Application for Works Approval

Part V Division 3 of the *Environmental Protection Act 1986*

Works Approval Number	W6464/2020/1
Applicant	Calidus Resources Limited
ACN	006 640 553
File Number	DER2020/000476
Premises	Warrawoona Gold Project G45/345, L45/523, M45/547, M45/552, M45/668, M45/669, M45/670, M45/671 MARBLE BAR WA 6760
Date of Report	21 April 2021
Decision	Works approval granted

Alana Kidd

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

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1. Decision summary

This Decision Report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the Premises. As a result of this assessment, Works Approval W6464/2020/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Decision Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary and overview of Premises

On 06 October 2020, the applicant submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake works relating to construction, commissioning, time limited operations and operations of the following:

- A 2.5 Mtpa gold processing infrastructure including single stage crusher with semi-autogenous-grinding (SAG) mill, secondary ball mill and conventional carbon-in-leach (CIL) circuit. Tailings will be thickened before undergoing cyanide detoxification and discharge to a valley fill Tailings Storage Facility (TSF);
- A 10.5 mt staged valley fill TSF;
- A 50 m^3/day WWTP with 1.5 ha irrigation area for the accommodation village; and
- 1,500 tonnes per annum (750 t/a inert waste, 750 t/a putrescible waste) Class II landfill within the Klondyke Waste Rock Dump.

The Premises is located approximately 20 km south of Marble Bar. The Site Layout and Prescribed Premises Boundary is shown in Figure 1. There is an open pit and underground mine at the Klondyke deposit and a cutback of the existing Copenhagen open pit.

The site has an estimated operating period of eight years and is to be powered by an 8MW gas fired Liquefied Natural Gas (LNG) Power Station with diesel generator back-up. There will be a Reverse Osmosis Plant with a capacity of 150m^3/day at the Processing Plant to provide water for office administration, safety showers, carbon regeneration kiln and intensive leach reactor. Brine will report to the Raw Water Pond. There will be a Reverse Osmosis Plant at the Village with a capacity of 25 m^3/day to provide water for the Village. This brine will report to the WWTP and then the irrigation field.

The Premises relates to categories 5, 64 and 85 and associated assessed production/design capacities under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in Works Approval W6464/2020/1. The infrastructure and equipment relating to the premises categories and any associated activities which the department has considered in line with *Guidance Statement: Risk Assessments* (DER 2017) are outlined in Works Approval W6464/2020/1.

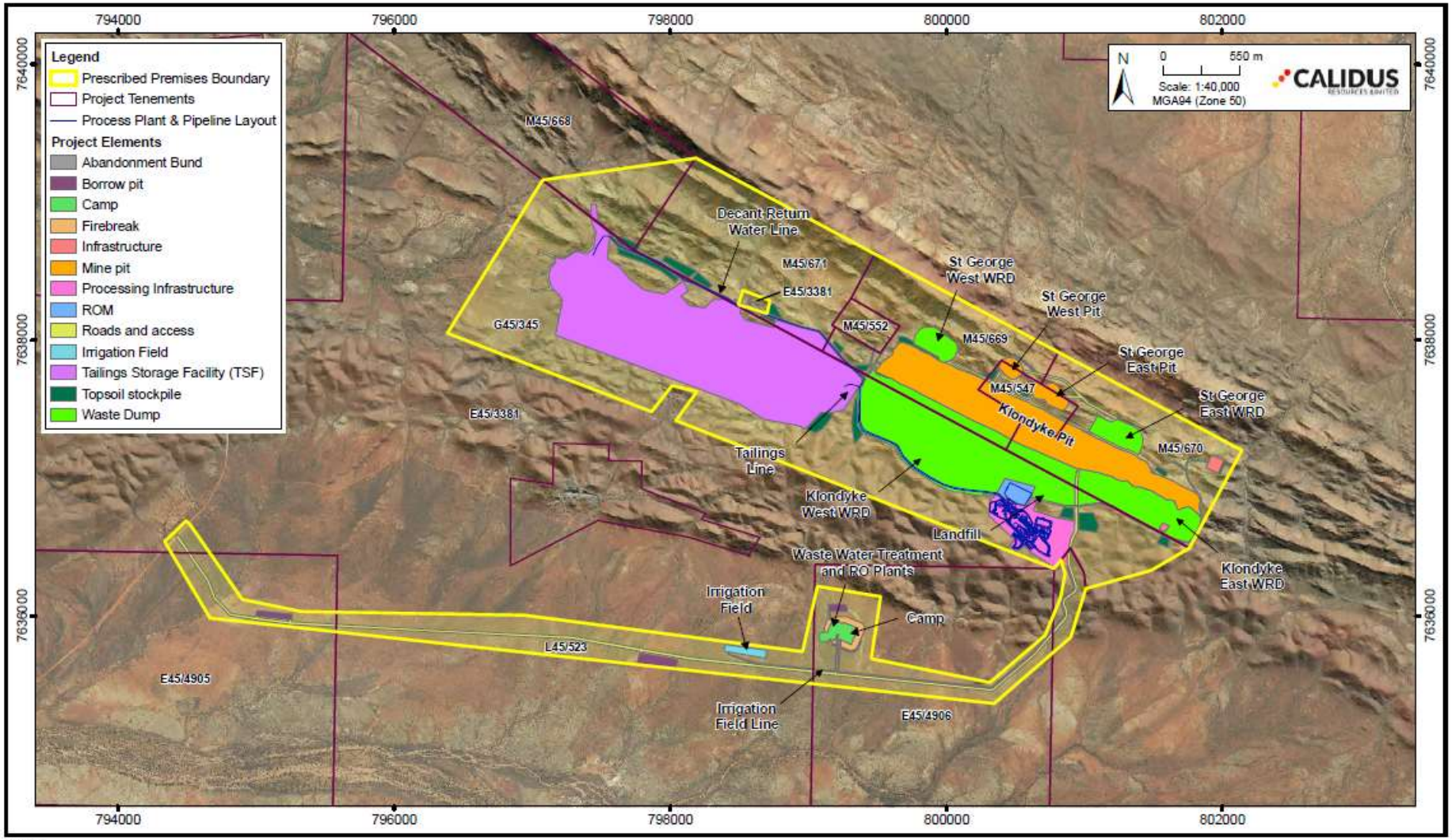

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Figure 1: Site Layout and Prescribed Premises Boundary

2.2.1 Category 5 Processing Plant

A 2.5 Mtpa Processing Plant is proposed to be constructed, commissioned and operated at the premises. This is made up of a single stage crusher with SAG mill, secondary ball mill and conventional CIL circuit. Tailings will be thickened before undergoing cyanide detoxification and discharged to the valley fill TSF. Figure 2 shows the process flow diagram for the processing plant and Figure 3 shows the general configuration of the processing plant.

Crushing

Gold bearing ore will be placed on the run of mine (ROM) pad near the crushing plant and reclaimed using a front-end loader to the ROM bin. An apron feeder will withdraw ore from the ROM bin and discharge this over a vibrating grizzly to separate fines, with oversize ore continuing to the primary jaw crusher. The fines and crushed oversize ore will then discharge to a surge bin.

Grinding

Ore from the surge bin will be conveyed to the milling circuit and water added from the bore field, tailings decant and process recycle streams. The SAG mill is the first stage of grinding and the discharge slurry from here will go to the rotating trommel screen, with oversize material to pebble discharge, transfer conveyors and scats storage bunker where it is crushed and redirected back to the SAG mill with new feed.

Trommel undersize reports to the classification cyclones where it is split into the gravity circuit and ball mill feed for secondary stage grinding. Discharge from the ball mill will be screened via a trommel with oversize to the scats bunker and underside to the mill discharge hopper.

Gravity Circuit

Oversize from the gravity feed screen will return to the feed end of the ball mill and undersize will gravitate to the centrifugal concentrator for gravity gold recovery. Gravity concentrate will be batch treated in an intensive cyanidation reactor and after washing, the solids residue from the reactor will be pumped to the mill discharge hopper. The pregnant solution will be recirculated from the gravity electrolyte tank through a dedicated electrowinning cell for the recovery of gold.

Leaching and Adsorption

The cyclone overflow stream from the grinding circuit will report via gravity to a rubbish screen (to remove materials like plastics, wood fibres etc. and collected into a bin for recycling or disposal) to the CIL circuit.

Two leach tanks and six adsorption tanks will be used. Slurry containing loaded carbon will be delivered onto the loaded carbon screen, where carbon will be separated and washed ahead of acid washing and elution for gold recovery.

Cyanide Destruction and Tailings Disposal

Undersize from the carbon safety screen will report to the tailings thickener to be thickened to 65% w/w solids. Thickener overflow will report to the process water tank. Raw water for process water make up and tailings decant return water will be directed to the tailings thickener. Thickened underflow will be transferred into the cyanide destruction feed box to allow for a sample to be taken. Slurry will then overflow from the feedbox into the tailings hopper where it will be combined with Caro's Acid for cyanide destruction.

Acid Wash, Elution and Gold Recovery

Loaded carbon will be stripped six times each week in five tonne batches by a spilt elution circuit. The carbon will be acid washed and rinsed in a rubber lined, mild steel column and then eluted in a stainless steel elution column. Acid washing with 3% w/w hydrochloric acid concentration will be conducted to remove contaminants prior to elution.

Pregnant eluate will circulate through two dedicated electrowinning cells each with nine 800 mm square cathodes, fitted with stainless steel mesh. Periodically, precious metal sludge will be washed from the cathodes by a pressure cleaner, filtered, and oven dried. The dry product will be mixed with flux and smelted in a natural gas fired tilting furnace to produce doré bullion

Secondary processing

High grade Copenhagen material will be crushed via a mobile crushing unit and then fed to a milling and floatation sulphide circuit for treatment. This sulphide circuit will be a small mobile plant consisting of flotation cells, concentrate thickener and filter press. The sulphide circuit will be located at the CIL processing plant.

The concentrate produced will be loaded into bulka bags and transported offsite in a sealed sea container for processing by a third-party processing plant.

Tailings will be transferred to the CIL plant thickener.

Reverse Osmosis Plant (RO)

A Reverse Osmosis (RO) plant with capacity of 150 m^3/day, will be located within the process plant area to process water for office administration, safety showers, carbon regeneration kiln and intensive leach reactor. Brine reject from RO plant will report to the raw water pond.

Reagents

Reagents and consumables to be used are shown in Table 1.

Table 1: Reagents and Consumables used in processing

Chemical	Storage Volumes	Containment and Pollution Control
Quicklime	120 tonnes bulk storage	A rotary valve, which controls the discharge rate of the lime to the mill feed conveyor. A dust collector, including maintenance access, installed on the top of the lime silo to contain dust emission during the pneumatic loading process.
Hydrated Lime	20m^3 storage tank	-
Sodium cyanide	140m^3 dissolution tank and 60m^3 cyanide storage tank	Cyanide mixing and storage tanks contained within a concrete bund incorporating collecting sump to recover spillage. Sump pump will discharge into leach feed trash screen underflow distribution box.
Oxygen	-	-
Activated Carbon	20 x 500kg bulk bags	Stored in bags in designated storage shed
Sodium hydroxide	30m^3 storage tank	Located in same bunded containment area as cyanide

Hydrochloric acid	30m^3 storage tank	Located in concrete containment bund and will comply with dangerous goods statutory requirements
Sulphuric acid (makes up Caro's acid with Hydrogen peroxide)	40m^3 storage tank	Located in concrete containment bund and will comply with dangerous goods statutory requirements
Hydrogen peroxide (makes up Caro's acid with Sulphuric acid)	30m^3 storage tank	Located in concrete containment bund and will comply with dangerous goods statutory requirements
Flocculant (thickener) (Magnafloc 155, Anionic polyacrylamide)	15m^3 storage tank	Located in concrete containment bund
SAG Mill Media	60 tonne bulk	Concrete bunker
Ball Mill Media	50 x 945kg drums	Laydown yard
Natural Gas (Process only)	Tanker	Bulk LNG tanks adjacent to the Power Station
Leach Aid	50kg pail	Pallets
Smelting Fluxes	25kg bag	Pallets

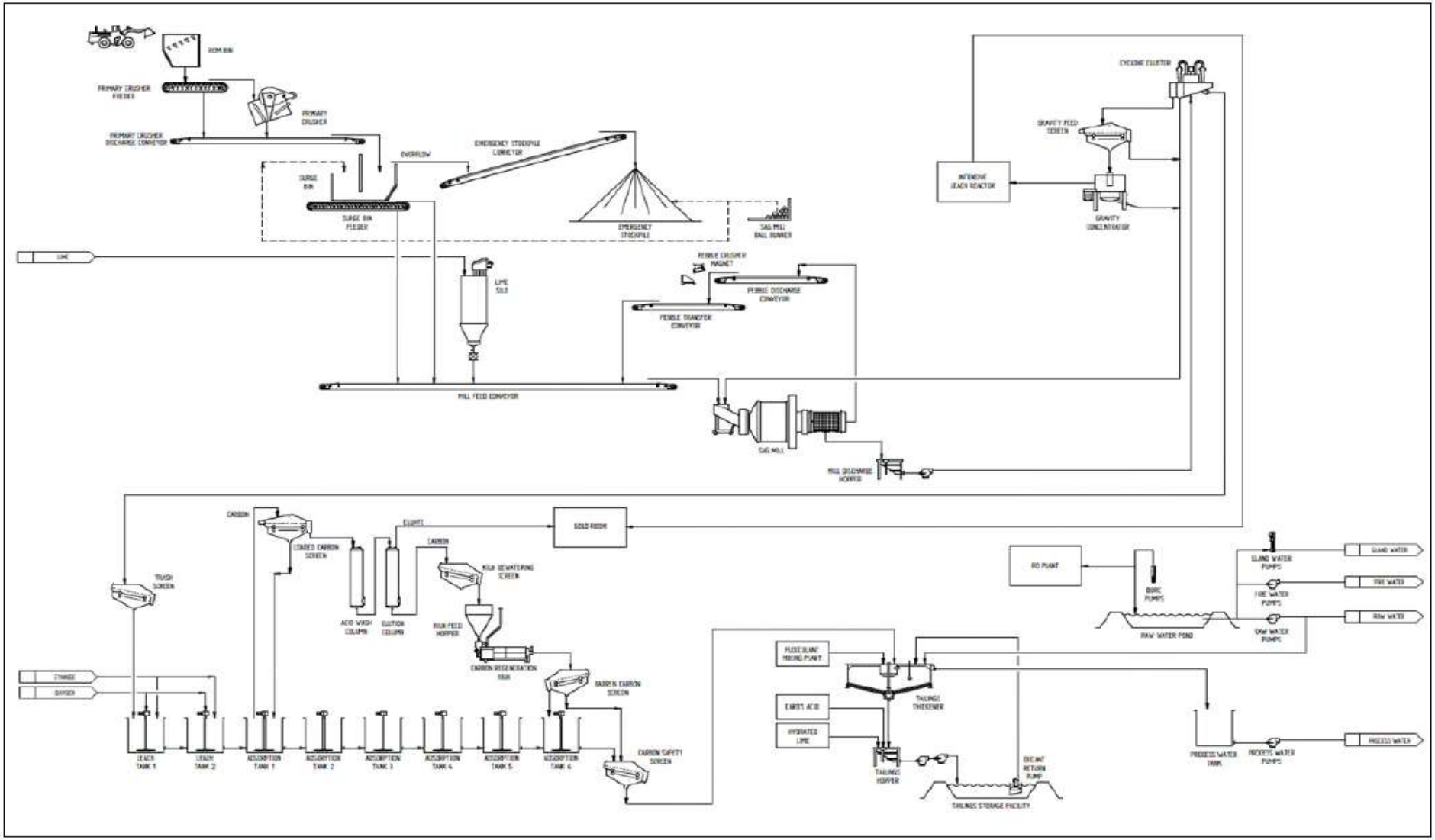

Figure 2: Process Flow Diagram for Warrawoona Gold Plant

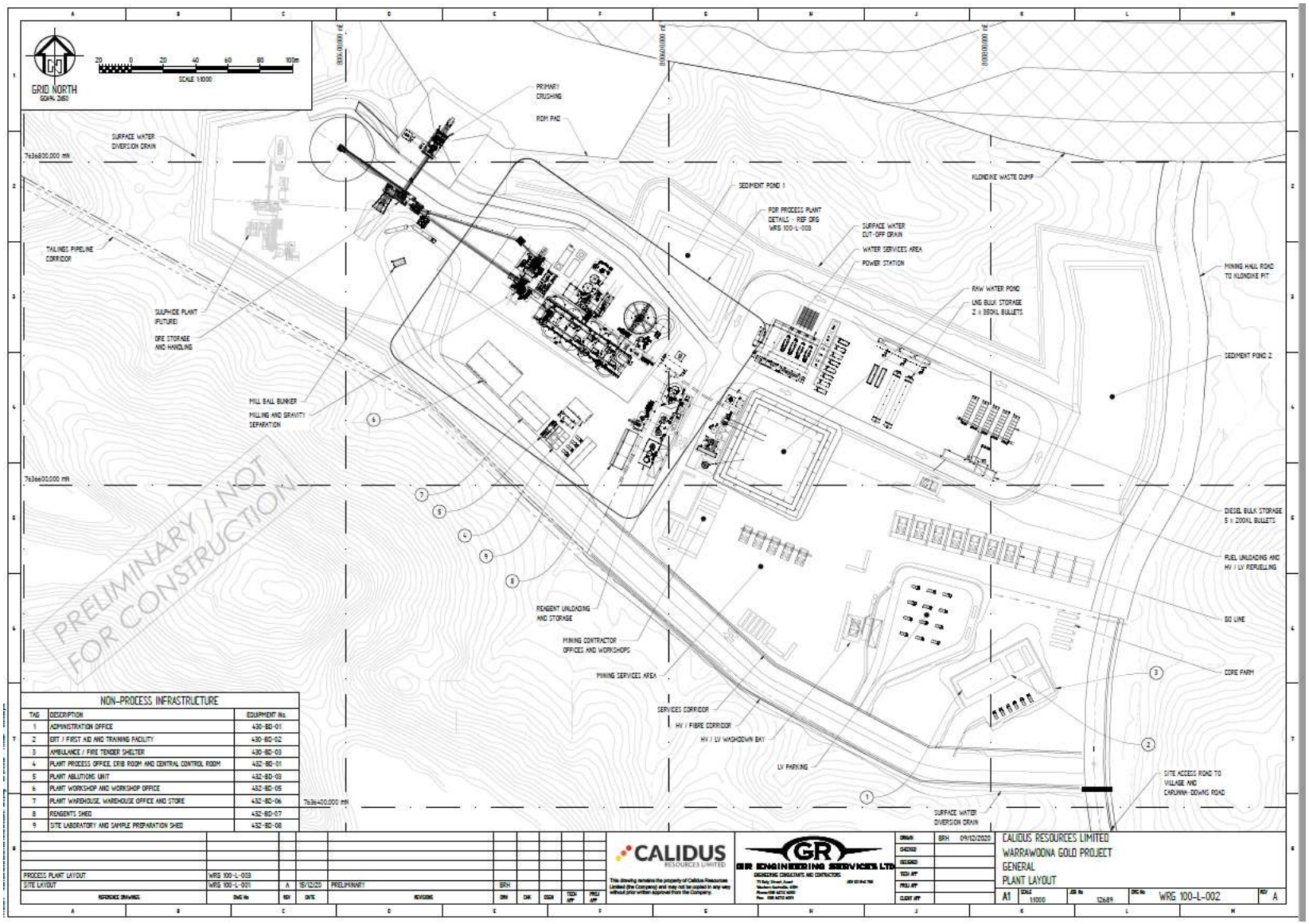

Figure 3: General configuration of the Process Plant

2.2.2 Category 5 TSF

Tailings thickened to weight 64%-66% solids from the Processing Plant is to be discharged to a Valley fill TSF with a capacity of 10.5 million tonnes. The proposed TSF is a valley storage type facility whereby a cross valley containment embankment approximately 17 m high and 250m long will be constructed across the alignment of an ephemeral drainage line (Brockman Hay Cutting Creek). The tailings impoundment within the valley is approximately 750 m wide and 2.3km long with an area of approximately 140 ha. Tailings will be discharged down valley from an elevated location approximately 1.5km to the north west of the Processing Plant. Tailings are expected to reach the embankment within one month of commencement of deposition.

The cross-valley embankment will be constructed in two stages:

- TSF starter Stage 1 RL263.0m, storage capacity 3 years; and
- TSF final Stage 2 RL265.3m, storage capacity 2.25 years.

The cross-valley embankment construction will comprise a bituminous geomembrane on the upstream face, a low-permeability zone (Zone 1), an internal filter zone (Zone 2), a general structural fill zone (Zone 3) and an erosion protection layer of durable waste rock on the downstream face (Zone 4). Low permeability Zone 1 materials will also be placed against the abutments and on the impoundment base to a distance of approximately 65 m from the upstream toe of the embankment. A seepage collection trench close to the embankment toe is incorporated into the design arrangement.

Pipelines and services corridor will run between the Processing Plant and TSF to transfer tailings from the Processing Plant to the TSF and decant water from the TSF back to the Processing Plant for reuse. Figure 4 and Figure 5 show the details of the TSF.

Tailings geochemical and geotechnical properties

Geochemical testing for 24 weeks has been conducted on a composite tailings sample, comprising of 90% Klondyke and 10% Copenhagan ore. The tailings will always be blended prior to discharge.

The tailings have been classified as Non-Acid Forming. The tailings comprised mostly dolomites, chlorites, quartz with subordinate muscovites and pyrite. The tailings were slightly enriched in selenium, arsenic and molybdenum.

The estimated permeability, test performed with the metallurgical tailings sample, is approximately 10^{-5} cm/s.

Additional 6 week kinetic testing has been conducted on the individual transitional and fresh samples. The Applicant has stated that the results of the 6 week test work is better than the first round, which the consultant used thinks is a function of the high Caros dosing applied in the first round (to prove its effectiveness) and peroxide released arsenates that would not occur under normal Caros acid concentrations. The Caros dosing was refined in the second round of individual transitional and fresh samples to be more representative of operations.

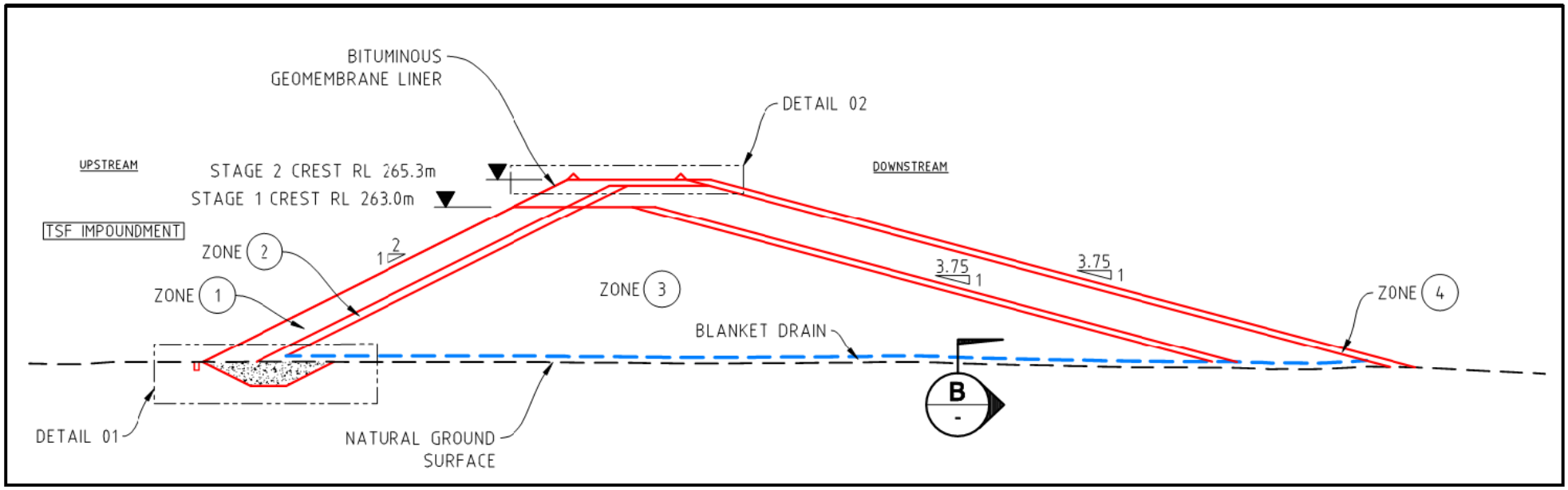

Figure 4: TSF Embankment Geometry

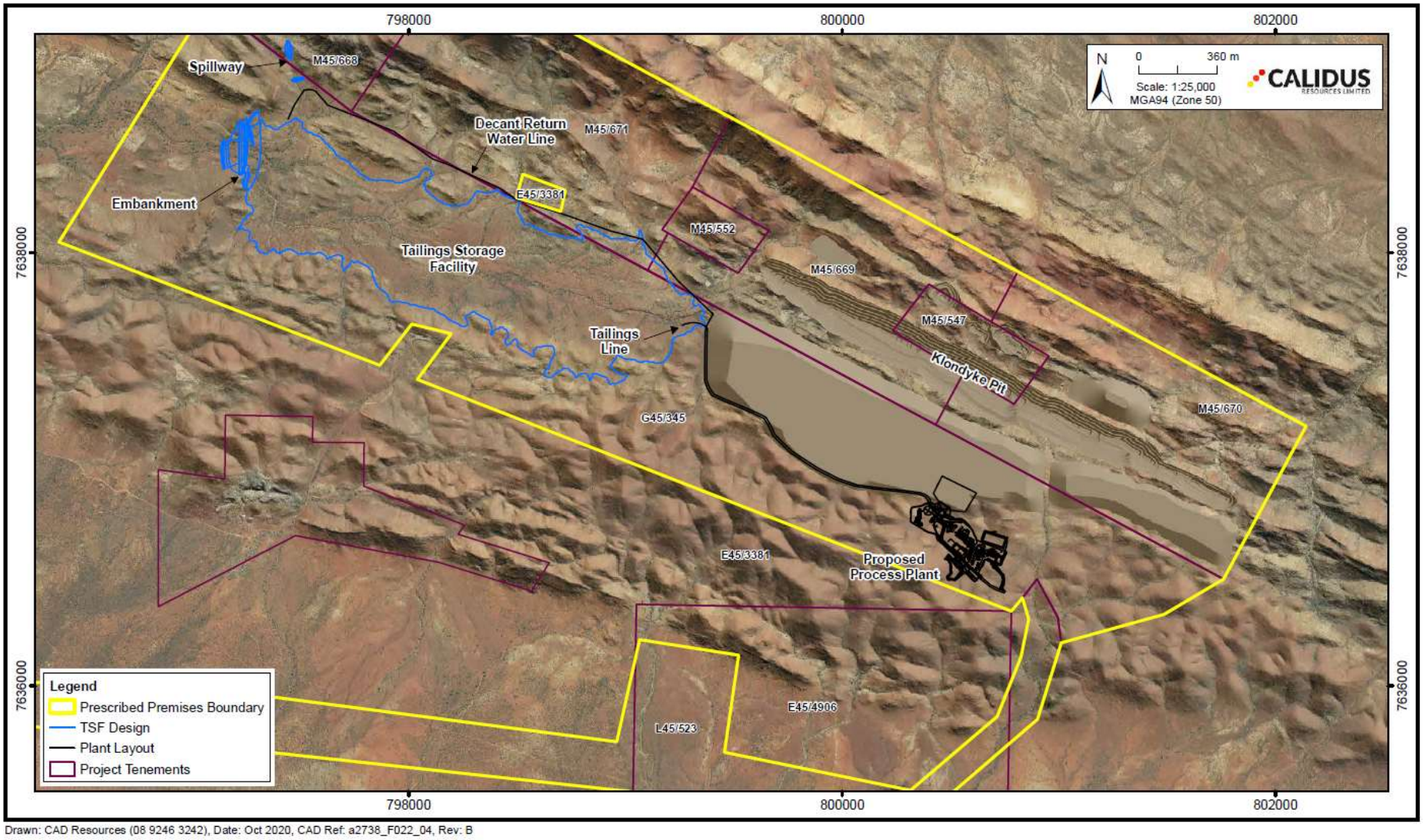

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Figure 5: General configuration of the TSF

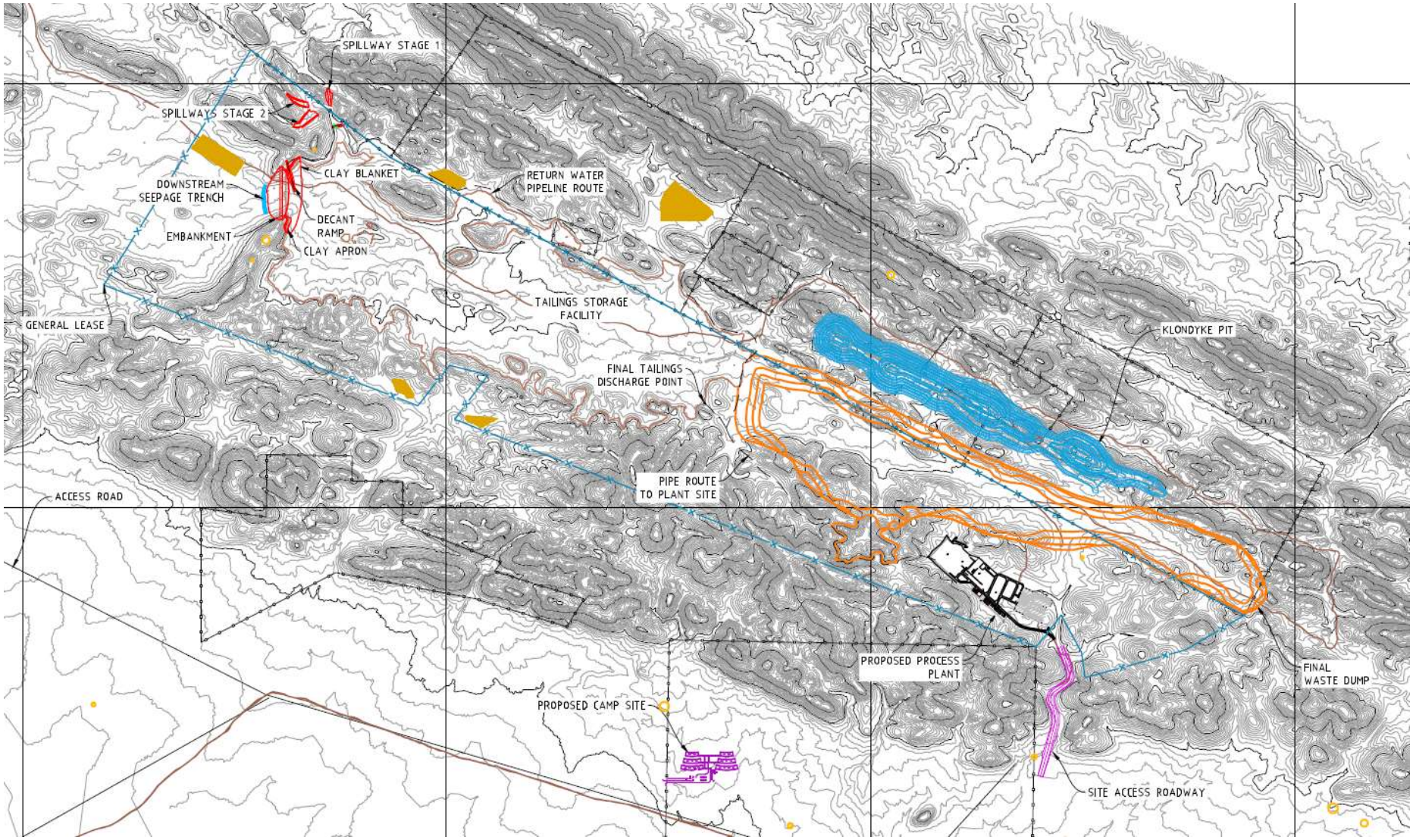

Figure 6: TSF overall site general arrangement

2.2.3 Category 64 Landfill

The Applicant is proposing to construct a landfill within the Klondyke waste rock dump for the disposal of Inert Waste Type 1, Inert Waste Type 2, Putrescible Waste and Clean Fill. Approximately 750 tpa of Putrescible waste and 750 tpa of Inert Waste is to be disposed of to the landfill.

The waste is to be disposed into trenches excavated within the Klondyke Waste Dump footprint. The landfill location is shown in Figure 1.

2.2.4 Category 85 WWTP

A 50m^3/day WWTP is proposed to be installed near the accommodation village to process wastewater streams from ablutions and other facilities at the accommodation village. The WWTP will be rated for 240 persons at 200L/person/day. The WWTP will comprise of the following:

- Pump well;
- Balance tank;
- Anaerobic tank;
- Anoxic tank;
- Two aeration tanks;
- Clarifier tank;
- Settling tank;
- Waste activated sludge tank;
- Chlorine contact tank; and
- Treated wastewater irrigation storage tanks (with a minimum capacity of two days) for storage prior to discharge.

The WWTP location is shown in Figure 1. The layout of the WWTP is shown in Figure 7.

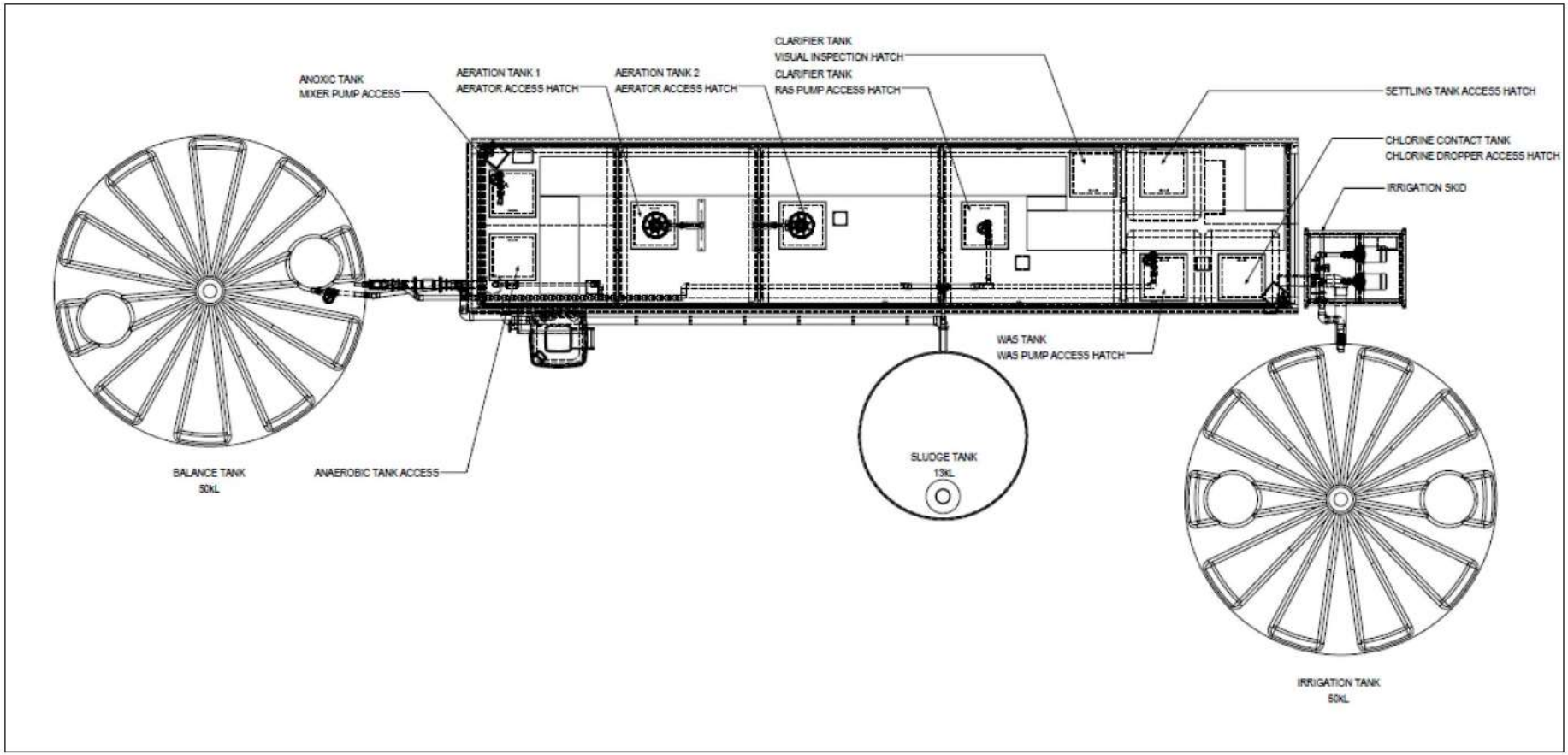

Figure 7: WWTP Layout

Treated effluent will be discharged to an irrigation area of 1.5 ha with approximately 9 sprinklers. The design effluent quality criteria for the WWTP is shown in Table 2.

Table 2: Design effluent quality criteria

Parameters	Units	Design effluent quality criteria
pH	pH units	6.8 – 8.5
Biochemical Oxygen Demand	mg/L	<20
Total Suspended Solids	mg/L	<30
Total Nitrogen	mg/L	<30
Total Phosphorus	mg/L	<8
E.coli	cfu/100mL	<1,000
Free Chlorine	mg/L	0.2 – 2.0

Calculations for loading rates of Total Nitrogen and Total Phosphorus with a comparison to applicable application rates is provided in Table 3.

Table 3:Total Nitrogen and Total Phosphorus loading rates

Parameters	Units	Calculation	Application rates
Total Nitrogen	kg/ha/yr	365	480
Total Phosphorus	kg/ha/yr	98	120

Treated, benign sludge from the WWTP will be periodically withdrawn from the units by a licensed contractor and deposited off site to an approved waste storage facility in accordance with the *Environmental Protection (Controlled Waste) Regulations 2004*.

Reject brine from the RO Plant at the camp, with capacity of 0.029 gigalitres per year, will also be discharged into the irrigation tank for discharge to the irrigation field. The site is characterized as Category D Soil Type (fine grained loam / clay). Vegetation is made up of spinifex, sparse acacia and eucalypt species.

2.3 *Environment Protection and Biodiversity Conservation Act 1999*

The project was referred to the Commonwealth Department of Agriculture, Water and the Environment (DAWE) and it was determined that the project is a controlled action (Threatened Species). Approval was granted 12 February 2021. Threatened species relevant to the referral are:

- Ghost Bat (Vulnerable under the EPBC Act and BC Act);
- Pilbara Leaf-nose Bat (Vulnerable under the EPBC Act and BC Act);
- Northern Quoll (Endangered under the EPBC Act and BC Act); and
- Pilbara Olive Python (Vulnerable under the EPBC Act and BC Act)

2.4 Part IV of the EP Act

Ministerial Statement 1150 was published 20 August 2020 (EPA Report 1681) for the development and operation of an open cut and below ground gold mine, processing facility, associated mining infrastructure, waste rock dumps, TSF, borefield, and accommodation camp within the Warrawoona Gold Project area located 20 kilometres south of Marble Bar.

The EPA Report 1681 states "*The proposal is located in the upper parts of the Coongan River catchment. It straddles the Warrawoona Range, a ridgeline that forms the local catchment divide between the Brockman Hay Cutting Creek, Sandy Creek and Camel Creek systems. The total area of the catchment, which includes or is directly upstream of the footprint is about 6.8 km^2, which represents about 0.1% of the Coongan River catchment. The proposal is unlikely to have a significant impact on the functioning of Coongan River catchment. As the proposal is located on a ridgeline in the upper reaches of the catchment there will be minimal flows entering the disturbance footprint, and this, coupled with the installation of surface water management infrastructure, means the proposal is not anticipated to significantly change levels of runoff."*

There is a Mining Exclusion Zone (MEZ) stipulated under condition 6 of the Ministerial Statement, which states that there is to be no surface mining activities within the MEZ as a result of the proposal.

There is a Significant Species Management Plan under condition 7 of the Ministerial Statement to minimise direct and indirect impacts to significant fauna and their habitat, including, but not limited to:

- Pilbara leaf-nosed bat;
- Ghost bat;
- Pilbara olive python; and
- Northern quoll.

The original works approval application stated a throughput of 2 Mtpa. The Applicant applied for a Section 45C to increase the throughput from 2 Mtpa up to 2.5 Mtpa and this was approved 01 April 2021. This has been updated on the works approval.

2.5 Department of Mines, Industry Regulation and Safety

The proposed TSF design (embankment built using a downstream construction technique in two stages) and operation has been reviewed by a DMIRS geotechnical engineer and deemed acceptable. The proposed closure concept of having a water shedding cover and in-situ rock spillways has also been deemed acceptable.

DMIRS stated that the tailings geochemistry seepage analysis is based on one composite sample made up of 90% Klondyke and 10% Copenhagen pit ore and seepage rates and influences could be better determined. DMIRS outlined that seepage management from the valley floor includes a reliance on 'clayey' soils, however this is not the soil in situ. The valley floor may also be prone to clay dispersion, following earthworks, as occurs during construction.

The understanding of potential TSF seepage impacts needs to be based on the expected seepage quality/rate through the TSF valley floor. Anticipated seepage rates can be determined based on the understanding of the soils, proposed disturbances to the soil surface, underlying geology and associated hydraulic conductivity, whilst quality impacts require an understanding of the local groundwater/surface water quality. Seepage from the TSF, as well as a proportion of the waste rock, will likely impact ground and surface water values nearby.

Specialist technical advice was also sought by DMIRS from DWER's Contaminated Sites Branch to determine anticipated impacts, adequacy of the proposed management measures and recommendations (Refer to Section 2.6). Specific technical advice was provided to DMIRS.

DMIRS also expressed concern regarding the uncertainty of the chemistry of the tailings slurry water reporting to the TSF as this depends on the cyanide detox method used. This then has potential to impact the extent of the chemistry of that slurry water and potential adverse material leaching from the TSF and reporting to the surrounding environment.

Approval for the Mining Proposal and Mine Closure Plan was granted 26 February 2021.

The Application will update the next version of the Mining Proposal and Mine Closure Plan to include the disposal of tyres.

2.6 Contaminated Sites Branch

This application was referred to DWER's Contaminated Sites Branch, with the following technical advice received:

- TSF construction: there is a risk that the underdrainage system will progressively become clogged with iron bacterial growths. Such growths could reduce the drainage capacity of the system over time and could lead to water management problems within the TSF. It is therefore recommended that the drainage system is sufficiently overengineered to account for this issue
- The kinetic testing conducted to determine the weathering characteristics of tailings should be conducted for a longer period. Long-term leaching will determine the likely behaviour of Chemical Constituents of Potential Concern (CCOPC) (e.g. arsenic and molybdenum) from weathered tailings. Maest *et al.* (2005) suggest that for some sulfidic mine wastes that are NAF materials, kinetic testing may need to continue for up to 60 weeks to obtain representative concentrations of CCOCP in leachate from weathered materials. Additional long-term kinetic testing is recommended during commissioning and operations
- It is recommended that a hyporheic zone monitoring bore is constructed in creek sediments next to the proposed monitoring site MB04 on the premises boundary. Information on constructing and sampling bores of this type can be found in UK Environment Agency (2009) and British Geological Survey (2010). It is recommended that this bore is constructed and sampled before the construction of the TSF to provide baseline water quality data
- When carrying out water balance assessments for TSFs, the rate of evaporation is not assumed to be the same as the pan evaporation rate in the facility. Research by the Centre for Geomechanics at the University of WA (Newson and Fahey, 2003) suggests that the actual evaporation rate in a TSF that contains fresh pore-water in the tailings is about 60% of the pan evaporation rate, and can decline to about 20% of the pan evaporation rate as the salinity of pore-water in the facility increases; and
- Research by Griffiths et al. (2014) indicates that cyanide levels in a TSF do not pose a significant threat to bat populations, provided that weak acid dissociable cyanide (WAD-CN) concentrations in tailings pore-water are maintained below 50 mg/L.

The Applicant has provided the following Water Balance Flow Diagram in Figure 8.

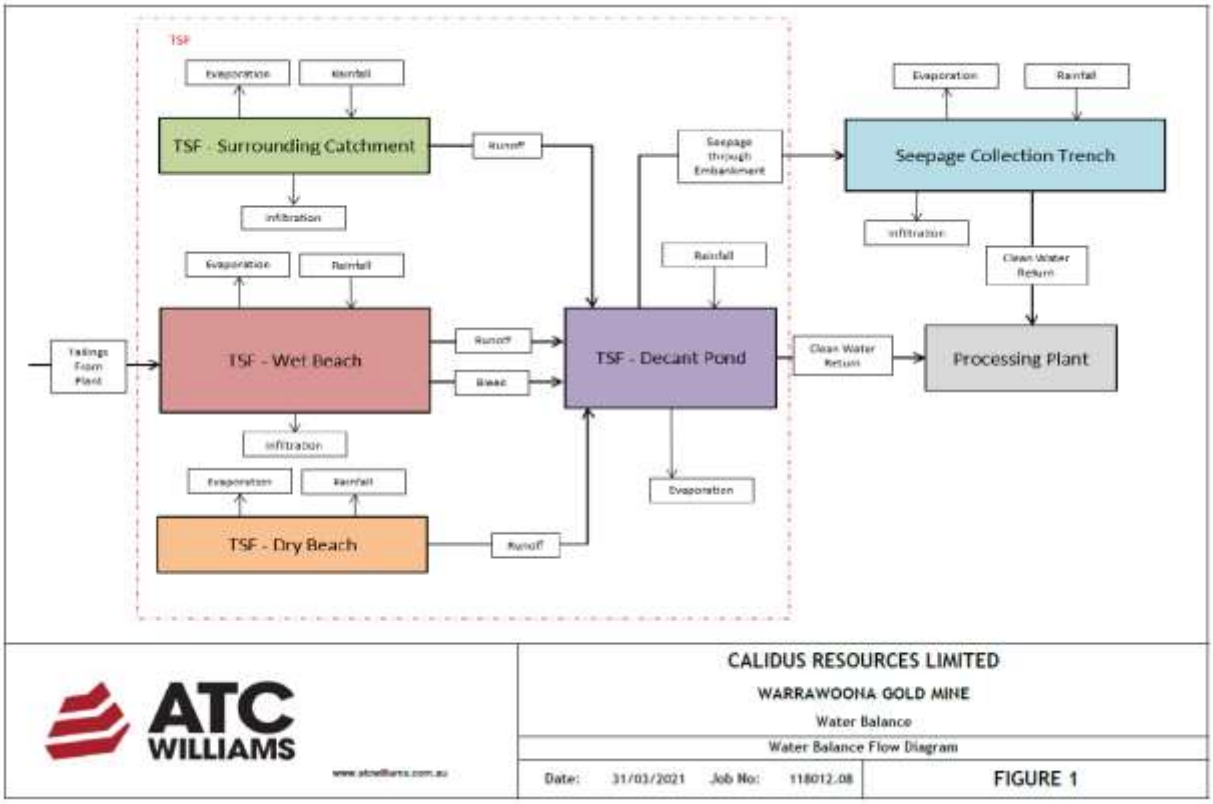

Figure 8: Water Balance Flow Diagram

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guidance Statement: Risk Assessments* (DER 2017).

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this Decision Report are detailed in Table 4 below. Table 4 also details the proposed control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 4: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction, Commissioning and Operations of all infrastructure			
Dust	Movement of machinery / vehicles on roadways and construction and	Air/windborne pathway	• Watering unsealed roadways with water carts; • Vehicle traffic confined to defined tracks

Emission	Sources	Potential pathways	Proposed controls
	installation of infrastructure		and roadways; • Vehicle speeds restricted on all access and haul roadways; and • All areas under construction to be watered for dust suppression as required.
Noise	Machinery and vehicles constructing and installing equipment	Air/windborne pathway	• All plant equipment maintained to ensure they are operating efficiently; • Air compressors housed in sound attenuating enclosure; • All mining operations to comply with the *Environmental Protection (Noise) Regulations 1997;* • Equipment and machinery designed to comply with Australian Standard noise limits; and • Apply best available technology to minimise noise emissions.
Processing Plant			
Commissioning and Operations			
Dust	Crushing of material, vehicle movements, lift-off from stockpiles and/or stored product, earthworks etc.	Air/windborne pathway	• Fixed sprays to form a mist within the ROM bin and at the stockpile feed conveyor discharge point; • Sprays fitted to tipping area of crusher to ensure ore remains moist during tipping and crushing activities; • Water sprays activated via a solenoid valve when a dump truck or front end loader is detected; • Dust collector installed and operated on crusher discharge conveyor; and • Dust collector, including maintenance access, installed on top of the lime silo to contain dust emissions during the pneumatic loading process. Rotary valve to control the discharge rate of the lime to the mill feed conveyor.
Noise	Crushing of material, Processing Plant operations	Air/windborne pathway	• Compliance with the *Environmental Protection (Noise) Regulations 1997*; • Equipment and machinery design compliance with Australian Standards; and • Best available technology implemented.

Emission	Sources	Potential pathways	Proposed controls
Gaseous emissions	Smelting furnace, Carbon regeneration kiln, process solutions including acid wash, elution columns, electrowinning cells, CIL tanks, barren / intermediate / pregnant solution tanks	Air/windborne pathway	• Engine maintenance to ensure efficient running and optimum fuel consumption; • Use of gas rather than diesel for power supply; • Kiln installed and operated as per design specifications; and • Furnace installed and operated as per design specifications.
Contaminated water	Stormwater that has the potential to flow through the site and become contaminated Process water within bunded areas	Direct discharge	• Stormwater diverted away from the Processing Plant by diversion drains and bunding; • Processing activities within bunded areas drains to sumps with recovery pumps to feed recovered spills back to the processing circuit; • Diversion and containment bunding to capture surface water runoff from the surrounding area to direct potentially contaminated runoff to the retention basin and can be fed into the process circuit; and • Flood protection installed around operational areas.
Hydrocarbon / Chemicals	Refer to Table 1	Direct discharge from transfer or overtopping	• Designed and constructed in line with Australian Standards; • Stored in bunded areas with collection sump to recover spillages; • Level indicators to detect leaks, based on drops in level; • Fuel bowsers and fuel delivery inlets located on concrete or HDPE lined pads to contain any spillages; • All substances stored, handled, disposed of in accordance with relevant legislation and guidelines; • Vehicles and machinery serviced within designated workshop areas; • Transport of material confirmed to defined roads and tracks with speed restrictions; • Spill kits stocked and in strategic locations; • Bins and drums provided and transported offsite for disposal at

Emission	Sources	Potential pathways	Proposed controls
			licensed facilities; • TPH concentration of 15mg/L for dust suppression. If TPH tests higher than 15mg/L then recirculated through treatment system; • Remediation of contaminated soils; and • Stormwater diverted around processing areas by diversion drains and bunding.
Tailings with elevated WAD-CN	CIL circuit	Direct discharge (and tailings reports to the TSF)	• Alarms to indicate that the Caro's acid is off-line; • Alarms to indicate high free or WAD-CN concentrations in the leach or tailings streams; • Procedures for controlled plant shut down; and • Process interlocks to prevent discharge of tailings when the processing plant is offline.
Bioremediation Facility			
Hydrocarbon contaminated wastes	Treatment cells	Spills, leaks, run-on and run-off during rainfall events	• Constructed on flat or gently sloping land, not subject to flooding or groundwater / surface water features; • Impermeable base layer; • At least 300mm clean fill compacted over the base layer to prevent damage to the base layer; • 2 cells (active and inactive); • Bunding around at least 3 sides to minimise run-on and run-off; • Ramped entrance with incline and 5 degree back slope into cells; • Signage; and • Spill kit and hydrocarbon waste bin.
Sedimentation Ponds			
Uncontaminated stormwater	Captures uncontaminated stormwater within the Processing Plant facilities	Direct discharge	• Designed to contain run off based on an ARI of 100 year, 72 hour duration event; • Sedimentation Pond 1 overflows to Sedimentation Pond 2, which is to have 300mm freeboard; and • Compacted soil (unlined).

Emission	Sources	Potential pathways	Proposed controls
Raw Water Pond			
Commissioning and Operation			
Raw water with contaminants (receives raw water and Reverse Osmosis brine from the Processing Plant Reverse Osmosis Plant) Pond capacity 4,980m^3 Does not contain process water or decant water	Raw water pond overtopping	Direct discharges from overtopping	• Freeboard of 300mm maintained; and • Freeboard markers installed.
	Seepage though the base and embankments	Infiltration	• Lined with an impermeable HDPE membrane and located within an internally draining processing area.
	Raw water from pipelines	Direct discharges from ruptures	• Daily inspection logs of integrity of all water lines, tanks and bunds; • Installed within bunds to ensure all liquids are captured and not released to the environment; and • Scour pits or sumps constructed along pipeline corridors to ensure leaks or spillages are contained within bunded areas.
Pipeline and services corridor (Processing Plant to TSF)			
Commissioning and Operation			
Tailings and decant water	Pipeline spills and leaks	Direct discharge from ruptures	• Installed within bunds to ensure all liquids are captured and not released to the environment; • Installed within an unlined bunded V trench which will be able to contain potential spillages in the case of any leakage or burst in the pipelines (nominally of 12 hours duration); • The trench will be adjacent to and aligned with a light vehicle access road, facilitating access for inspections and maintenance of the TSF; • Scour pits or sumps constructed along pipeline corridors to ensure leaks or spillages are contained within bunded areas; • Tailings and return water pipelines fitted with flow and leak detection sensors monitored from control room; • Equipped with telemetry systems and pressure sensors to allow detection ruptures; • Equipped with automated cut offs in the

Emission	Sources	Potential pathways	Proposed controls
			event of ruptures; • Provided with secondary containment to contain any spills for a period equal to the time between routine inspections; • Spill catch pits will be excavated at topographic lows in the corridor to provide design storage capacity where required; and • Twice daily inspections.
TSF			
Construction, Commissioning and Operations			
Dust	Dried tailings from the surface of the TSF	Air/windborne pathway	• Discharge outlet and supplementary spigots positioned so fresh wet tailings are discharged over the previously deposited layer at a frequency such that complete drying does not occur and a high degree of moisture entrainment within the tails is maintained; • Anticipated generation of shrinkage and desiccation cracks and cementation of tailings on the surface of desiccation polygons which will resist further breakdown into fine particles that may lead to dusting; and • Continuous containment embankment and ridge topography elevated above the tailings surface to limit the potential for dust transportation across the tailings surface and off the surface.
Tailings seepage	Tailings from the TSF	Seepage of the tailings through the embankments and base of the TSF	• Tailings thickened to >65% w/w solids; • Low permeability foundation prepared by moisture conditioning and compacting Zone 1 filled cut off trench; • Bituminous geomembrane liner (BGM) on the upstream face of the embankment to act as a seepage barrier and an erosion protection layer for the upstream low permeability zone as water is expected to pond against the embankment; • Compacted Zone 1 material to be placed against the abutments for a distance of approximately 100m from the ends of the embankment to reduce the potential for lateral seepage; • Upstream blanket of compacted low permeability material of minimum

Emission	Sources	Potential pathways	Proposed controls
			300mm thickness to be provided on the impoundment floor to a distance of approximately 65m from the upstream toe of the embankment; • Zone permeabilities: ➢ Upstream liner – Bituminous Geomembrane Liner (BGM), 5 x 10^{-12} m/s; ➢ Zone 1: Clayey sand/Sandy clay (local borrow from superficial deposits) – 4.5m wide, 5 x 10^{-8} m/s; ➢ Zone 2: Well-graded sand filter (imported/site manufactured) – 1.5m wide, 1 x 10^{-5} m/s; ➢ Zone 3: General fill (local borrow from weathered rock mass) – 4m wide, 1 x 10^{-6} m/s; and ➢ Zone 4: Erosion protection (selected coarse durable mine waste) – 2m wide, 1 x 10^{-5} m/s; • Seepage interception trench to be constructed immediately downstream of the main embankment to allow for collection and return of any near surface seepage. The trench will run parallel to the main embankment downstream toes. If seepage is intercepted by the trench, a submersible pump will be installed in a seepage recovery sump to pump water back into the TSF impoundment to be collected by the decant recovery system; • Vibrating Wire Piezometers (WP01, VWP02, VWP03, VWP05, VWP06, VWP07); and • Installation of seepage recovery bores at the downstream side of the embankment will be a contingency measure if deemed necessary. This will be assessed during the licensing phase with groundwater levels, triggers/limits and a seepage management report incorporated.
Tailings	Overtopping of the TSF embankments	Direct discharges from overtopping	• Emergency spillways for each stage will be present throughout operation and post closure of the TSF to prevent the embankment from overtopping in the event of extreme rainfall events occurring when the design stages are at full tailings storage capacity. These will not flow under normal operating

Emission	Sources	Potential pathways	Proposed controls
			conditions, only in extreme weather events; • Freeboard of 500mm maintained; • Designed for storage of excess run-off from a 1:10 average exceedance probability (AEP) notional wet season, an extreme storage allowance for a 1:100 AEP, 72-hour duration storm event run-off; and • Weekly audit of freeboard levels during environmental commissioning phase.
Tailings decant	Tailings decant pond	Direct discharge Access via fauna (birds and bats)	• Mobile decant pump on the upstream side of the embankment to collect supernatant water released from the discharged tailings slurry into the TSF, incidental rainfall runoff and transferred seepage recovered from the seepage collection trench; • Decant pond size minimized via recirculation of decant water back to the Processing Plant; and • Cyanide levels kept at <30mg/L using Caro's acid.
Landfill			
Commissioning			
N/A	N/A	N/A	N/A
Operation			
Waste egress and odour	Wastes disposed of into the landfill trenches	Windblown wastes	• Active tipping face maximum length of 30m and maximum height of 2m; • Mobile fencing installed to capture windblown wastes; • Waste in the landfill will be covered with at least 300 millimetres of cover material on a fortnightly basis; and • Landfill inspected regularly and windblown waste collected monthly.
		Fauna entering the landfill and carrying wastes	• Mobile fencing installed to prevent access by livestock and other fauna.
Contaminated leachate from	Rainwater infiltration through the landfill	Through the base of the	• Stormwater diverted away from the landfill by diversion drains and bunding;

Emission	Sources	Potential pathways	Proposed controls
wastes		landfill to groundwater	• Separated by at least 3 m from the highest level of the groundwater table; and • See Standing Water Level (SWL) baseline data in Table 9.
Contaminated stormwater	Stormwater water that has the potential to flow through the site and become contaminated	Direct discharge	• Located more than 100m away from surface water features; and • Stormwater diverted away from the landfill by diversion drains and bunding.
Air emissions / smoke	Tyre fires	Direct discharge	• Disposed of in batches not exceeding 1,000 used tyres; • Covered at regular intervals so that no more than 1,000 used tyres are left exposed; • Each batch separated by at least 100mm of soil or another dense inert and incombustible materials, with a final over not less than 500mm; and • Fire breaks maintained.
WWTP			
Commissioning and Operation			
Nutrient-rich wastewater and Reverse Osmosis brine from the Village Reverse Osmosis Plant	WWTP tanks and pipelines	Direct discharge from pipelines breaches	• Daily inspection logs of integrity of all water lines, tanks and bunds; • Installed within bunds to ensure all liquids are captured and not released to the environment; and • Scour pits or sumps constructed along pipeline corridors to ensure leaks or spillages are contained within bunded areas.
		Direct discharge to the irrigation area	• During the commissioning period treated effluent will be stored in the treated effluent/irrigation tanks until sample results are returned (Two compliant samples required to verify treated wastewater is compliant). Where sample results demonstrate compliance with the proposed effluent concentrations in Table 2, effluent will be irrigated to the spray field. Where samples are not compliant with proposed effluent concentrations, the effluent will be recirculated through the WWTP until it demonstrates compliance

Emission	Sources	Potential pathways	Proposed controls
			or it will be disposed of offsite at a licensed facility; • Effluent discharge to meet Australian Guidelines for Sewerage Systems – Effluent Management criteria; • Observe the sprinklers in the irrigation field have even coverage and are operating as designed; • Effluent discharge managed to ensure no ponding or runoff; • Fully fenced and signposted irrigation area to prevent fauna ingress; and • Irrigation area located away from drainage lines.
		Direct discharge via overtopping or ruptures of the WWTP tanks	• Minimum capacity of two days storage; and • Fitted with high level alarms on the balance tank and irrigation tank.
Contaminated stormwater	Stormwater water that has the potential to flow through the site and become contaminated	Direct discharge	• Stormwater diverted away from the WWTP and irrigation area by diversion drains and bunding.

3.1.2 Receptors

In accordance with the *Guidance Statement: Risk Assessment* (DER 2017), the Delegated Officer has excluded employees, visitors and contractors of the applicant's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 5 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guidance Statement: Environmental Siting* (DER 2016)).

Table 5: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Marble Bar	20 km north of the premises (not considered a receptor due to distance)
Prospector's residence	2.6 km south-west of plant site and 1.5 km south-west of TSF
Corunna Downs Road	2.5 km west of TSF

Environmental receptors	Distance from prescribed activity
Environmentally Sensitive Areas 1 – No listed ESAs within the project area	Nearest ESA is 120km south (object ID 3672, Fortescue Marshes), and 150km south west (object ID 6030 – Mungaroona Range Nature Reserve).
Threatened Ecological Communities – No listed Threatened Ecological Communities (TECs) listed under the EPBC Act or BC Act have been recorded within the project area	A priority Ecological Community is located 52km south east of the project area (object ID 1397, Nullagine). Not considered a receptor due to distance.
Threatened and/or priority fauna – No sites are diurnal roosts and none are considered critical habitat for the daily and/or long-term survival of the Pilbara Leaf-nosed Bat or Ghost Bat. A small area (0.8ha) of Northern Quoll and Pilbara Olive Python denning habitat (Rocky Breakaways). Sandplain habitat (along the southern access road corridor) is significant for Brush-tailed Mulgara (P4, confirmed onsite).	Within project area.
Sensitive bat roosts	1.3 km north-west of plant site (this is regulated under MS 1150 including a 32 ha Mining Exclusion Zone))
Threatened and/or priority flora – No Threatened Flora have been recorded within the project area. Five conservation significant (Priority) flora taxa were recorded: • *Eragrostis crateriformis* (P3); • *Euphorbia clementii* (P3); • *Heliotropium murinum* (P3); • *Josephinia sp. Woodstock* (A.A. Mitchell PRP 989) (P1); and • *Ptilotus mollis* (P4).	Priority flora within the project area. The Priority 3 and 4 flora , *Eragrostis crateriformis* (P3), *Euphorbia clementii* (P3), *Heliotropium murimum* (P3) and *Ptilotus mollis* (P4), all of which are widespread throughout the project area, will be avoided where possible, with infrastructure that is not site dependent positioned to mimisze disturbance to these populations. The one recorded location of *Josephina sp. Woodstock* (A.A. Mitchel PRP 989) (P1) will not be disturbed.
Aboriginal and other heritage sites	No registered sites occur within the project area, however, registered sites are known to occur within 20km. An Archaeological Site Avoidance Survey of the project area, conducted in conjunction with Njamal Peoples Trust and Sands CRM Archaeologies recorded nine archaeological places within the project area including quarries, rock art and grinding patches.
Public drinking water source areas	Project area is not within a drinking water source area. Nearest is 30km north west (Marble Bar Water Reserve P1)
Groundwater depth and quality	Groundwater depth is approximately 25mbgl. Refer to Table 9 for SWL at the groundwater monitoring bores.

	Groundwater quality is fresh to slightly brackish and slightly alkaline. Dissolved metals concentrations are generally low, apart from arsenic and iron. Refer to Table 8.
Rivers, lakes, oceans and other surface water No permanent pools within the Brockman Creek, Brockman Hay Cutting Creek, Sandy Creek or Camel Creek catchments. Some ephemeral pools develop in creek beds after rain, however, these are not found in the area surrounding the project area.	Known ephemeral pools located 3-15km from the project area Nearest RAMSAR Wetland located 150km north at Eighty-mile Beach (not considered a receptor)
Acid sulfate soils Waste characterization assessments have found that waste material is non acid forming (NAF)	N/A
Rights in Water and Irrigation Act 1914	The Premises is located within the Proclaimed Pilbara Groundwater Area and Pilbara Surface Water Area

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 6.

Works Approval W6464/2020/1 that accompanies this Decision Report authorized construction and time-limited operations. The conditions in the issued Works Approval, as outlined in Table 6 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorized under the works approval to authorise emissions associated with the ongoing operation of the Premises i.e. Category 5, 64 and 85 activities. A risk assessment for the operational phase has been included in this Decision Report, however licence conditions will not be finalised until the department assesses the licence application.

Table 6: Risk assessment of potential emissions and discharges from the Premises during construction, commissioning and operation

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of works approval	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Construction of all infrastructure								
Movement of machinery / vehicles on roadways and construction and installation of infrastructure	Dust	Air/windborne pathway causing dust impacts on surrounding vegetation, including reduced ability for photosynthesis due to smothering	Priority flora	Refer to Section 3.1.1	C = Slight L = Possible **Low Risk**	Y	N/A	N/A
Machinery and vehicles constructing and installing equipment	Noise	Air/windborne pathway noise impacts on fauna habitat, including potential roosting sites for bats	Threatened and/or priority fauna including bats	Refer to Section 3.1.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 1, Table 1 included for noise controls included in the works approval	Due to the threatened and/or priority fauna (particularly bats) regulatory controls have been included on the works approval to ensure that equipment used during construction is maintained and designed to comply with the *Environmental Protection (Noise) Regulations 1997* to minimise noise emissions, as required by MS1150.
Processing Plant								
Commissioning and Operations **(including time-limited-operations operations)**								

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of works approval	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Screening, crushing, unloading, loading and storage of material Vehicle movements	Dust	Air/windborne pathway causing dust impacts on surrounding priority flora, including reduced ability for photosynthesis due to smothering	Priority flora	Refer to Section 3.1.1	C = Slight L = Possible **Low Risk**	Y	Condition 1, Table 1 included for dust infrastructure controls included in the works approval.	These regulatory controls ensure that the infrastructure is constructed appropriately to minimise dust emissions.
	Noise	Air/windborne pathway noise impacts on fauna habitat, including potential roosting sites for bats	Threatened and/or priority fauna including bats	Refer to Section 3.1.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 1, Table 1 included for noise controls included in the works approval	Due to the threatened and/or priority fauna (particularly bats) regulatory controls have been included on the works approval to ensure that the infrastructure is constructed appropriately to minimise noise emissions (and compliment MS1150).
Rainfall events in the vicinity of the mine site	Sediment laden, and/or potentially contaminated stormwater	Stormwater that has the potential to flow through the site and become contaminated Process water within bunded areas	Threatened fauna and Priority flora are found within the project area	Refer to Section 3.1.1	C = Minor L = Possible **Medium Risk**	Y	Condition 1, Table 1 included for stormwater diversions and containment included in the works approval.	These regulatory controls ensure that the infrastructure is constructed appropriately to manage sediment laden, potentially contaminated stormwater.
Hydrocarbons / chemicals stored in processing area	Hydrocarbons / chemicals	Direct discharge via leaks and spills causing contamination	Soils and groundwater (approximately 25mbgl)	Refer to Section 3.1.1	C = Minor L = Possible **Medium Risk**	Y	Condition 1, Table 1 included for hydrocarbon / chemical storage designs included in the works approval.	These regulatory controls ensure that the infrastructure is constructed appropriately to manage hydrocarbon / chemical storage is adequate in design.
CIL Circuit tailings production to be transferred to the TSF	Tailings with elevated WAD-CN discharged to TSF	Direct discharge via leaks and spills causing contamination	Soils and groundwater (approximately 25mbgl)	Refer to Section 3.1.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 1, Table 1 included for WAD-CN controls infrastructure controls included in the works approval.	These regulatory controls ensure that the infrastructure is constructed appropriately to manage WAD-CN levels.

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of works approval	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Bioremediation Facility								
Treatment cells	Hydrocarbon contaminated wastes	Spills, leaks, run-on and run-off during rainfall events	Soils and priority flora	Refer to Section 3.1.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 1, Table 1 included for the design on the Bioremediation Facility	Regulating these controls ensures that infrastructure is installed and constructed correctly to minimise emissions and discharges to the environment.
Sedimentation Ponds								
Uncontaminated stormwater from within the Processing Plant facilities	Uncontaminated stormwater	Overtopping	Soils and priority flora	Refer to Section 3.1.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 1, Table 1 included for the design of the Sedimentation Ponds	Regulating these controls ensures that infrastructure is installed and constructed correctly to minimise emissions and discharges to the environment.
Raw Water Pond								
Raw water and Reverse Osmosis brine from the Processing Plant Reverse Osmosis Plant	Raw water with contaminants	Overtopping Seepage	Soils and priority flora, groundwater	Refer to Section 3.1.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 1, Table 1 included for the design of the Raw Water Pond	Regulating these controls ensures that infrastructure is installed and constructed correctly to minimise emissions and discharges to the environment.
Pipeline and services corridor (Processing Plant to TSF)								
Commissioning and Operations								
Pipelines between Processing Plant and TSF	Tailings and decant water to land with elevations in contaminants	Direct discharge from rupture of pipelines causing contamination	Soils and priority flora	Refer to Section 3.1.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 1, Table 1 included for the pipeline and services corridor in place, such as leak detection and secondary containment.	Regulating these controls ensures that infrastructure is installed and constructed correctly to minimise emissions and discharges to the environment.
TSF								

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of works approval	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Commissioning and Operations								
TSF surface	Dust	Air/windborne pathway causing dust impacts on surrounding vegetation, including reduced ability for photosynthesis due to smothering	Priority flora onsite	Refer to 3.1.1	C = Slight L = Possible **Low Risk**	Y	N/A	N/A
Overtopping of the TSF	Tailings and decant water to land with elevated concentration contaminants	Freeboard compromised on the TSF or collapse of dam walls resulting in discharge to land Soil contamination inhibiting vegetation	Vegetation and soils adjacent to the TSF	Refer to 3.1.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 1, Table 1 included for infrastructure controls of freeboard and storage capacity for storm events. Condition 8, Table 3 included for freeboard to be maintained during environmental commissioning. Condition 16, Table 5 included for freeboard to be maintained during time limited operations.	Provided the freeboard is maintained, it is unlikely that the TSF will overtop so limiting the freeboard is deemed suitable regulation
Seepage of tailings water through the base and embankments of the TSF	Leachate from tailings storage, containing potentially elevated levels of CCOPC, such as WAD-CN, selenium, arsenic, molybdenum	Infiltration through the base, embankments and surface drainage feature that will emerge from the toe of the proposed valley-fill TSF	Hyporheic zone at the surface drainage feature at the toe of the TSF Groundwater (approximately 25mbgl) and vegetation	Refer to 3.1.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 1, Table 1 included for infrastructure permeability, spigots, decant structures, underdrainage and VWPs. Condition 4, Table 2 included for the installation of ambient groundwater monitoring network. Additional groundwater monitoring bore in the hyporheic zone in creek sediments next to MB04 on the premises boundary included. Condition 6, Table 10 included to determine baseline ambient groundwater conditions prior to tailings deposition into the TSF. Condition 8, Table 3 included with Commissioning requirements including testing of the TSF base permeabilities,	Provided the TSF is constructed appropriately, pH and WAD-CN limited, and adequate monitoring is conducted so additional control can be implemented in a timely manner (if necessary), seepage should be able to be managed. Additional management measures/contingencies may be included in the operational licence to ensure actions occur if seepage issues arise. A groundwater monitoring network should be established to detect seepage, including downstream. As per Section 2.6 groundwater

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
							tailings thickened to >65% w/w solids and decant pond to be maintained at a minimum size. Requirement for ongoing geochemical testing of the tailings. Condition 9, Table 4 included to limit pH and WAD-CN in tailings and decant during environmental commissioning. Condition 10, Table 9 included for monitoring of tailings and decant during environmental commissioning. Condition 11, Table 10 included for ambient groundwater monitoring during environmental commissioning. Condition 16, Table 5 included to ensure that tailings is thickened appropriately and decant pond minimised. Requirement for ongoing geochemical testing of the tailings. Condition 17, Table 6 included to limit pH and WAD-CN during time limited operations. Condition 18, Table 9 included for monitoring of tailings and decant during time limited operations. Condition 19, Table 10 included for ambient groundwater monitoring during time limited operations. Condition 22(f)(v) requires water balance where the rate of evaporation is not assumed to the same as the pan evaporation rate.	monitoring in the vicinity of the creek area is required to determine if groundwater quality near the hyporheic fauna is becoming contaminated by the operations. As per Section 2.6 longer term kinetic testing is required to determine the tailings chemistry. As per Section 2.6 the evaporation rate estimates are not accurate, the Applicant needs to demonstrate that the facility will be able to accommodate runoff from the catchment under realistic water balance scenarios.
Cyanide levels within the TSF	WAD-CN from processing of the gold ore, within the tailings	Ingestion by fauna, particularly bat populations	Livestock, threatened and/or priority fauna including bat populations	Refer to 3.1.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 1, Table 1 included for infrastructure controls for WAD-CN. Condition 9, Table 4 included to limit WAD-CN levels to 30 mg/L during environmental commissioning. Condition 10, Table 9 included to monitor	Provided the WAD-CN levels are limited to below 30 mg/L the tailings are unlikely to impact on livestock, fauna and bat populations, so limiting and monitoring the WAD-CN levels

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of works approval	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
							for WAD-CN in tailings during environmental commissioning. Condition 11, Table 10 included to monitor WAD-CN in ambient groundwater during environmental commissioning. Condition 17, Table 6 included to limit WAD-CN levels during time limited operations. Condition 18, Table 9 included to monitor WAD-CN in tailings during time limited operations. Condition 19, Table 10 included to monitor WAD-CN levels in ambient groundwater during time limited operations.	is deemed suitable regulation
Landfill								
Commissioning								
Category 64 landfill	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Operation								
Category 64 landfill	Dust	Air/windborne pathway causing dust impacts on surrounding vegetation, including reduced ability for photosynthesis due to smothering	Priority flora	Refer to 3.1.1	C = Slight L = Possible **Low Risk**	Y	N/A	N/A
	Waste egress and odour	Windblown causing litter and contamination	Soils, vegetation, livestock and threatened and/or priority	Refer to 3.1.1	C = Slight L = Possible	Y	Condition 1, Table 1 Design and construction / installation requirements for active tipping face.	These regulatory controls ensure that the landfill is designed to minimise windblown

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of works approval	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
		Ingestion by livestock or other fauna	fauna		**Low Risk**		Condition 16, Table 5 Infrastructure and equipment requirements during time limited operations. Requirements included for active tipping face, mobile fencing, waste covering, inspections and tyres.	wastes and access of fauna.
	Contaminated leachate from wastes	Infiltration with stormwater to groundwater	Separated by at least 3m from the highest level of the groundwater table.	Refer to 3.1.1	C = Slight L = Possible **Low Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements for separation by at least 3m from the highest level of the groundwater table.	These regulatory controls ensure that the landfill is designed to minimise potential for leachate to contaminate groundwater.
	Contaminated stormwater	Contaminated stormwater to surface water features	Landfill located more than 100 m away from any surface water features	Refer to 3.1.1	C = Slight L = Possible **Low Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements for location more than 100m from surface water features and stormwater diversions.	These regulatory controls ensure that the landfill is designed to minimise potential for contaminated stormwater to contaminate surface water features.
	Air emissions / smoke	Tyre fires	Livestock and threatened and/or priority fauna	Refer to 3.1.1	C = Slight L = Rare **Low Risk**	Y	Condition 16, Table 5 Infrastructure and equipment requirements during time limited operations requirements for tyres in batches and fire breaks.	These regulatory controls ensure that the landfill is designed to minimise the potential for landfill fires
WWTP and irrigation area								
Commissioning and Operations								
Category 54 WWTP tanks and pipelines	Nutrient-rich treated effluent	Direct discharge via overtopping or ruptures of the WWTP tanks	Soils and priority flora	Refer to Section 3.1.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements lists infrastructure to be installed along with high levels alarms and contingency tank storage.	These regulatory controls ensure that the infrastructure is constructed appropriately to minimise the potential for leaks/spills and overtopping events to occur and also provide containment if leaks/spills and overtopping events do occur.

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of works approval	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
		Direct discharge from pipelines	Soils and priority flora	Refer to Section 3.1.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements lists infrastructure to be installed along with bunding, scour pits and sumps to contain ruptures.	These regulatory controls ensure that the infrastructure is constructed appropriately to minimise the potential for leaks/spills to occur and also provide containment if leaks/spills do occur.
		Direct discharge to the irrigation area resulting in ponding, ingress of weeds, fauna attraction	Soils and priority flora	Refer to Section 3.1.1	C = Slight L = Possible **Low Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements lists infrastructure to be installed along with fencing and signposting. Condition 8, Table 3 Emissions and discharge monitoring environmental commissioning requires weekly monitoring during commissioning and comparison to relevant guidelines. Includes monitoring volumes of RO brine to the Final Irrigation Tank and TDS in the effluent stream to the irrigation area. Condition 16, Table 5 Emissions and discharge monitoring during time limited operations requires quarterly monitoring during time limited operations and comparison to relevant guidelines. Includes monitoring volumes of RO brine to the Final Irrigation Tank and TDS in the effluent stream to the irrigation area.	These regulatory controls ensure that the infrastructure is constructed appropriately, and wastewater is effectively monitored. RO brine volumes and TDS in effluent is monitored to ensure that salinity to the irrigation area is minimised to ensure vegetation is not impacted.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guidance Statement: Risk Assessments* (DER 2017).

Note 2: Proposed applicant controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

4. Consultation

Table 7 provides a summary of the consultation undertaken by the department.

Table 7: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website (15/12/2020) and advertised in *The West Australian* on (23/11/2020)	None received.	N/A.
Local Government Authority advised of proposal (25 November 2020)	The Shire of East Pilbara did not provide comments.	N/A.
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal (25 November 2020)	DMIRS replied on 30 November 2020 as per Section 2.5.	Refer to Section 2.5.
Department of Health (DoH) advised of proposal (25 November 2020)	DoH replied on 17 December 2020 stating that the following: • The project is to have sufficient supply of drinking water; • the WWTP is to be installed in accordance with DoH approvals; • The land application for the spray field irrigation is to calculated as per relevant Australian Standards; • If the WWTP and RO Plant are located in close proximity, then it must be demonstrated that adequate measures are in place to minimise or prevent cross-contamination of drinking water; and • The DoH public health issues scoping tool provided.	N/A.
Applicant was provided with draft documents on 29 March 2021	Applicant comments were provided 07 April 2021 Refer to Appendix 1	Applicant comments were provided 07 April 2021 Refer to Appendix 1

5. Conclusion

Based on the assessment in this Decision Report, the Delegated Officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Table 8: Baseline Groundwater Quality Results for Warrawoona Gold

Sample ID	LOR	Unit	CWE01	CWE02	CWE03	KWE01	KWE02	KWE03	KWE04	KWE06	KWE07	KWE08	KWE09	KWE10	CRA bore	KWE13	KWE15	KWE19
Sample date: Nov 2018 – April 2019																		
pH Value	0.01	pH	8.09	8.37	8.23	8.47	8.68	8.69	8.75	8.46	8.82	8.66	8.44	8.5	8.49	8.52	8.32	8.23
Electrical Conductivity (25°C)	1	µS/cm	1060	1150	930	1130	1890	1100	1560	944	1710	956	1160	988	1730	2750	865	1060
Total Dissolved Solids (180°C)	10	mg/L	605	674	505	596	984	546	798	492	880	470	603	491	978	1550	500	596
Total Hardness (CaCO3)	1	mg/L	403	376	314	387	340	404	389	338	531	451	335	393	328	626	325	424
Hydroxide Alkalinity (CaCO3)	1	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbonate Alkalinity (CaCO3)	1	mg/L	<1	16	<1	22	43	47	53	18	112	46	16	25	33	31	3	<1
Bicarbonate Alkalinity (CaCO3)	1	mg/L	397	477	373	315	360	351	344	343	410	354	328	346	496	398	361	434
Total Alkalinity (CaCO3)	1	mg/L	397	493	373	337	403	398	397	361	522	400	344	370	530	429	364	434
Silicon (SiO2)	0.1	mg/L	79.2	78.2	61.3	33.8	19.1	17.6	12.4	24	23.3	21.6	18.3	19.5	29.5	21.3	58.8	55.9
Sulphate (SO4)	1	mg/L	25	24	22	56	156	56	108	38	108	34	82	31	134	297	21	36
Chloride	1	mg/L	120	101	79	177	347	130	266	89	246	97	159	120	212	549	72	108
Calcium	1	mg/L	56	30	40	18	16	7	14	30	8	6	17	22	29	28	46	46
Magnesium	1	mg/L	64	73	52	83	73	94	86	64	124	106	71	82	62	135	51	75
Sodium	1	mg/L	108	154	103	109	285	103	201	95	197	50	134	81	281	396	82	90
Potassium	1	mg/L	3	1	2	3	7	8	8	4	9	9	6	4	4	9	2	2
Aluminium	0.01	mg/L	0.05	<0.01	0.04	<0.01	0.06	0.05	0.13	0.02	0.04	0.03	0.08	0.04	<0.01	<0.01	0.04	0.02
Arsenic	0.001	mg/L	0.024	0.06	0.198	0.004	0.003	0.034	0.003	0.017	0.029	<0.001	0.01	0.24	0.116	0.006	0.003	0.032
Cadmium	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Sample ID	LOR	Unit	CWE01	CWE02	CWE03	KWE01	KWE02	KWE03	KWE04	KWE06	KWE07	KWE08	KWE09	KWE10	CRA bore	KWE13	KWE15	KWE19
Chromium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	0.003	<0.001	0.002	<0.001	<0.001	<0.001	<0.001
Lead	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Manganese	0.001	mg/L	0.032	0.052	0.013	0.07	0.021	0.036	0.027	0.002	0.039	0.04	0.039	0.282	0.006	0.055	0.016	0.005
Zinc	0.005	mg/L	0.03	0.006	0.026	0.014	<0.005	0.006	<0.005	0.016	0.01	<0.005	0.018	0.013	0.018	<0.005	0.018	<0.005
Iron	0.05	mg/L	0.18	<0.05	0.26	<0.05	<0.05	0.32	<0.05	<0.05	0.41	0.24	<0.05	1.97	<0.05	<0.05	<0.05	<0.05
Ammonia as N	0.01	mg/L	0.07	0.03	0.05	0.03	0.03	0.05	0.06	0.05	0.09	0.03	0.04	0.05	0.05	<0.01	<0.01	0.02
Nitrite as N	0.01	mg/L	0.06	<0.01	<0.01	<0.01	0.03	0.02	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	0.01	mg/L	0.79	0.45	1.67	0.7	0.38	0.21	0.04	1.8	0.6	1.26	0.16	0.03	0.1	0.08	2.85	0.46
Nitrite+Nitrate as N	0.01	mg/L	0.85	0.45	1.67	0.7	0.41	0.23	0.12	1.8	0.6	1.26	0.16	0.03	0.1	0.08	2.85	0.46
Total Phosphorus as P	0.01	mg/L	0.03	0.02	0.08	<0.01	0.02	0.02	0.01	0.03	0.02	<0.01	<0.01	0.06	0.04	0.01	<0.01	0.02
Total Phosphate	0.1	mg/L	<0.10	<0.10	0.26	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.18	0.12	<0.10	<0.10	<0.10
Total Anions	0.01	meq/L	11.8	13.2	10.1	12.9	21.1	12.8	17.7	10.5	19.6	11.4	13.1	11.4	19.4	30.2	9.74	12.5
Total Cations	0.01	meq/L	12.8	14.2	10.8	12.5	19.4	12.8	16.7	11	19.4	11.4	12.7	11.5	18.9	30	10.1	12.4
Ionic Balance	0.01	%	4.05	3.76	3.19	1.36	4.22	0.06	2.79	2.25	0.55	0.03	1.52	0.22	1.27	0.46	1.86	0.13

Table 9: Baseline Groundwater Quality SWL Results for Warrawoona Gold

Hole ID	Easting z50	Northing z50	Elev. mRL	Depth (m)	SWL (mbtoc) [Date]	Airlift Yield L/s	EC (mS/cm)	50mm ND CL9 PVC Casing Slotted Interval (m)
CWE01	791945	7641258	241	100	8.6 [12/11/2018]	0.1	1.02	24 - 100
CWE02	791675	7641425	237	102	4.85 [12/11/2018]	0.2	1.11	24 - 100
CWE03	791716	7641582	240	100	7.8 [13/11/2018]	0.1	0.83	24 -100

Hole ID	Easting z50	Northing z50	Elev. mRL	Depth (m)	SWL (mbtoc) [Date]	Airlift Yield L/s	EC (mS/cm)	50mm ND CL9 PVC Casing Slotted Interval (m)
KWE01	801,474.1	7,637,023	283	132	ND	0.4	1.0	72 -132
KWE02	800,666.9	7,637,537	288	132	31.04 [18/11/2018]	0.2	1.45	6 -60
KWE03	799,637.5	7,637,952	290	132	35.6 [12/11/2018]	0.8	1.04	48 -130
KWE04	800,341.4	7,637,616	281	127	24.3 [12/11/2018]	0.8	1.25	24 -127
KWE05	800,346.1	7,637,460	283	132	14 [17/11/2018]	Dry		24 -130
KWE06	801,194.9	7,637,245	279	144	ND	4	0.84	72 -132
KWE07	800,809.9	7,637,208	291	132	19.4 [14/11/2018]	0.3	1.44	24 -132
KWE08	799,816.6	7,637,703	278	132	17.9 [12/11/2018]	0.6	0.9	30 -132
KWE09	799,869.7	7,637,913	293	150		2	1.0	90 -132
KWE10	801,084.9	7,637,172	305	120	39.18 [15/11/2018]	4+?	0.93	66 -120
KWE20	799,592	7,637,986	295	91	ND	1.5	1.3	Not cased

ND = Not determined

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Appendix 1: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of applicant's comment	Department's response
Condition 1, Table 1	The original works approval application stated a throughput of 2 Mtpa. The Applicant applied for a Section 45C to increase the throughput from 2 Mtpa up to 2.5 Mtpa and this was approved 01 April 2021. The increase was deemed administrative due to how the throughput was calculated.	Updated as requested.
Condition 1, Table 1	Bioremediation Facility details provided.	Updated as requested.
Condition 1, Table 1	Sedimentation Ponds details provided.	Updated as requested.
Condition 1, Table 1	Raw Water Pond details provided.	Updated as requested.
Condition 1, Table 1	Spillways information provided.	Included in Section 3.1.1, Table 4.
Condition 1, Table 1	The Application will update the next version of the Mining Proposal and Mine Closure Plant to include the disposal of tyres.	Included in the Decision Report in Section 2.5 Department of Mines, Industry Regulation and Safety.
Condition 1, Table 1	Irrigation area number of sprinklers provided.	Included in the Decision Report in Section 2.2.4 Category 85 WWTP.
Condition 4, Table 2	The timeframe in Table 2 states the TSF monitoring bores must be constructed and operational no later than 365 calendar days prior to the commencement of commissioning activities. 365 days is unachievable. The monitoring bores would only be constructed once Works Approval is received, and commissioning activities commence in the March Quarter of 2022, so is already less than 365 days. Calidus requests a more practical time frame that the bores are constructed and operational prior to commissioning. Vibrating Wire Piezometers included.	Updated as requested to be constructed, developed (purged), and determined to be operational in order to meet the frequency of baseline monitoring as required by Table 10 of the works approval and prior to the commencement of environmental commissioning activities under condition 7. Vibrating Wire Piezometers included.
Condition 8, Table 3	Tailings are expected to reach the embankment within one month of commencement of deposition.	Included in Section 2.2.2 Category 5 TSF.

Condition	Summary of applicant's comment	Department's response
Condition 16, Table 5	The Applicant provided groundwater monitoring bores in the vicinity of the landfill for the measurement of SWL to ensure that the landfill is separated by at least 3m from the highest levels of the groundwater table.	Groundwater monitoring bores KWEO1, KWE06, KWE07 and KWE10 are located within proximity to the landfill and included in this condition.
Decision Report Section 2.6 Contaminated Sites Branch	The Applicant has stated that the hyporheic zone bore recommended by Contaminated Sites Branch can instead be provided by the early installation of MB04.	This recommendation of an hyporheic zone monitoring bore constructed in creek sediments next to the proposed monitoring site MB04 on the premises boundary was provided by Contaminated Sites Branch as a control to monitor the risk of seepage from the TSF toe that may impact this zone. It is, therefore, included in the works approval.
Decision Report Section 2.6 Contaminated Sites Branch	The Applicant provided Water Balance Flow Diagram	Included in Figure 8.
General	Maps and locations of various infrastructure provided. Dates of approvals for government agencies provided.	Updated as requested. Included approval dates for government agencies.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY		
Application type		
Works approval	☒	
Date application received		Originally submitted 6/10/2020. Request for Further Information letter sent 23/10/2020 and response and updated Application Form received 4/11/2020.
Applicant and Premises details		
Applicant name/s (full legal name/s)		Calidus Resources Limited (ACN 006 640 553)
Premises name		Warrawoona Gold Project
Premises location		G45/345, L45/523, M45/668, M45/669, M45/670, M45/552, M45/671 and M45/547 MARBLE BAR WA 6760
Local Government Authority		Shire of East Pilbara
Application documents		
HPCM file reference number:		DER2020/000476
Key application documents (additional to application form):		Supporting Documents (A1940101) including: • ATC Williams 2020 Report - Bankable Feasibility Study – Tailings Storage Facility Design Report (page 166 of 804). • GCA 2019 – Geochemical Characterisation of Tailings-Slurry Sample and Implications for Tailings Management (page 585 of 804). • Significant Species Management Plan CRL-ENV-PLN-006-19 (page 679 of 804). • Underground Workings Clearance Procedure – Significant Bats CRL-ENV-PRO-024-19 (page 795 of 804). Revised Application Form and Request for Further Information response (DWERDT361504).
Scope of application/assessment		

Summary of proposed activities or changes to existing operations.	Construction of a 2.5 Mtpa processing plant consisting of a single stage crusher with semi-autogenous-grinding (SAG) mill, secondary ball mill and conventional carbon-in-leach (CIL) circuit. Tailings will be thickened before undergoing cyanide detoxification and discharged to a valley fill TSF (Commissioning required). A standalone 100 ktpa milling and flotation circuit (mobile crushing unit, plus sulphide circuit) for the treatment of the high-grade refractory Copenhagen deposit. This concentrate will be transported offsite for third party processing. Construction of a valley fill TSF with a 10.5 Mt storage capacity. TSF embankment constructed in two stages: Stage 1 (starter) 263.0 mRL; and Stage 2 (final) 265.3 mRL (Critical Containment Infrastructure – Commissioning required)). Construction of WWTP for Accommodation Village. WWTP design capacity of 48 m^3/day based on 240 persons @ 200L/day with treated water irrigated over a 1.5 ha sprayfield (Commissioning required). Brine from the RO plant (25 m^3/day) will also be treated through the WWTP. Construction of a Class II landfill to be located within the Klondyke waste rock dump. It is expected to produce 750 t/a of inert waste (including up to a maximum of 1,000 tyres) and 750 t/a of putrescible waste.

Category number/s (activities that cause the premises to become prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	Proposed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 5: Processing or beneficiation of metallic or non-metallic ore	2,500,000 tonnes per annual period The original works approval application stated a throughput of 2 Mtpa. The Applicant applied for a Section 45C to increase the throughput from 2 Mtpa up to 2.5 Mtpa and this was approved 01 April 2021. This has been updated on the works approval	*Is there a proposed change to the previously assessed production or design capacity?*
Category 64: Class II putrescible landfill site	1,500 tonnes per annual period (750 t/a of inert including tyres and 750 t/a of putrescible)	
Category 85: Sewage facility	48 m^3/day + 25 m^3 of RO brine	

Legislative context and other approvals

Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes ☐ No ☒	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐

Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes ☒ No ☐	Ministerial statement No: 1150 EPA Report No: 1681
Has the proposal been referred and/or assessed under the EPBC Act?	Yes ☒ No ☐	Reference No: EPBC 2019/8584
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes ☒ No ☐	Certificate of title ☐ General lease ☐ Expiry: Mining lease / tenement ☒ Expiry: Other evidence ☒: ASIC details for Keras (Pilbara) Gold Pty Ltd showing Ultimate Holding Company being Calidus Resources Limited.
Has the applicant obtained all relevant planning approvals?	Yes ☐ No ☐ N/A ☒	Approval: Expiry date: If N/A explain why? Mining Proposal and Mine Closure Plan for the Early Works (L45/523) REG ID: 87218 approved 12/08/2020. Mining Proposal and Mine Closure Plan for the Premises was submitted 21/09/2020 and is currently under assessment (Application ID 90033).
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes ☒ No ☐	CPS No: 8862/1 approves the clearing of up to 25.8 ha of native vegetation within the early works footprint. MS 1150
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes ☐ No ☒	Application reference No: N/A Licence/permit No: N/A
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes ☒ No ☐	Licence/permit No: GWL204411(1) for dust suppression and earthworks and construction purposes.
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ☐ No ☒	Name: Pilbara Type: Proclaimed Groundwater Area and Surface Water Area Has Regulatory Services (Water) been consulted? Yes ☐ No ☒ N/A ☐ Regional office: North West

Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes ☐ No ☒	Name: N/A Priority: N/A
Is the Premises subject to any other Acts or subsidiary regulations (e.g. *Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx*)	Yes ☐ No ☒	
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes ☐ No ☒	
Is the Premises subject to any EPP requirements?	Yes ☐ No ☒	
Is the Premises a known or suspected contaminated site under the *Contaminated Sites Act 2003*?	Yes ☐ No ☒	Classification: N/A