55,000 L diesel tank complete with hose bowser; and • The bowser facility includes concrete hardstand under potential spillage/drip points and a low drive-over bunded refuelling apron with runoff directed to a sump.	Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Environmental Compliance Report required by condition 9

4. The works approval holder must:

(a) construct the critical containment infrastructure;

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

(c) at the corresponding infrastructure location; and

(d) within the corresponding timeframe,

as set out in Table 2.

Table 2: Critical containment infrastructure design and construction requirements

	Infrastructure	Design and construction / installation requirements	Infrastructure location	Timeframe
1.	Heap Leach Pads	• Existing heap leach infrastructure will be used to recover copper from the primary sulphide agglomerates by bioleaching; • Constructed in 2005;	Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Critical Containment Infrastructure Report

	Infrastructure	Design and construction / installation requirements	Infrastructure location	Timeframe
		• Consists of 9 cells up to 500 m long x 70 m wide, with cells stacked concurrently side by side. Cells are divided at their bases by small bunds allowing for solution percolating through cells to be managed individually; • The total surface area of the heap is approximately 500m by 640m; • Geotechnically prepared and compacted base overlaid with HDPE; • A sub-base consisting of crushed low-grade ore or suitable waste was stacked to a depth of up to 500 mm and was pushed out over the HDPE to protect the integrity of the liner, allowing for an ore stacker and traffic on the leach pad; • Bacterial solution applied to the top of the heap by an irrigation network of sprinklers (wobblers) placed on top of the pads to ensure complete coverage; • The solution will percolate through the agglomerates and the spent heap prior to accumulating in the lined base of the heap; • Pregnant solution flows into the W-Drains; and • A system of drain coil was placed on the sub-base to ensure capture, collection and containment of leach solution and to ensure minimal phreatic head development.		required by condition 11
2.	W-Drains	• 2 x W-Drains to transfer solution from the Heap Leach Pads to the lined Process Ponds; • W-Drain East and W-Drain West; • W-Drain West discharges into Pond 1 and Pond 2; • W-Drain East discharges into Pond 3 and Pond 4; • Approximately 580 m long, 1.2 m deep with a top width of 10 m and a base width of 4 m; and	Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Critical Containment Infrastructure Report required by condition 11

	Infrastructure	Design and construction / installation requirements	Infrastructure location	Timeframe
		• HDPE lined.		
3.	Water Containment Ponds 1-5 Pond 1 – PLS A Pond 2 – PLS B Pond 3 - ILS Pond 4 – RAFF B Pond 5 – RAFF A	• Total capacity of the 5 ponds is approximately 48,800 m^3; • Pond 1 - 6,000 m^3; • Pond 2 – 6,000 m^3; • Pond 3 – 12,000 m^3; • Pond 4 – 12,000 m^3; • Pond 5 – 3,750 m^3; • Turkeys nest type design; • Compacted sand base approximately 100 mm thick covered in HDPE liner; • Ponds designed with spillways to transfer water in ascending order; • Rainfall will be retained within the lined Ponds 1-5 for events up to 1 in 5-year 72-hour rainfall event. Under greater, less frequent rainfall events local runoff will overflow from Pond 5 into Pond 6; and • HDPE pipeline diversion system will be installed to redirect excess water, from high rainfall events, from the W-Drains directly to Pond 6, bypassing Ponds 1-5. This diversion will minimise the potential for concentrated solutions contained within Pond 1-5 to wash into Pond 6 and potentially, subject to the amount of rainfall, then into the clay lined Environmental Pond.	Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Critical Containment Infrastructure Report required by condition 11
4.	Water Containment Pond 6	• Constructed within Environmental Pond; • Capacity 60,700 m^3; • HDPE lined; • Minimum design freeboard for system of 0.5 m; • Runoff from the Plant Area reports to Pond 6; and • Sufficient to retain runoff from the plant area for rainfall events up to a 72 hour, 1:20 year ARI event (note entire site is constructed to	Schedule 1: Maps, Premises map, Figure 1	

	Infrastructure	Design and construction / installation requirements	Infrastructure location	Timeframe
		account for a 1:100 ARI event).		
5.	Water Containment Environmental Pond	• Capacity of approximately 156,240 m^3; • Area of approximately 200 m long x 250 m wide; • Clay lined to permeability of at least 1 x 10^{-8} m/s; • Minimum design freeboard for system of 0.5 m; • In normal operating conditions receives water from other work areas, including the crushing and screening area and processing plant and clean runoff from the site where water evaporates; • In rainfall events that exceed the 72 hour, 1:20 year ARI, the Environmental Pond will receive process water that overflows from Pond 6 (note entire site is constructed to account for a 1:100 ARI event); • Clean runoff external to the infrastructure areas is directed around the Environmental Pond; • The Environmental Pond has been designed and constructed with an outlet spillway along the northern eastern wall. The spillway is approximately 35 m long, formed by lowering the embankment approximately 300 mm along this length. The spillway is designed for events larger than the design 1% AEP 72-hour event; and • The use of bore SWP2 as a contaminant recovery bore to help mitigate the risk of the plume migrating.	Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Critical Containment Infrastructure Report required by condition 11
6.	SX-EW Plant	• All concrete floors, foundations (e.g. plinths) and floors will be tested/inspected for structural integrity. Bunded areas will be wet tested for permeability (i.e. fill with water and watch over time). Sections not meeting required standards for structural integrity will be replaced. Areas not meeting required containment	Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Critical Containment Infrastructure Report required by condition 11

	Infrastructure	Design and construction / installation requirements	Infrastructure location	Timeframe
		integrity will be replaced or lined with appropriate coatings; • All tanks onsite will be inspected and tested to confirm the integrity. Where tanks fail testing, the tank will be changed out, new for old; • All pipelines and valves will be pressure tested to confirm the integrity. Where testing fails the infrastructure will be changed out, new for old; • To comply with AS 3780-2008; • Contained within bunded area; and • Spillages and stormwater that occur within this bund are captured in a sump and pumped to Pond 3 Raffinate Pond.		
7.	Acid Storage Tanks x 2	• Capacity 1 x 55 kL; • Capacity 1 x 180 kL; • Contained within new concrete bund; • All concrete floors, foundations (e.g. plinths) and floors will be tested/inspected for structural integrity. Bunded areas will be wet tested for permeability (i.e. fill with water and watch over time). Sections not meeting required standards for structural integrity will be replaced. Areas not meeting required containment integrity will be replaced or lined with appropriate coatings; • All tanks onsite will be inspected and tested to confirm the integrity. Where tanks fail testing, the tank will be changed out, new for old; • All pipelines and valves will be pressure tested to confirm the integrity. Where testing fails the infrastructure will be changed out, new for old; • Storage in line with AS 3780-2008; • Storage bunds constructed with return sumps. Bund designed to capture spills with solution reporting back to the sumps;	Schedule 1: Maps, Premises map, Figure 1	Prior to the submittal of the Critical Containment Infrastructure Report required by condition 11

	Infrastructure	Design and construction / installation requirements	Infrastructure location	Timeframe
		• Acid delivery transfer to occur at Acid Delivery Area with spills/leaks reporting to sumps; • Stored within tanks in appropriately bunded facilities whereby 110% of the largest vessel and 25% of the total volume is contained according to AS 1940:2017 and AS 1692:2006: • Pipelines contained within HDPE lined bund or concrete bund; • Pipelines outside of the SX-EW Plant bunded area X-EW bunded area equipped with telemetry systems and pressure sensors along pipelines to allow detection of leaks / spills; • Pipelines, valves and pumps designed and installed as per AS AS 3780-2008 and AS 4041-2006; and • Captured stormwater directed to process water circuit.		

5. The works approval holder must design, construct, and install groundwater monitoring wells in accordance with the requirements specified in Table 3.

Table 3: Infrastructure requirements – groundwater monitoring wells

Infrastructure	Design, construction, and installation requirements	Monitoring well location(s)	Timeframe
Groundwater monitoring well(s) to the north and north-west of any future operational areas with the potential to impact on groundwater quality	<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.	North and north-west of any future operational areas	Must be constructed, developed (purged), and determined to be operational by no later than 30 calendar days prior to the commencement of environmental commissioning activities under condition 14.
	<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.		

Infrastructure	Design, construction, and installation requirements	Monitoring well location(s)	Timeframe
	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: 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.		
	Installation survey: the vertical (top of casing) and horizontal position of each monitoring well must be surveyed and subsequently mapped by a suitably qualified surveyor.		
	Well network map: 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.		

6. The works approval holder must, within 60 calendar days of the monitoring wells being constructed, submit to the CEO a well construction report evidencing compliance with the requirements of condition 5.

Hyporheic fauna survey and Riparian vegetation criteria

7. The works approval holder must submit to the CEO, within 12 months from the date of this works approval, a report detailing a survey of hyporheic fauna in saturated Balla Balla Creek sediments:

(a) upstream of the mine site and in the likely groundwater discharge area from the mine site;

(b) for the purposes of indicating the level of species richness in the area and the impacts that mine discharge is having on species richness;

(c) to identify key organisms that could be used in toxicity testing to develop site-specific water quality criteria for key toxicants;

(d) develop site-specific water quality criteria using toxicity testing on key organisms from sites; and

(e) include a proposed timeframe to implement recommendations from the report.

8. The works approval holder must submit to the CEO, within 12 months from the date of this works approval, a report detailing a survey of riparian vegetation:

(a) to determine the impacts of mine-derived magnesium sulfate on riparian vegetation at the mine site;

(b) for the purposes of setting site-specific water quality criteria for protecting the riparian vegetation at the mine site; and

(c) include a proposed timeframe to implement recommendations from the report.

Compliance reporting

9. The works approval holder must within 7 calendar days of an item of infrastructure or equipment required by condition 3 being constructed and/or installed:

(a) undertake an audit of their compliance with the requirements of condition 3; and

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

10. The Environmental Compliance Report required by condition 9, must include as a minimum the following:

(a) certification by a suitably qualified professional engineer or builder that the items of infrastructure or component(s) thereof, as specified in condition 3, have been constructed in accordance with the relevant requirements specified in condition 3;

(b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 3; and

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

11. The works approval holder must within 7 calendar days of the critical containment infrastructure identified by condition 4 being constructed:

(a) undertake an audit of their compliance with the requirements of condition 4; and

(b) prepare and submit to the CEO a Critical Containment Infrastructure Report on that compliance.

12. The Critical Containment Infrastructure Report required by 11 must include as a minimum the following:

(a) certification by a suitably qualified professional engineer or builder that each item of critical containment infrastructure or component thereof, as specified in condition 4, has been built and installed in accordance with the requirements specified in condition 4;

(b) as constructed plans and a detailed site plan showing the location and dimensions for each item of critical containment infrastructure or component thereof, as specified in condition 4;

(c) photographic evidence of the installation of the infrastructure;

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

(e) monitoring data indicating the baseline ambient environmental conditions at the premises prior to and immediately following construction of the items of infrastructure.

13. The monitoring of the baseline ambient environmental conditions required under condition 12 must be undertaken in accordance with Schedule 3: Ambient groundwater monitoring, Table 9.

Environmental commissioning phase

Environmental commissioning requirements and emission limits

14. The works approval holder may only commence environmental commissioning of an item of infrastructure identified in condition 15:

(a) once the Environmental Compliance Report has been submitted for that item of infrastructure in accordance with condition 9 of this works approval;

(b) where the CEO has notified the works approval holder that the Critical Containment Infrastructure Report for that item of infrastructure as required by condition 11 meets the requirements of that condition; or

(c) where at least 45 business days have passed after the Critical Containment Infrastructure Report for that item of infrastructure as required by condition 11 has been submitted to the CEO.

15. Any environmental commissioning activities undertaken for an item of infrastructure specified in Table 4 may be carried out:

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

(b) For the corresponding authorised commissioning duration.

Table 4: Environmental commissioning requirements

	Infrastructure	Commissioning requirements	Authorised commissioning duration
1.	Ore crushing and screening circuit	• Dry and wet commissioning to ensure equipment meets manufactures' specifications; • Water sprays to be utilised at the crushing and screening stations, tipping areas, conveyor transfer points and stockpiles; • If excessive visible dust emissions are noted then an assessment of the source will be made and additional water will be applied to key source areas, or alternative treatments applied; • The potential for high risk weather conditions for dust emissions (i.e. windy conditions) to be monitored and extra water applied in preparation; and • Visual monitoring of airborne dust levels and efficacy of dust extraction and suppression measures.	Six months
2.	Pumps and pipelines	• Running water through all pipelines to their designed flow and/or maximum pumping capacity; • Pipeline integrity will be tested for leaks and defects; • Residual water will be stored in environmental	

	Infrastructure	Commissioning requirements	Authorised commissioning duration
		ponds and then integrated into heap leach process; and • Minimum daily (each shift) inspections along pipelines	
3.	Heap Leaching Pads	• All ponds, collection drains ("W" Drain design) and solution transfer infrastructure must be in place and commissioned prior to stacking of copper bearing ore onto heap leach pads; • Commissioned by stacking of copper bearing ore; • The heap leach delivery pipes and containment corridor to be visually inspected daily for any visible leakage or damage; • The heap leach liners and containment pads to be visually inspected daily for any visible seepage or damage; • Clean and maintain sedimentation basins and sediment traps as required to maintain capacity; and • Inspect for erosion following significant rainfall events.	
4.	Water Containment Ponds 1-5 Pond 6 Environmental Pond	• Ponds 1-5 designed with spillways to transfer water in ascending order; • Sufficient freeboard of 0.5 m for Pond 6 and Environmental Pond will be maintained to prevent overtopping, using a submersible pump with automatic level correction; • Clean and maintain Water Ponds as required to maintain capacity; • Pond 6 and Environmental Pond maintained to remain empty; • Ponds, pumps and valves to be inspected regularly for leaks through the embankments; and • The use of bore SWP2 as a contaminant recovery bore to help mitigate the risk of the plume migrating.	
5.	SX-EW Plant	• Dry commissioning – comprising test operation of 'empty' but energised equipment and facilities (electrical motor bump testing, compressed air energized and leak tested, mechanical movement of refurbished or new equipment i.e. Cathode stripping machine); • Stage 1 wet commissioning - water testing will involve the stepwise testing and integration of process areas by pumping water through various process loops, checking plant control and operation;	

	Infrastructure	Commissioning requirements	Authorised commissioning duration
		• Stage 2 wet commissioning - addition of first fill materials to all process streams; and • Stage 3 ore introduction - addition of copper bearing ore.	
6.	Acid Storage Tanks x 2	• Once installed in the bunded area, the Acid Storage Tanks will undergo hydrostatic testing using water to confirm the integrity of the tanks and, transfer fittings, pipework and valves; and • During wet commissioning, transfer pumps will be energised and operated to test the integrity of transfer infrastructure work under operating pressures.	
7.	Areas containing hydrocarbons / chemicals	• Monthly inspections of storage and refuelling areas.	
8.	Process Control System	• The process control system will be progressively and systematically tested during commissioning to ensure functionality for all plant units and equipment items including sensors, meters, alarms, valves, pumps, fans and materials handling (e.g. conveyors). Testing will validate that all interlocks (safety and plant control) are functional. Initial checks will be static, progressing to testing start, stop and emergency stop scenarios under load (plant operating conditions).	
9.	WWTP	• The WWTP and treated effluent pipeline will be inspected daily; • Biological treatment phases (anaerobic and aerobic) of the treatment process build to steady state; • Treated effluent will be analysed weekly for comparison against the required performance criteria as set out in Table 1; and • Treated effluent will be stored in tanks in this period and recycled through the plant until sampling demonstrates treatment is achieving the required performance.	Eight weeks
10.	Irrigation Area	• Discharge of effluent to the sprayfield will commence once sample analyses indicates attainment of the plant performance criteria as set out in Table 1; and • The irrigation spray field area will be inspected daily.	

Monitoring during environmental commissioning

16. The works approval holder must monitor emissions during environmental commissioning in accordance with Schedule 3: Monitoring, Table 8.

17. The works approval holder must monitor the groundwater during environmental commissioning for concentrations of the identified parameters in accordance with Schedule 3: Monitoring, Table 9.

18. The works approval holder must record the results of all monitoring activity required by conditions 1, 2, 16 and 17.

19. The works approval holder must submit to the CEO an Environmental Commissioning Report within 60 calendar days of the completion date of environmental commissioning for each item of infrastructure specified in Table 1 and Table 2.

20. The works approval holder must ensure the Environmental Commissioning Report required by condition 19 of this works approval includes the following:

(a) a summary of the environmental commissioning activities undertaken, including timeframes, amount of copper bearing ore processed and copper plate produced;

(b) groundwater monitoring results recorded in accordance with condition 1;

(c) vegetation monitoring results recorded in accordance with condition 2;

(d) emissions concentrations monitoring results recorded in accordance with condition 16 with a comparison to the effluent criteria in Table 1;

(e) ambient concentrations monitoring results recorded in accordance with condition 17 with a comparison to previous monitoring results and summary;

(f) 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) commissioning of the infrastructure; and

(ii) testing of the infrastructure;

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

(h) 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

21. The works approval holder may only commence time limited operations for an item of infrastructure identified in condition 23:

(a) where the item of infrastructure is not authorised to undertake environmental commissioning, the Environmental Compliance Report as required by condition 10 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 14, the Environmental Commissioning Report

for that item of infrastructure as required by condition 19 has been submitted by the works approval holder.

22. The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 23 (as applicable):

(a) for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 21 (as applicable) 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 22 (a).

Time limited operations requirements and emission limits

23. 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 requirements set out in Table 5.

Table 5: Infrastructure and equipment requirements during time limited operations

	Site infrastructure and equipment	**Operational requirement**	**Infrastructure location**
1.	Ore crushing and screening circuit	• Water sprays to be utilised at the crushing and screening stations, tipping areas, conveyor transfer points and stockpiles; • If excessive visible dust emissions are noted then an assessment of the source will be made and additional water will be applied to key source areas, or alternative treatments applied; • The potential for high risk weather conditions for dust emissions (i.e. windy conditions) to be monitored and extra water applied in preparation; and • Visual monitoring of airborne dust levels and efficacy of dust extraction and suppression measures.	Schedule 1: Maps, Premises map, Figure 1
2.	Pumps and pipelines	• Heap leach pipelines will be inspected at the start of each shift; • Heap leach pipelines are installed in W-Drains or bunded as appropriate to ensure that any uncontrolled discharges from pipe or fitting failure can be contained and drain to the Water Containment Ponds; • Flow sensors are fitted to the heap leach pipelines to allow leaks to be detected and trigger the shut-down of pumps; and • The heap leach delivery pipes and containment corridor will be visually inspected daily for any visible leakage or damage.	Schedule 1: Maps, Premises map, Figure 1

	Site infrastructure and equipment	Operational requirement	Infrastructure location
3.	Heap Leaching Pads	• The heap leach delivery pipelines and containment corridor to be visually inspected daily for any visible leakage or damage; • The heap leach liners and containment pads to be visually inspected daily for any visible seepage or damage; • Clean and maintain sedimentation basins and sediment traps as required to maintain capacity; and • Inspect for erosion following significant rainfall events.	Schedule 1: Maps, Premises map, Figure 1
4.	Water Containment Ponds 1-5 Pond 6 Environmental Pond	• Sufficient freeboard of 0.5 m for ponds will be maintained to prevent overtopping, using a submersible pump with automatic level correction; • Clean and maintain Water Containment Ponds as required to maintain capacity; • Pond 6 and Environmental Pond maintained to remain empty; • Ponds, pumps and valves to be inspected regularly for leaks through the embankments; and • The use of bore SWP2 as a contaminant recovery bore to help mitigate the risk of the plume migrating.	Schedule 1: Maps, Premises map, Figure 1
5.	SX Plant	• The SX-EW Plant delivery pipes and containment corridor to be visually inspected daily for any visible leakage or damage; and • The SX-EW Plant bunding and containment to be visually inspected daily for any visible seepage or damage.	Schedule 1: Maps, Premises map, Figure 1
6.	EW Plant		Schedule 1: Maps, Premises map, Figure 1
7.	Acid Storage Tanks x 2	• Tanks, pipelines, pumps, sumps to be inspected daily.	Schedule 1: Maps, Premises map, Figure 1
8.	WWTP	• The WWTP and treated effluent pipeline will be inspected daily; and • Treated effluent will be analysed quarterly for comparison against the required performance criteria as set out in Table 1.	Schedule 1: Maps, Premises map, Figure 1
9.	Irrigation Area	• The irrigation spray field area will be inspected daily.	Schedule 1: Maps, Premises map, Figure 1
10.	Landfill	General: • Waste types accepted are:	Schedule 1: Maps, Premises map, Figure 1

	Site infrastructure and equipment	Operational requirement	Infrastructure location
		➢ Inert Waste Type 1; ➢ Inert Waste Type 2; ➢ Clean Fill; ➢ Uncontaminated Fill; and ➢ Putrescible Waste; • Waste must be placed in a defined trench or within an area enclosed by earthen windrows; • The active landfill area is managed such that at no time does landfilling result in an exposed face exceeding 2 m in vertical height; • The separation distance between the base of the landfill and the highest groundwater level must not be less than 3 m; • Maintain a minimum distance of at least 100 m between the previously filled areas of the landfill and the active tipping area and any surface water body; • The waste must be covered on a fortnightly basis; • A fence must be maintained around the active landfill area which is an effective barrier to cattle, horses and stock; • Undertake fortnightly inspections of the landfill fence and ensure any damage to the fence is repaired within one working day of its discovery; • Ensure that wind-blown waste is contained within the boundary of the landfill and that wind-blown waste is returned to the tipping area on at least a monthly basis; • Ensure that no waste is burnt on the Premises; and • Ensure that any unauthorized fire at the landfill is promptly extinguished. Tyre management: • Tyres must only be landfilled within the Whim Creek WRL; • Tyres must consist of batches of less than 100 whole tyres; • Batches must be separated from each other by at least 100 mm of soil; and • The location of where tyres are buried will be surveyed and the latitude and longitude recorded.	
11.	Areas containing hydrocarbons / chemicals	• Monthly inspections of storage and refuelling areas.	Schedule 1: Maps, Premises map, Figure 1

Monitoring during time limited operations

24. The works approval holder must monitor emissions during time limited operations in accordance with Schedule 3: Monitoring, Table 8.

25. The works approval holder must monitor the groundwater during time limited operations as per Schedule 3: Monitoring, Table 9.

Compliance reporting

26. 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.

27. The works approval holder must ensure the report required by condition 26 includes the following:

(a) a summary of the environmental commissioning activities undertaken, including timeframes, amount of copper bearing ore processed and copper plate produced;

(b) groundwater monitoring results recorded in accordance with condition 1;

(c) vegetation monitoring results recorded in accordance with condition 2;

(d) emissions concentrations monitoring results recorded in accordance with condition 16 with a comparison to the effluent criteria in Table 1;

(e) ambient concentrations monitoring results recorded in accordance with condition 17 with a comparison to previous monitoring results and summary;

(f) a summary of environmental performance of all infrastructure as constructed or installed (as applicable), which includes records detailing the:

(i) copper bearing ore processed;

(ii) copper plate produced;

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

(h) 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.

Records and reporting (general)

28. 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.

29. 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 3 and 4;

(b) any maintenance of infrastructure that is performed in the course of complying with conditions 3 and 4;

(c) monitoring programmes undertaken in accordance with conditions 1, 2, 16, 17; and

(d) complaints received under condition 28.

30. The books specified under condition 29 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 6 have the meanings defined.

Table 6: Definitions

Term	Definition
AS 1692-2006	Australian Standard AS 1692-2006 *Steel tanks for flammable and combustible liquids*
AS 1940:2017	Australian Standard AS 1940:2017 *The storage and handling of flammable and combustible liquids*
AS 3780-2008	Australian Standard AS 3780-2008 *The storage and handling of corrosive substances*
AS 4041-2006	Australian Standard AS 4041-2006 *Pressure piping*
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples.*
AS/NZS 5667.10	Means the Australian Standard AS/NZS 5667.10:1998 *Water quality – Sampling Guidance on sampling of waste waters.*
AS/NZS 5667.11	means the Australian Standard AS/NZS 5667.11 *Water Quality – Sampling – Guidance on sampling of groundwaters.*
ATSM	means American Society for Testing and Materials
books	has the same meaning given to that term under the EP Act.
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
Clean Fill	has the meaning defined in Landfill Definitions
critical containment infrastructure	means the items of infrastructure listed in condition 4, Table 2.
Critical Containment Infrastructure Report	means a report to satisfy the CEO that works of critical containment infrastructure have been constructed in accordance with the works approval.

Term	Definition
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.
DO	Dissolved Oxygen
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.
EW Plant	Electrowinning Plant
EP Act	*Environmental Protection Act 1986* (WA).
EP Regulations	*Environmental Protection Regulations 1987* (WA).
GCL	Geosynthetic Clay Liner
HDPE	High density polyethylene
HLF	Heap leach facility
ILS	Intermediate Leach Solution
Inert Waste Type 1	has the meaning defined in Landfill Definitions
Inert Waste Type 2	has the meaning defined in Landfill Definitions
Landfill Definitions	means the document titled “Landfill Waste Classification and Waste Definitions 1996 (as amended 2019)” published by the Chief Executive Officer of the Department of Water and Environmental Regulation as amended from time to time
mbgl	Metres below ground level
ORP	Redox Potential

Term	Definition
PLC	Programmable Logic Controller
PLS	Pregnant Leach Solution
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.
Putrescible Waste	has the meaning defined in Landfill Definitions
QA/QC	Quality assurance / Quality Controls
SX Plant	Solvent Extraction Plant
SWL	Standing water level
TDS	Total dissolved solids
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.
Uncontaminated Fill	has the meaning defined in Landfill Definitions
waste	has the same meaning given to that term under the EP Act.
Whim Creek Groundwater Monitoring Plan	means the document titled “Whim Creek Copper Mine Phase 2 Groundwater Monitoring Plan” published by 360 Environmental May 2021 as amended from time to time with the department’s approval
Whim Creek Vegetation Monitoring Plan	means the document titled “Whim Creek Vegetation Monitoring Plan” published by 360 Environmental December 2019 as amended from time to time with the department’s approval
WRL	Waste Rock Landform
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 is shown in the map below (Figure 1).

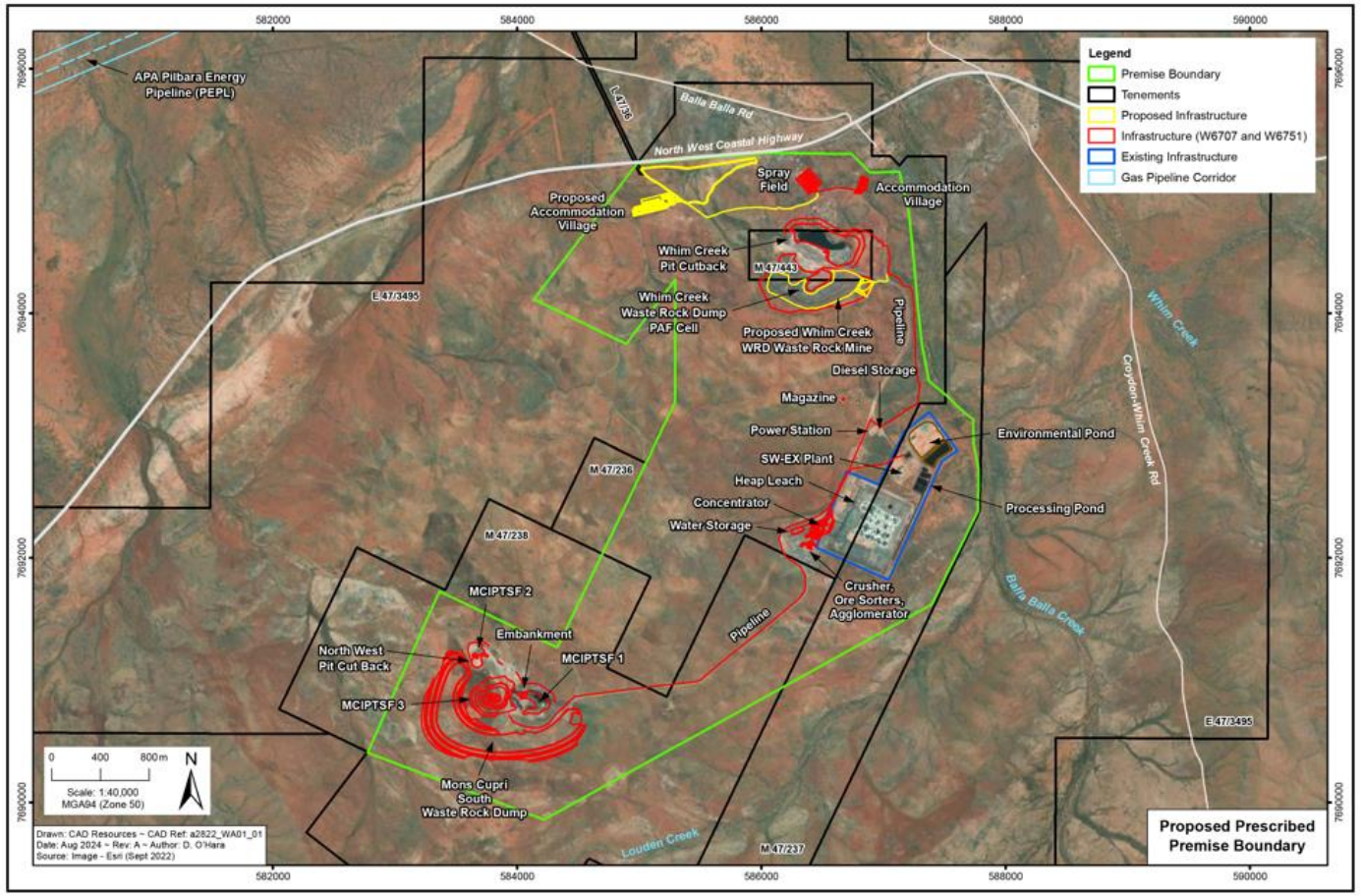

Figure 1: Map of the boundary of the prescribed premises

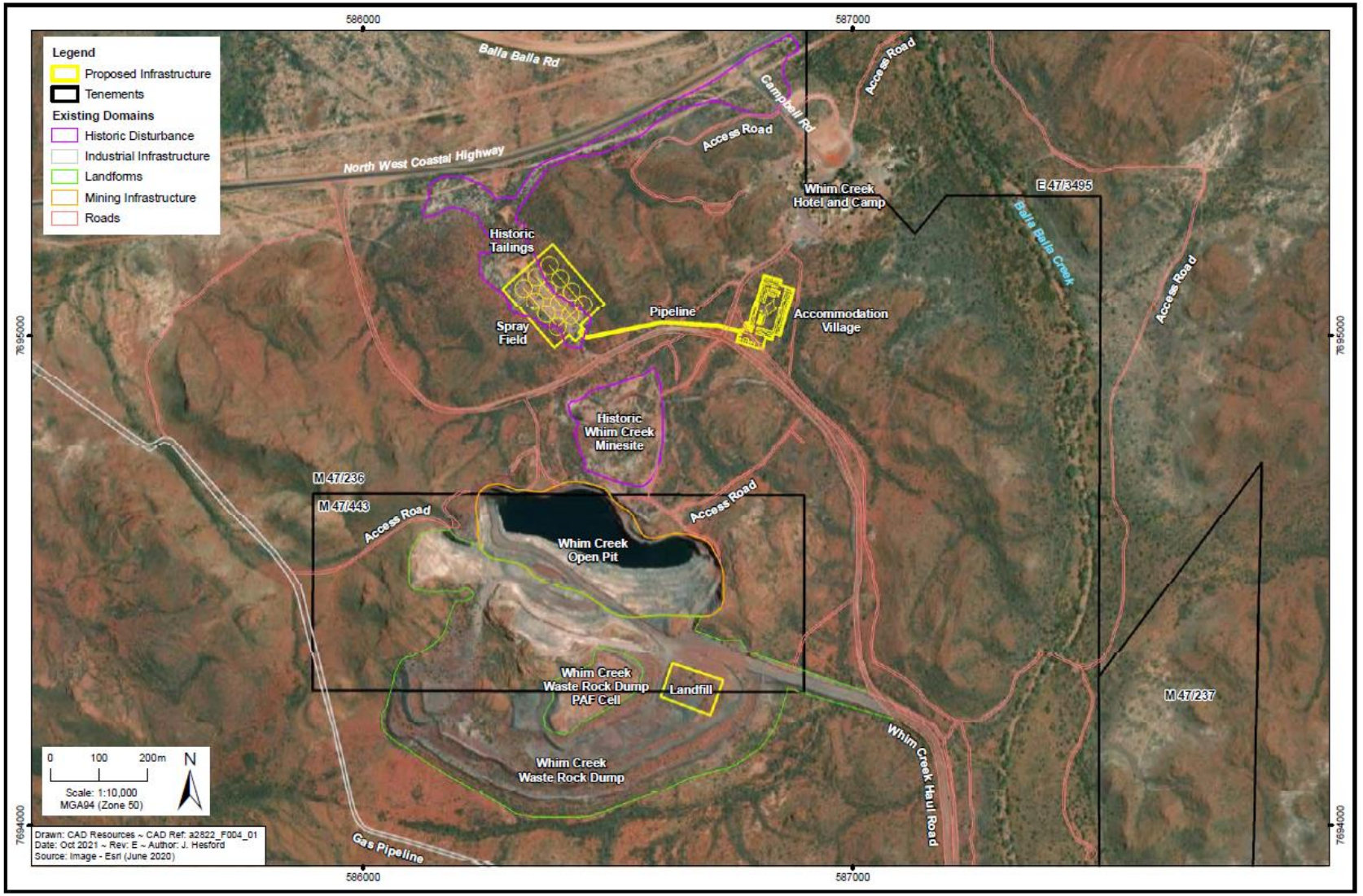

Figure 2: WWTP, Irrigation Area and Landfill

Schedule 2: Premises boundary

The premises boundary is defined by the coordinates in Table 7.

Table 7: Premises boundary coordinates

Easting	Northing
586,738	7,695,302
586,889	7,695,150
587,126	7,695,160
587,204	7,694,826
587,244	7,694,461
587,280	7,694,043
587,315	7,693,731
587,348	7,693,571
587,366	7,693,447
587,506	7,693,332
587,626	7,693,218
587,729	7,693,132
587,735	7,692,927
587,775	7,692,722
587,772	7,692,537
587,769	7,692,380
587,577	7,691,991
587,390	7,691,621
584,221	7,689,859
582,776	7,690,408
583,363	7,691,727
584,320	7,691,271
585,291	7,693,272

585,296	7,694,278
584,894	7,693,751
584,139	7,694,115
584,951	7,695,182
585,206	7,695,205
585,951	7,695,185
585,951	7,695,272
586,124	7,695,290

Schedule 3: Monitoring

Table 8: Emissions and discharges monitoring during environmental commissioning and time limited operations

Parameter	Monitoring location	Unit	Frequency	Averaging period	Method
pH	Final Irrigation Tank	pH units	Weekly during commissioning for comparison to performance criteria as set out in Table 1 Once weekly monitoring demonstrates that performance criteria is met, frequency relaxed to monthly during commissioning Quarterly during time limited operations	Spot sample	AS/NZS 5667.1 AS/NZS 5667.10
BOD		mg/L			
TSS		mg/L			
Total Nitrogen		mg/L			
Total Phosphorus		mg/L			
E.Coli		mg/L			

Table 9: Monitoring of ambient concentrations during environmental commissioning and time limited operations

Parameter	Monitoring location	Unit	Frequency	Averaging period	Method
SWL	<u>Background sampling</u> SWP5 <u>Process Ponds</u> PS4A PS21 PS24 RMB6 <u>Environmental</u>	mbgl	Quarterly	Spot sample	AS/NZS 5667.1 AS/NZS 5667.11
pH		pH units			
EC		mS/cm			
TDS		mg/L			
DO		mg/L			
ORP		mg/L			
Sodium (Na)		mg/L			
Potassium (K)		mg/L			

Parameter	Monitoring location	Unit	Frequency	Averaging period	Method
Calcium (Ca)	Pond PS2 PS17S PS18D PS19 PS28 PS29 PS32 SWP2 WCSI-1 WCSI-2 WCSI-3 WCSI-4 WCSI-5 HDPE drainage channel and heap leach pad PS1 PS4 PS5A PS6 PS7 PS12 PS14 PS16 PS26 RMB2	mg/L			
Magnesium (Mg)		mg/L			
Chloride (Cl)		mg/L			
Nitrate (NO_3)		mg/L			
Sulfate (SO_4)		mg/L			
Hydroxide Alkalinity (as $CaCO_3$)		mg/L			
Bicarbonate Alkalinity (as $CaCO_3$)		mg/L			
Carbonate Alkalinity (as $CaCO_3$)		mg/L			
Total Acidity		mg/L			
Total Alkalinity (as $CaCO_3$)		mg/L			
Aluminium (Al)		mg/L			
Antimony (Sb)		mg/L			
Arsenic (As)		mg/L			
Barium (Ba)		mg/L			
Beryllium (Be)		mg/L			
Boron (B)		mg/L			
Cadmium (Cd)		mg/L			
Cobalt (Co)		mg/L			
Copper (Cu)		mg/L			
Iron (Fe)		mg/L			
Lead (Pb)		mg/L			
Manganese (Mn)		mg/L			

Parameter	Monitoring location	Unit	Frequency	Averaging period	Method
Mercury (Hg)		mg/L			
Molybdenum (Mo)		mg/L			
Nickel (Ni)		mg/L			
Selenium (Se)		mg/L			
Silica (Si)		mg/L			
Silver (Ag)		mg/L			
Tin (Sn)		mg/L			
Zinc (Zn)		mg/L			
Vanadium (V)		mg/L			