Government of Western Australia
Department of Water and Environmental Regulation

Decision Report

Application for Works Approval

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

Works Approval Number	W2918/2025/1
Applicant	BHP Iron Ore Pty Ltd
ACN	008 700 981
File number	APP-0027214
Premises	Wheelarra Hill (Jimblebar) Iron Ore Mine Tenements AM70/266 and ML244SA NEWMAN WA 6753 As defined by the coordinates in Schedule 2 of the works approval As defined by the premises maps attached to the issued works approval
Date of report	**12/12/2025 (FINAL)**
Proposed Decision	Works approval granted

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1. Decision summary

This 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 W2918/2025/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) 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 20 January 2025, the applicant submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The Applicant currently holds Licence L5415/1988/9 for Wheelarra Hill (Jimblebar) Iron Ore Mine (the premises), where they have approval to operate dry crushing, screening and train loading infrastructure. They are now planning to install a Beneficiation Plant for wet processing of iron ore, with In-Pit Tailings Storage Facilities (IPTSFs) for disposal of tailings waste.

The application is to undertake construction works relating to:

Category 5:

- 45 million tonnes per annum (mtpa) Beneficiation Plant consisting of a:
  - Dry Inflow and Outflow System;
  - Beneficiation / Wet Processing Plant;
  - Plant Services; and
  - IPTSFs.

Other Infrastructure:

- The following infrastructure will also be constructed but does not trigger a Category in Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regs):
  - Concrete Batching Plant; and
  - Substation / powerline upgrades.

The premises is approximately 30 km east of Newman. The Prescribed Premises Boundary and locations of proposed infrastructure is shown in Figure 1.

The premises relates to the category and assessed production / design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W2918/2025/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W2918/2025/1.

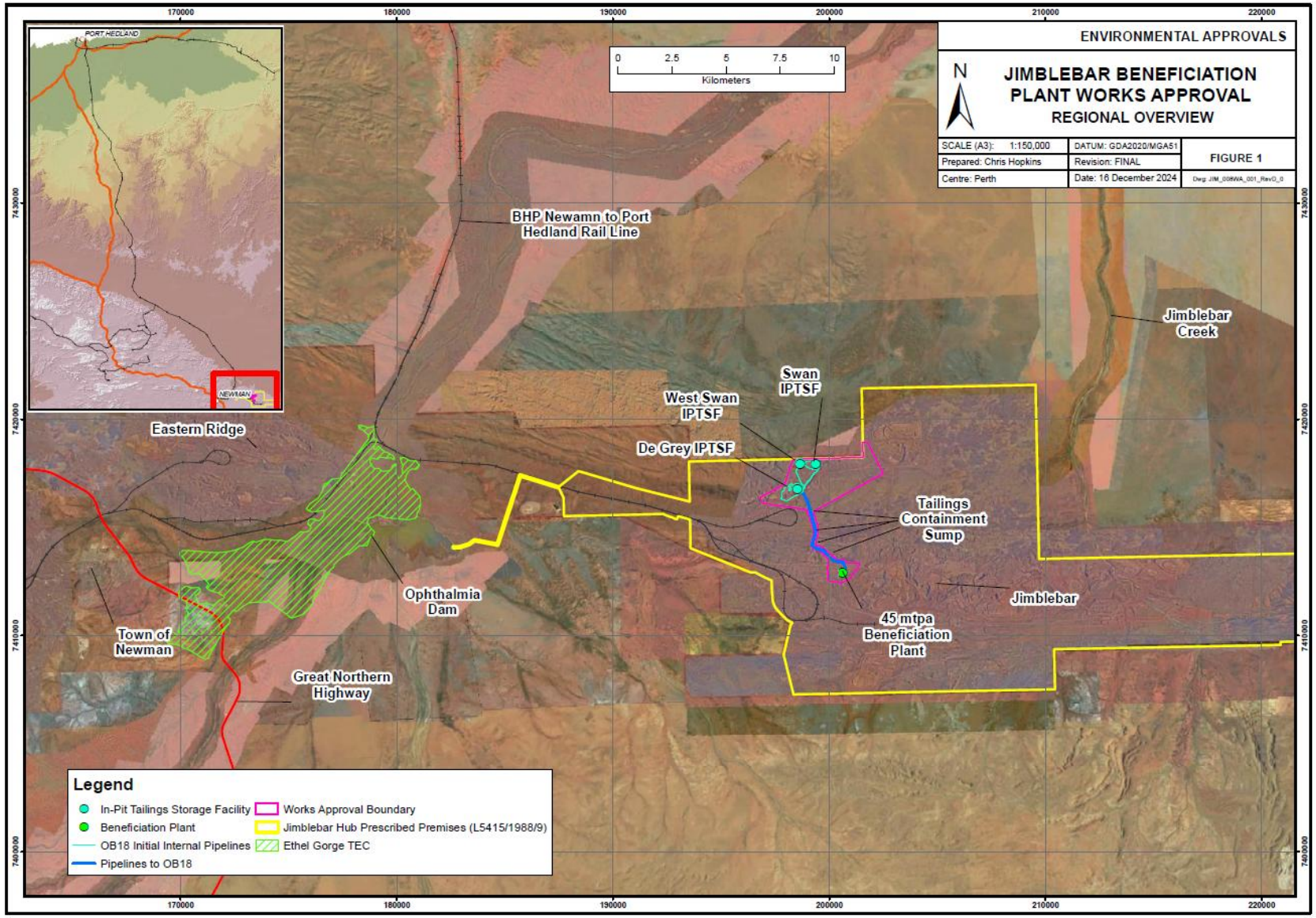

Figure 1: Jimblebar Prescribed Premises Boundary

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2.2.1 Category 5

The proposed location of the new Beneficiation Plant is North-East of the existing Ore Handling Plant (OHP), approximately 380m East of the existing CV105/106 transfer station. Fines produced by the existing OHP are stockpiled by the existing yard conveyor, CV106 before it is loaded onto trains and transported to Port Hedland for export. The original design of the existing transfer station between CV105 and CV106 has considered the height required to divert fines onto a new conveyor to feed the Beneficiation Plant. The transfer station will require a new chute, diverter gate and supporting infrastructure to support the new equipment.

Four conveyors are required to support the new Beneficiation Plant, one to feed the Beneficiation Plant with fines feed from CV105 and the others to return beneficiation products to CV106 which feeds onto the existing stockyard operations.

The wet plant is composed of six identical process streams, each comprising of feed bins, low profile belt feeders, wet sizing screens, deslime cyclones and belt filter dewatering. The plant also includes a bypass bin that allows product to bypass the entire beneficiation process and be fed back to CV106 as unchanged fines product.

Dry Inflow and Outflow System

The Dry Inflow and Outflow System will consist of the following:

- CV105 / CV131 Feed Transfer Chute;
- CV134 / CV106 Product Conveyor Discharge Chute;
- CV131 Beneficiation Plant Feed Conveyor (and associated shuttle);
- Beneficiation Plant Product Conveyor CV133 and Stockyard Feed Conveyor CV134 and Filter Product Conveyor CV132;
- Sample Station SSB160 and Beneficiation Plant Sample Conveyor CV160; and
- Upgrade to Fines Stockyard.

Beneficiation / Wet Processing Plant

The Beneficiation Plant will consist of the following:

- Wet Screening:
  - Feed bins (BN100 – BN600);
  - Bypass bin (BN001);
  - Bin isolation gates (GAI100 – GAI600 and GAI001);
  - Low profile belt feeders (BF100 – BF600 and BF001);
  - Pulping box (CH100B – CH600B);
  - Wet Sizing screens (VS100 – VS600); and
  - Rougher cyclone fee hoppers and pumps (PU111 – PU611 and PU121 – PU621).
- Cyclone Plant:
  - Rougher Cyclones (CY111 – CY611 and CY121 – CY621);
  - Cleaner Cyclones (CY112 – CY612 and CY122 – CY622);
  - Cleaner Cyclone Fee Hoppers;
  - Sump Pumps (PU120A/B/C/D); and
  - Belt Filter Feed Tanks.

- Dewatering Plant:
  - Feed distributer;
  - Vacuum pump;
  - Filtrate receiver;
  - Filtrate pump;
  - Belt support blowers;
  - Cloth wash tank and pump; and
  - Cloth wash return hopper and pump.
- Filter Product Conveyor CV132;
- Thickener:
  - thickener feed tank;
  - single on-ground tailings thickener (TH901);
  - thickener underflow pumps (PU911 – PU913);
  - tailings disposal tank; and
  - tailings disposal pumps.

Plant Services

The Plant Services will consist of the following infrastructure:

- Raw and Process Water; and
- Flocculant Plant.

The Ore Processing Flow Diagram is shown in Figure 2.

IPTSFs

The tailings are pumped from the Thickener underflow, through a surge tank and primary arcual sampler to the Tailings Tank. Approximately the first five kilometres of pipeline from the beneficiation plant will be DN550 carbon steel pipe. The pipeline then changes to a OD710PE 100 PN25 high density polyethene (HDPE) pipe, which runs to each of the IPTSFs deposition points.

There are four tailings containment sumps and a tailings cut-off drain along selected portions of the pipeline route. The sumps are strategically located at low points in the pipe alignment to minimise the potential impact to adjacent watercourses and heritage sites and have a design capacity above the maximum expected static tailings volume, in the highly unlikely event of a tailings spill.

The sumps will also intercept a certain volume of stormwater runoff, until each sump is at capacity, at which time any additional stormwater is discharged into existing flow paths at the sump overflow. The stormwater overflow invert elevation at each sump has been designed at the very least to contain the maximum static tailings spill volume. The facilities have also been positioned/designed to minimise the impacts on existing low points in the terrain to allow the surface runoff from surrounding catchments to follow its natural flow path.

The IPTSFs for the Project are located at Orebody 18's De Grey, and the linked Swan and West Swan Pits. Refer to Figure 3. Initial deposition at the linked Swan pits will be to Swan IPTSF with the West Swan IPTSF brought online at a future date. To maximise storage, tailings deposition will be cycled between the De Grey IPTSF, and Swan IPTSFs approximately every two weeks which will allow for solids to settle and slurry water to be decanted. This will be via manually operated valves at a bifurcation of the tailings pipeline in the IPTSFs area.

The Swan Pit and the adjacent OB31 Mining Operations are situated within an orebody aquifer which is compartmentalised, bounded by faulting and low permeability formations to the north, east, and south. The groundwater levels are significantly lower in each of these directions. Groundwater flow from the OB31/Swan aquifer compartment can occur to the west, into the Mesa Gap regional aquifer. The Swan orebody is hydraulically disconnected from the regional aquifer directly to the south but is connected to the OB31 aquifer, therefore, has an indirect connection to the regional aquifer. There is currently no pit lake at the Swan Pit.

The De Grey orebody does not show evidence of direct or indirect connection to the regional Wittenoom Formation aquifer to the south. The hydraulic barrier (potentially formed by a dyke) through the Wittenoom Formation aquifer and possibly between De Grey and Swan orebodies, reduces the hydraulic connectivity and effectively separates the Mesa Gap and OB31/Swan groundwater systems into compartments. A second dyke is interpreted to form a groundwater flow barrier between the Mesa Gap and Ninga Managed Aquifer Recharge (MAR) groundwater systems, creating another compartment.

The De Grey Pit contains a pre-existing acidic pit lake. The pit lake water will be neutralised prior to commencement of tailings deposition into De Grey Pit to achieve a circum-neutral conditions (pH~6.5) for the initial months of tailings deposition. The input of process water is predicted to provide sufficient neutralisation to buffer acidity input from pit wall runoff, and the Potentially Acid Forming (PAF) source will be rapidly inundated by the rising tailings level. The predicted pH evolves during subsequent filling phases and fallow periods to more alkaline conditions and remains relatively consistent for the model duration.

The Tertiary Detritals, that overlie the Wittenoom Formation, are not impeded by the dykes and likely transmit water regionally when saturated, but at a lower rate than the Wittenoom Formation. Groundwater (and seepage) is unlikely to travel across the two dykes to Ethel Gorge at a significant rate, regardless of whether dewatering at OB31 has created a hydraulic gradient.

Refer to Figure 4 for locations of the existing and new groundwater monitoring bores.

The proposed new and existing monitoring bores have been selected as they are the key monitoring bores down gradient to determine changes to groundwater depth and quality associated with the facility. These bores will be supplemented with a broader internal (non-licensed) network of monitoring bores which will also be used to monitor potential changes.

Decant is achieved at each location using a trailer mounted direct diesel driven pump set, with a floating suction arrangement used to draw the supernatant furthest from the settling solids as possible.

The decant pumping points will be moved as tailings / decant water levels increase over time. The decant water will then be pumped from the IPTSFs overland to the Beneficiation Plant process water ponds for reuse.

The IPTSFs include a single 82m diameter on-ground tailings thickener, thickener underflow pumps, tailings disposal tank and tailings disposal pumps. Tailings can be sent to either Swan IPTSF or DeGrey IPTSF via an overland pipeline. The IPTSFs will include a decant pumping arrangement to allow dewatering back to the Beneficiation Plant.

The Tailings Disposal System will consist of the following infrastructure:

- Disposal and Decant Pipelines; and
- IPTSFs.

Freeboard will be designed at 0.5 m above 1:100 AEP, 72-hour storm events.

Tailings Characteristics

Tailings testing has shown 45% solids (w/w%). Five composite tailings samples described as silty clay, low to medium plasticity, reddish brown and trace of fine grained sand, were analysed for mineralogy, acid and metalliferous drainage potential, and elemental release under various

leaching conditions. The supernatant waters were also analysed for total and dissolved elements. The geochemical characterization indicated:

- All composite samples have similar bulk chemical compositions (goethite [FeOOH, ~43%], hematite [Fe_2O_3; ~36%], and kaolinite [$Al_2Si_2O_5(OH)_4$; ~14%]), confirming findings from previous studies;
- All tailings composites are non-acid forming (NAF), with limited acid neutralizing capacity (ANC; <2.4 kg H_2SO_4); and
- The DI water, saline and oxidizing leachates have near-neutral pH, low electrical conductivity (EC), and low metal and nutrient concentrations that are mostly below the Shovelanna trigger values (these values reflect current operational water quality guidance for the Jimblebar site, derived from a combination of ecotoxicity and baseline water composition). Barium was the only element consistently above the trigger value.

The analysis of the supernatants showed that:

- All supernatants have lower metalloids concentrations than the Whaleback process water that was used for input in the water quality modelling Jimblebar IPTSFs.

The Jimblebar tailings are unlikely to present a risk of generating acidic conditions and/or release metalloids during operation or at closure.

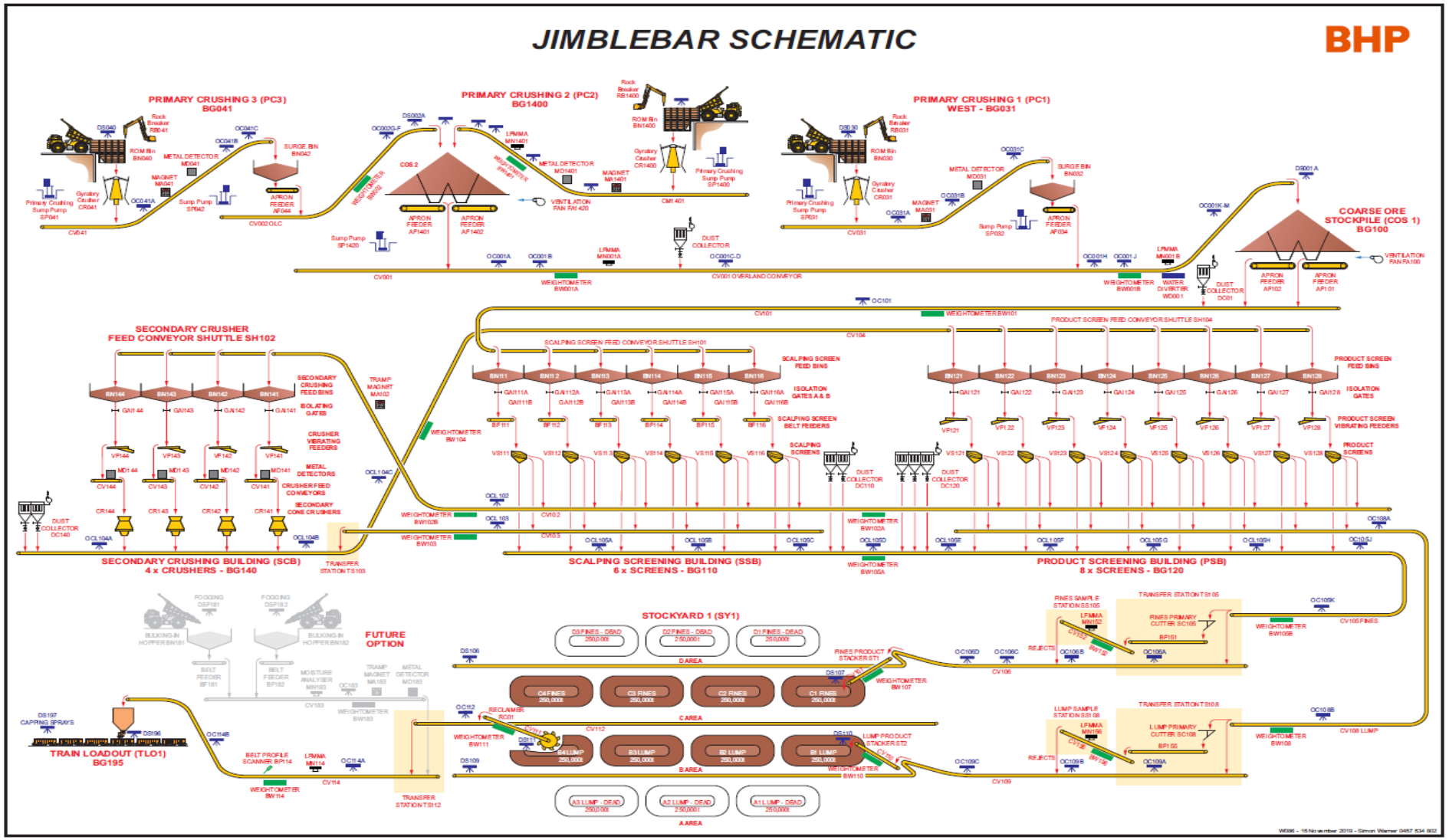

Figure 2: Ore Processing Flow Diagram

Figure 3: De Grey and Swan Pits

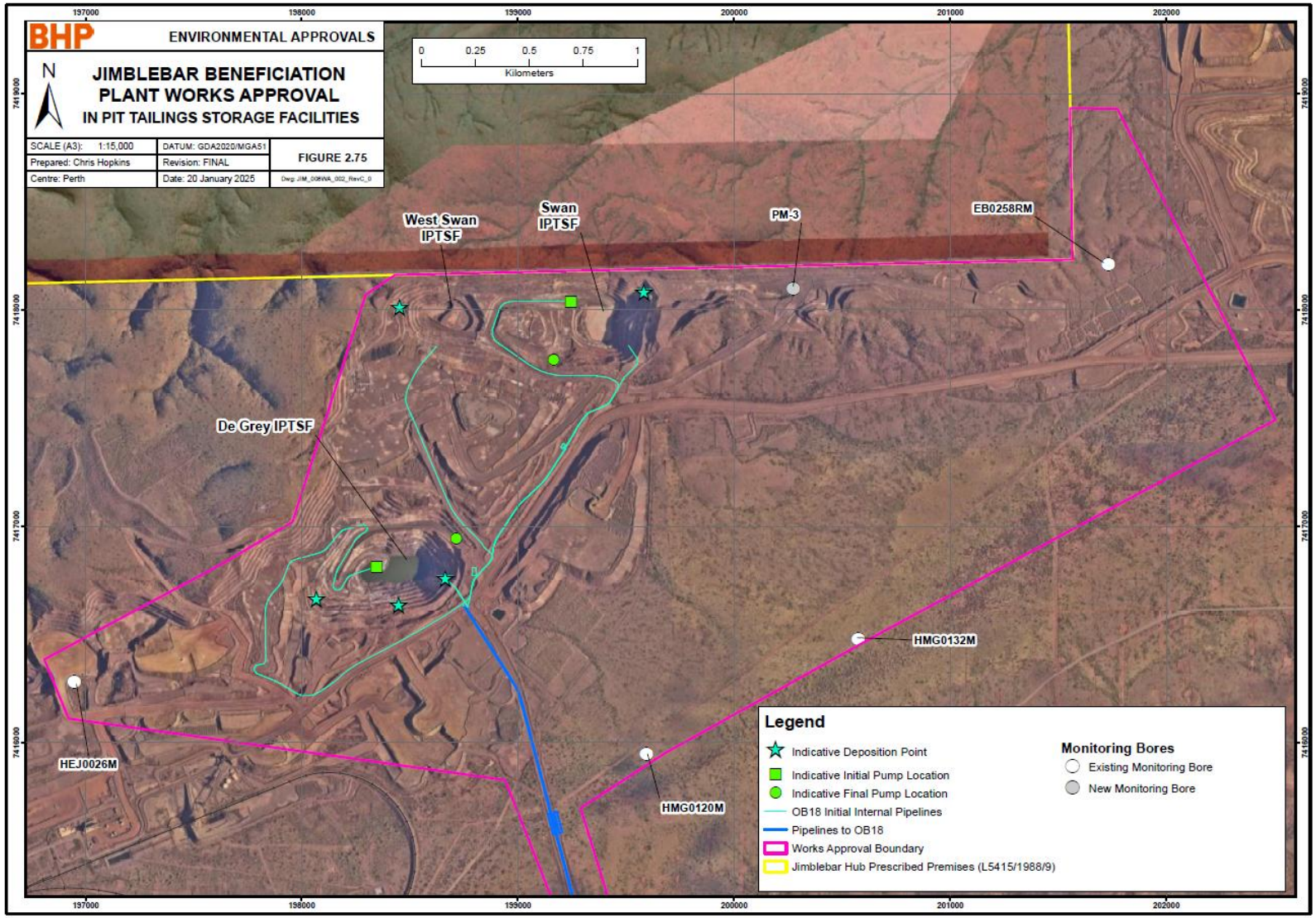

Figure 4: Groundwater Monitoring Locations

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2.2.2 Other Infrastructure

Concrete Batching Plant

A Mobile Concrete Batching Plant will support the construction of the Beneficiation Plant, however, the cement products or concrete will only be used onsite. The Applicant will ensure operations comply with the *Environmental Protection (Concrete Batching and Cement Product Manufacturing) Regulations 1998*.

Substation / powerline upgrades

An upgrade of the Jimblebar Substation is required to support the Beneficiation Project. These upgrades include:

- An expansion of the 132 kV switchyard to include a fourth bay and fourth transformer;
- An additional 33 kV switch room; and
- A new 33 kV underground ring main.

These additions will not alter emissions and discharges from the facility. Therefore, this will not be further assessed.

2.3 Part IV of the EP Act

A significant amendment (Proposal) is currently before the EPA and includes the expansion and amalgamation of existing operations at:

- Jimblebar Iron Ore Revised Proposal (Ministerial Statement (MS 1126);
- Orebody 18 Iron Ore Mine (MS 439, MS 1012); and
- Orebody 31 Iron Ore Mine (MS 1021);

The proposal includes new above and below water table mining, overburden storage areas, beneficiation plant, overland conveyor, creek diversions, haul and access roads, pipelines and associated infrastructure. All mines and associated elements are proposed to be consolidated into the Jimblebar Hub Combined Proposal, approximately 40 kilometres east of the town of Newman within the Shire of East Pilbara.

The Proposal is located within a 24,684 hectares (ha) development envelope and will require the clearing of up to 12,262 ha of native vegetation. The maximum project life is proposed to be 46 years with the potential for the formation of pit lake/s upon closure. The Proposal is located wholly within the boundary of the Nyiyaparli Native Title determination area.

Assessment Number: 2397 was published 06 October 2025 and Ministerial Statement 1262 was approved 08 December 2025 and approves tailings deposition to the IPTSFs.

2.4 Department of Mines, Petroleum, and Exploration (DMPE)

DMPE had no geotechnical concerns about the IPTSFs at the time of this assessment.

2.5 Hydrogeological Technical Advice Review

This project was referred for Hydrogeological Technical Review and summary of the technical advice received, along with the Applicant's reply is provided:

Consideration of the uptake of metals by vegetation on rehabilitated mine-waste landforms

Although iron-ore tailings are usually considered to be environmentally benign and incapable of releasing metals into the environment, this may not be the case when mine-waste landforms containing these materials are revegetated.

This is because many native plant genera have roots that exude organic acids into the soil, which can then mobilise metals from otherwise benign mine wastes. This is especially the case for Acacia species, which can bioaccumulate large amounts of some metals from tailings materials due to the large amounts of acidic exudates they produce.

As these metals would then have the potential to enter local food webs through grazing livestock and wildlife, and by insect attack, it would be important that this risk is evaluated during the life of the mining operation. This would be necessary so that suitable management measures could be implemented to mitigate the potential environmental impacts from this exposure pathway after mine closure. This risk could be evaluated during the life of the mining operation by undertaking investigations to determine the extent to which metals are bioaccumulated by vegetation from mine waste materials. The University of Western Australia has undertaken research on this issue for tailings from some other iron-ore mine sites in the Pilbara region, and it is recommended that similar research is undertaken for tailings from the Jimblebar mine site

Applicant's reply - The results of geochemical test work on Jimblebar tailings are summarised in the Jimblebar Hub Mine Closure Plan (MCP) and the supporting technical reference, which indicate tailings solids have generally low metal concentrations. For some samples, As, Fe and Se may be considered enriched relative to average crustal abundance, where tailings enrichment is comparable to the bulk chemistry of Jimblebar (and Pilbara iron ore-related) rock types, in general. Furthermore, the metal concentrations within Jimblebar tailings are significantly (e.g., order of magnitude) lower than mine tailings that are multi-metal (e.g., Cu-Pb-Zn) in nature.

Contaminant exposure pathways relevant to the tailings solids include ingestion and direct contact/uptake; the food chain is not considered an exposure pathway for fauna given the scenario that substantial vegetation cover is not expected to establish directly over the tailings surface, and therefore the risk that vegetation will bioaccumulate metals from a potential source within the tailings, and then be ingested by fauna, is considered negligible during the operational or consolidation phases.

The current closure strategy as summarised in the MCP ensures the tailings surface will be covered by a minimum of 1 to 5 m final fill thick layer of locally sourced waste rock and surface soils (WSP, 2024j) overlying a 5 to 30 m thick waste rock working platform layer; the strategy does not entail revegetation directly onto the tailings surface, and therefore investigations of phytoremediation and amendment options to improve the tailings' capacity to support vegetation is not applicable.

Lack of consideration of the potential release of metals from rehabilitated tailings landforms by the effects of fire

As the Pilbara region is subject to periodic intense wildfires, and that it is likely that both the frequency and intensity of these fires will progressively increase with climate change, this is a risk that needs to be assessed with the creation of the proposed IPTSFs at the Jimblebar mine site. This is especially the case for tailings that are produced from mining below the water table, which are likely to contain a higher proportion of adsorbed metals than those from above the water table. The close proximity of the Jimblebar mine site to the Newman water-source protection area would also be of concern if large amounts of these toxic elements were to be rereleased into soil porewater in the first rainfall event after an intense wildfire.

Applicant's reply - The current closure strategy as summarised in the MCP ensures rehabilitated tailings landforms are covered by a 1 to 5 m thick layer of locally sourced waste rock and surface soils, potentially overlying a 5 to 30 m thick waste rock working platform layer; a vegetation cover will not be established directly over the tailings surface. Therefore, the risk is negligible that sustained periods of high-temperature conditions will prevail on surface exposures of tailings, which may drive thermal transformation of Cr- and As-bearing minerals leading to enhanced mobility of Cr (VI) and As (III) upon re-wetting.

Suitability of the testing of tailings materials

The preferred test procedures for assessing the leaching potential of mine wastes under anoxic conditions are column-based kinetic tests that are run under completely air-free conditions. These saturated-column test procedures are described in guidance documents for some international jurisdictions (e.g., refer to section 7.3 of Søndergaard et al., 2018), and have been previously used for assessing the disposal of iron-ore wastes below the water table at some other mine sites in the Pilbara region (Watson et al., 2016). To obtain meaningful results, these tests should typically be run over a period of several months with periodic sampling of the leachate from the columns (Søndergaard et al., 2018). It would also be important that this testing is carried out on the exact blend of mine waste materials that would be deposited below the water table in this mine void. Given the long period of time that would be required to undertake saturated-column kinetic testing, CSB considers that these tests could be undertaken during the operational life of the proposed De Grey IPTSF, and not as a precondition for its operation.

Applicant's reply - Noted. BHP agrees the testing suggested to be undertaken during operations could assist with refining the understanding of the behaviour of tailings under saturated conditions.

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 *Guideline: Risk Assessments* (DWER 2020).

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 1 below. Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 1: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Construction of the following infrastructure and movement of machinery / vehicles Beneficiation Plant, IPTSFs, Concrete Batching Plant, Substation / power lines upgrades	Air / windborne pathway	• Localised dust is likely to be generated during clearing / movement of material during construction; • Construction dust will be managed by: ➢ Minimising the clearing footprint; and ➢ Using water carts to control dust from exposed areas.
Noise		Air / windborne pathway	• Localised noise is likely to be generated during clearing / movement of material during construction; and

Emission	Sources	Potential pathways	Proposed controls
			• No specific noise management measures are proposed given the separation distance between the sensitive receptors, the short term nature of the works, and the location of the activities within mining areas (Jimblebar Hub).
Hydrocarbons / Chemicals	Storage of these produced during the construction phase	Direct discharges	• Hydrocarbon storage areas will be bunded and any spills will be cleaned up.
Commissioning			
Beneficiation Plant			
Dust	Dry Inflow and Outflow System	Air / windborne pathway	• The existing Jimblebar stockyard dust mitigation measures will continue to be the main source of dust management at the stockyards. These include stockyard cannons and ore conditioning sprays; • The Beneficiation Plant Feed Conveyor CV131 will be fitted with ploughs, scrapers, skirt modules, dust hoods and bulk ore conditioning sprays to manage dust; and • Where new infrastructure is constructed the following measures have been undertaken to minimise dust generation: ➢ Enclosed transfer points; and ➢ Reduced height of transfer points and speed of falling ore (reducing concertina effect reduces dust).
Noise	Commissioning of equipment and infrastructure Commissioning of the Beneficiation / Wet Processing Plant and Plant Services	Air / windborne pathway	• No specific noise mitigation measures are required for the Dry Inflow and Outflow System, however the following sound material handing designs will be implemented to minimise noise from the facility: ➢ Enclosed transfer points; and ➢ Reduced height of transfer points and speed of falling ore (reducing concertina effect reduces dust). • The following noise mitigation measures will be installed at the wet plant: ➢ Vacuum pumps for belt filters have silencers installed; ➢ Air compressors are encased in enclosures; ➢ Enclosed transfer points; and

Emission	Sources	Potential pathways	Proposed controls
			➢ Reduced height of transfer points and speed of falling ore (reducing concertina effect reduces dust).
Sediment / ore laden water	Stockyard stormwater runoff containing sediments	Direct discharges	• The broader Jimblebar stockyard has been designed to prevent the run-off off sediment laden water. In addition to the existing controls a drainage system will be installed below the fines stockpile in the stockyard to remove water that percolates through the stockpile to the base layer; and • This system will include drainage channels below the sacrificial layer, consisting of a combination of permeable media and slotted drainage pipes, draining to a collection point at the eastern end of the stockyard. From there, the collected water will be pumped back to the Beneficiation Plant and returned to the process.
Hydrocarbons / Chemicals	Use of these products onsite	Spills, infiltration and/or stormwater containing chemicals and/or hydrocarbons	• The following measures will be implemented to manage the risk of chemicals, hydrocarbons and sediment from entering the surrounding environment: ➢ The flocculant reagent area will be self-bunded and will have a sump pump to aid housekeeping and clean-up; ➢ The thickener will be a concrete design to prevent infiltration; ➢ Hydrocarbon storage areas will be bunded and any spills will be cleaned up; ➢ All drives will be located over concrete bunded slabs with sumps; and ➢ All drainage from the Beneficiation Plant pad reports to centralised surface water drainage from adjacent Ore Handling Plant.
Sediment laden water	Rainfall through the site	Stormwater runoff containing sediments	
IPTSFs			
Tailings with elevations in arsenic, iron and selenium	Tailings and decant pipelines leaks and spills	Direct discharges	• The tailings pipeline will be constructed and commissioned to ensure that the pipeline is built according to approved engineering designs and standards inclusive of construction verification certification; • Pipeline design has considered factors such as:

Emission	Sources	Potential pathways	Proposed controls
			➢ Pressure; ➢ Temperature; ➢ The nature of the transported materials; ➢ Location of tailings containment sumps and tailings cut-off drains; and ➢ Associated road alignments to reduce potential vehicle interactions; • Rating exceeds maximum pressure output from pumping infrastructure; • Avoids areas susceptible to natural hazards (flooding), where practicable; • There are four tailings containment sumps and a tailings cut-off drain along selected portions of the pipeline route. The sumps are strategically located at low points in the pipe alignment to minimise the potential impact to adjacent watercourses and heritage sites and have a design capacity above the maximum expected static tailings volume, in the highly unlikely event of a tailings spill; • The sumps will also intercept a certain volume of stormwater runoff, until each sump is at capacity, at which time any additional stormwater is discharged into existing flow paths at the sump overflow. The stormwater overflow invert elevation at each sump has been designed at the very least to contain the maximum static tailings spill volume. The facilities have also been positioned/designed to minimise the impacts on existing low points in the terrain to allow the surface runoff from surrounding catchments to follow its natural flow path; • The above design requirements will be confirmed as being in place in the Project's Compliance Reports (Critical Containment Infrastructure Report and Environmental Compliance Report) and the Environmental Commissioning Report; • During commissioning the pipeline will be monitored to detect potential natural hazards (flooding), which would trigger the need for a manual shutdown of the pipeline; • Comprehensive maintenance procedures that include routine checks, testing, and servicing of the tailings line will be implemented. This will include data

Emission	Sources	Potential pathways	Proposed controls
			analytics to assess the pipeline's condition and performance trends, aiding in predictive maintenance and risk management; • Potential pipeline leaks will be identified by: ➢ An automated monitoring systems which continuously tracks the pipeline's performance and provide real-time alerts and shutdown in the event an anomaly is detected; and ➢ Regular inspections and testing during the construction and commissioning process to identify and rectify any errors or deficiencies; and • In the event of a pipe rupture: ➢ The automated emergency shutdown system will engage to prevent any further discharge. This system will be triggered by abnormal conditions (e.g. a flow meter discrepancy); and • Any areas impacted by a tailings leak will be assessed and remediated by removing the discharged tailings solids from impacted area.
	Overtopping of the IPTSFs due to inadequate freeboard	Direct discharges	• Freeboard designed at 0.5 m above 1:100 AEP, 72-hour storm events; • Deposition points will be a single discharge location at each pit via the HDPE deposition pipeline; and • The deposition pipe outlets will extend beyond the existing pit crest or partially down the pit face to facilitate discharge of tailings onto competent material to minimise adverse erosion of the pit slopes.
	Seepage	Infiltration through the base and embankments	• Neutralisation of the water within the De Grey Pit prior to discharge commencing (WSP, 2025b); • To maximise storage tailings deposition will be cycled between the De Grey IPTSF, and Swan IPTSFs approximately every two weeks which will allow for solids to settle and slurry water to be decanted. This will be via manually operated valves at a bifurcation of the tailings pipeline in the IPTSFs area; • Decant is achieved at each location using a trailer mounted direct diesel driven pump set, with a floating suction arrangement

Emission	Sources	Potential pathways	Proposed controls
			used to draw the supernatant furthest from the settling solids as possible; • The decant pumping points will be moved as tailings / decant water levels increase over time. The decant water will then be pumped from the IPTSFs overland to the Beneficiation Plant process water ponds for reuse; • Commissioning will result in minimal discharge to the Swan and De Grey Pits; and • Discharge of tailings during commissioning is not expected to alter surrounding groundwater as: ➢ Acidic water in the De Grey Pit will be neutralised before tailings discharge to the pit; ➢ Acidic conditions are not predicted to occur at the Swan Pit for the duration of the project; ➢ Discharge to the pit will be marginally fresh water and evaporation is not expected to occur at any significant level during commissioning; ➢ There is limited connectivity to the surrounding aquifers and the associated Ethel Gorge TEC; and ➢ Groundwater monitoring will be undertaken to identify any trends in groundwater depth and quality associated with the facility. Five key monitoring bores have associated trigger values and specific actions to be undertaken in the event a trigger value is reached.
Operation (including time-limited-operations operations)			
Beneficiation Plant			
Dust	Dry Inflow and Outflow System	Air / windborne pathway	• The existing Jimblebar stockyard dust mitigation measures will continue to be the main source of dust management at the stockyards. These include stockyard cannons and ore conditioning sprays; • The Beneficiation Plant Feed Conveyor CV131 will be fitted with ploughs, scrapers, skirt modules, dust hoods, and bulk ore conditioning sprays to manage dust; and

Emission	Sources	Potential pathways	Proposed controls
			• Where new infrastructure is constructed, the following measures will be undertaken to minimise dust generation: ➢ Enclosed transfer points; and ➢ Reduced height of transfer points and speed of falling ore (reducing concertina effect reduces dust).
Noise	Operation of equipment and infrastructure Beneficiation / Wet Processing Plant and Plant Services	Air / windborne pathway	• No specific noise mitigation measures are required for the Dry Inflow and Outflow System, however, the following sound material handing designs will be implemented to minimise noise from the facility: ➢ Enclosed transfer points; and ➢ Reduced height of transfer points and speed of falling ore (reducing concertina effect reduces dust). • The following noise mitigation measures will be installed at the wet plant: ➢ Vacuum pumps for belt filters have silencers installed; ➢ Air compressors are encased in enclosures; ➢ Enclosed transfer points; and ➢ Reduced height of transfer points and speed of falling ore (reducing concertina effect reduces dust).
Sediment laden water	Stockyard stormwater runoff containing sediments	Direct discharges	• The broader Jimblebar stockyard has been designed to prevent the run-off off sediment laden water. In addition to the existing controls a drainage system will be installed below the fines stockpile in the stockyard to remove water that percolates through the stockpile to the base layer; and • This system will include drainage channels below the sacrificial layer, consisting of a combination of permeable media and slotted drainage pipes, draining to a collection point at the eastern end of the stockyard. From there, the collected water will be pumped back to the Beneficiation Plant and returned to the process.
Hydrocarbons / Chemicals	Use of these products onsite	Spills, infiltration and/or stormwater containing chemicals	• The following measures will be implemented to manage the risk of chemicals, hydrocarbons and sediment from entering the surrounding environment:

Emission	Sources	Potential pathways	Proposed controls
		and/or hydrocarbons	➢ The flocculant reagent area will be self-bunded and will have a sump pump to aid housekeeping and clean-up; ➢ The thickener will be a concrete design to prevent infiltration; ➢ Hydrocarbon storage areas will be bunded and any spills will be cleaned-up; ➢ All drives will be located over concrete bunded slabs with sumps; and ➢ All drainage from the Beneficiation Plant pad reports to centralised surface water drainage from adjacent OHP.
Sediment laden water	Rainfall through the site	Stormwater runoff containing sediments	
IPTSFs			
Tailings with elevations in arsenic, iron and selenium	Overtopping of the IPTSF due to inadequate freeboard	Direct discharges	• Deposition points will be a single discharge location at each pit via the HDPE deposition pipeline; and • The deposition pipe outlets will extend beyond the existing pit crest or partially down the pit face to facilitate discharge of tailings onto competent material to minimise adverse erosion of the pit slopes.
	Infiltration from base and embankments	Seepage	• To maximise storage life tailings deposition will be cycled between the De Grey IPTSF, and Swan IPTSFs approximately every two weeks which will allow for solids to settle and slurry water to be decanted. This will be via manually operated valves at a bifurcation of the tailings pipeline in the IPTSFs area; • Decant is achieved at each location using a trailer mounted direct diesel driven pump set, with a floating suction arrangement used to draw the supernatant furthest from the settling solids as possible; • The decant pumping points will be moved as tailings / decant water levels increase over time. The decant water will then be pumped from the IPTSFs overland to the beneficiation plant process water ponds for reuse; and • Operational discharge of tailings during is not expected to alter surrounding groundwater as:

Emission	Sources	Potential pathways	Proposed controls
			➢ Acidic water in the De Grey Pit will be neutralised before tailings discharge commences to the pit; ➢ Acidic conditions are not predicted to occur at the Swan Pit for the duration of the project; ➢ Discharge to the pit will be marginally fresh water and evaporation is not expected to occur at any significant level during commissioning; ➢ There is limited connectivity to the surrounding aquifers and the associated Ethel Gorge TEC; and ➢ Groundwater monitoring will be undertaken to identify any trends in groundwater depth and quality associated with the facility. Five key monitoring bores have associated trigger values and specific actions to be undertaken in the event a trigger value is reached.
	Tailings and decant pipelines leaks and spills	Direct discharges	• The tailings pipeline will be verified to have been constructed and commissioned according to approved engineering designs; • The pipeline will be monitoring to detect potential natural hazards, which would trigger the need for a manual shutdown of the pipeline; • Comprehensive maintenance procedures that include routine checks, testing, and servicing of the tailings line will be implemented. This includes data analytics to assess the pipeline's condition and performance trends, aiding in predictive maintenance and risk management; • Potential pipeline leaks will be identified by: ➢ An automated monitoring systems which continuously tracks the pipeline's performance and provide real-time alerts and shutdown in the event an anomaly is detected; and ➢ Regular inspections to identify and rectify any errors or deficiencies; and • In the event of a pipe rupture: ➢ The automated emergency shutdown system will engage to prevent any further discharge. This system will be

Emission	Sources	Potential pathways	Proposed controls
			triggered by abnormal conditions (e.g. a flow meter discrepancy); and ➢ Any areas impacted by a tailings leak will be assessed and remediated by removing the discharged tailings solids from impacted area.

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 2 and Figure 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 *(Guideline: Environmental Siting* (DWER 2020)).

Table 2: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
BHP's Warrawundu Village	More than 500 m from the closest point to the prescribed premises boundary of L5415/1988/9 and about 9 km from the nearest mining operations. Screened out receptor due to distance from prescribed activity.
Sylvania Homestead/Station	Approximately 20 km south of the prescribed premises boundary. Screened out receptor due to distance from prescribed activity.
Environmental receptors	**Distance from prescribed activity**
Public Drinking Water Source Area P1 Newman Water Reserve	Partially overlaps a portion of the prescribed premises boundary to the west. The Beneficiation Plant is located more than 2 km east of the Newman Water Reserve a P1 Public Drinking Water Source Area. Depth to groundwater across the Application Area ranges from approximately 120 m at the location of the proposed wet plant to 30 m at Orebody 18.
RIWI Act 1914 Pilbara Groundwater Area Regional aquifer: Hamersley – Fractured Rock Aquifer Discharge activities occur at the licensed Ophthalmia Dam	Occurs within the prescribed premises boundary.

Depth to groundwater ranges from 30 to 120m.	
RIWI Act 1914 Pilbara Surface Water Area Caramulla Creek is a major ephemeral tributary	Occurs within the prescribed premises boundary.
Conservation significant flora 1. *Acacia corusca* P1 2. *Aristida jerichoensis* var. *subspinulifera* P3 3. *Eremophila capricornica* P1 4. *Euphorbia inappendiculate* var. *inappendiculate* P2 5. *Goodenia nuda* P4 6. *Isotropis parviflora* P2 7. *Josephinia* sp. Marandoo (M.E. Trudgen 1554) P1 8. *Rhagodia* sp. Hamersley (M. Trudgen 17794) P3 9. *Triodia* sp. Mt Ella (M.E. Trudgen 12739) P3.	No threatened flora within the prescribed premises boundary. Nine Priority flora have been recorded within the prescribed premises boundary. Note: All disturbances associated within the prescribed premises will be in accordance with MS 1126 and native vegetation clearing permit.
Conservation significant fauna 1. *Anilios gaei* (Pilbara flat-headed blind-snake) DBCA P1 2. *Apus pacificus* (Fork-tailed swift) EPBC Act Migratory (MI), BC Act Schedule (S) 5 3. *Ctenotus uber* subsp. *johnstonei* (Spotted ctenotus) DBCA P2 4. *Dasycercus blythi* (Brush-tailed mulgara) DBCA P4 5. *Liasis olivaceus* subsp. *barroni* (EPBC Act Vulnerable (VU), BC Act S3) 6. *Macroderma gigas* (Ghost Bat) EPBC Act VU, BC Act S3 7. *Merops ornatus* (Rainbow bee-eater) EPBC Act MI, BC Act S5 8. *Pseudomys chapmani* (Western pebble-mound mouse) DBCA P4 9. *Rhinonicteris aurantia* (Pilbara leaf-nosed bat) EPBC Act VU, BC Act S3	Nine fauna species occur within the prescribed premises boundary. Most significant species are transitory. Priority fauna locations will be avoided where practicable.
Threatened ecological communities (TECs) / PECs Ethel Gorge aquifer stygobiont community (TEC - Endangered) Ethel Gorge, typically groundwater levels are 10 mBGL	About 2.48 km west from the prescribed premises boundary closest to Ophthalmia Dam (adequately managed under MS 1126).

Note 1 Jimblebar Hub environmental management is governed by MS 439, 1012, 1021, and 1126; and their associated management plans. Any native vegetation clearing outside the prescribed premises under the several MS are governed by Native Vegetation Clearing Permits 2160/2, 2296/4, 3012/3, 3547/3, 3609/4, 3843/2, 4875/3, 5990/1 and 6834/1

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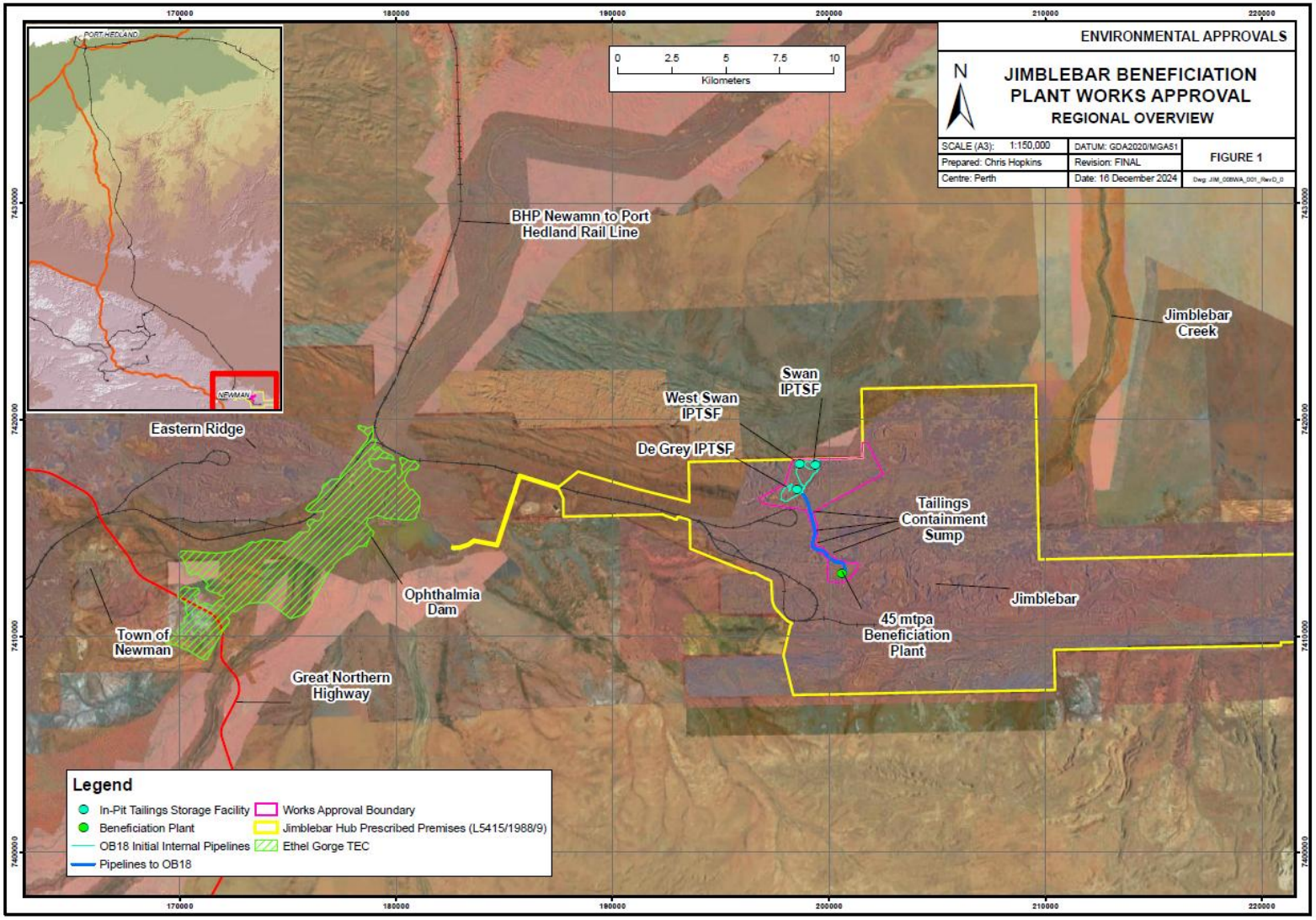

Figure 5: Distance to sensitive receptors

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) 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 3.

Works approval W2918/2025/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 3 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence amendment is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises i.e. Category 5 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 3: Risk assessment of potential emissions and discharges from the premises during construction, commissioning and operation

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls / DWER comments
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Construction								
Construction of the following infrastructure and movement of machinery / vehicles Beneficiation Plant, IPTSFs, Concrete Batching Plant, Substation / power lines upgrades	Dust	Air / windborne pathway causing impacts to health and amenity Impact on amenity at Newman and Sylvania homestead	Town of Newman >30 km east of the facility Sylvania homestead >24 km east of the facility	Refer to Section 3.1	C = Minor L = Rare **Low Risk**	Y	N/A	N/A
		Air / windborne pathway causing impacts to vegetation	Vegetation	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	N/A
	Noise	Air / windborne pathway causing impacts to health and amenity Impact on amenity at Newman and Sylvania homestead	Town of Newman >30 km east of the facility Sylvania homestead >24 km east of the facility	Refer to Section 3.1	C = Slight L = Rare **Low Risk**	Y	N/A	The *Environmental Protection (Noise) Regulations 1997* apply to operations.
	Hydrocarbons / Chemicals	Spills, infiltration and/or stormwater containing chemicals and/or hydrocarbons	Groundwater Ethel Gorge TEC located >5 km west of the facility Surface water including minor drainage lines which feed to Jimblebar Creek	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	The *Environmental Protection (Unauthorised Discharges) Regulations 2004* apply to operations.

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls / DWER comments
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Commissioning								
Beneficiation Plant								
Dry Inflow and Outflow System	Dust	Air / windborne pathway causing impacts to health and amenity Impact on amenity at Newman and Sylvania homestead	Town of Newman >30 km east of the facility Sylvania homestead >24 km east of the facility	Refer to Section 3.1	C = Minor L = Rare **Low Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements include dust controls. Condition 6, Table 2 Environmental commissioning requirements includes maintenance of dust controls.	N/A
		Air / windborne pathway causing impacts to vegetation	Vegetation	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y		N/A
Dry inflow and Outflow System and Beneficiation / Wet Processing Plant and Plant Services	Noise	Air / windborne pathway Impact on amenity at Newman and Sylvania homestead	Town of Newman >30 km east of the facility Sylvania homestead >24 km east of the facility	Refer to Section 3.1	C = Slight L = Rare **Low Risk**	Y	Condition 1, Table 1 Design and construction / installation includes noise controls.	The *Environmental Protection (Noise) Regulations 1997* apply to operations.
Use of these products onsite	Hydrocarbons / Chemicals	Spills, infiltration and/or stormwater containing chemicals and/or hydrocarbons Reduction in groundwater quality Impact to stygofauna habitat Impact on vegetation health	Groundwater Ethel Gorge TEC located >5 km west of the facility Surface water including minor drainage lines which feed to Jimblebar Creek	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements includes hydrocarbons / Chemicals controls. Condition 6, Table 2 Environmental commissioning requirements include maintenance of hydrocarbons / chemicals controls and visual inspections.	The *Environmental Protection (Unauthorised Discharges) Regulations 2004* also apply to operations.

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls / DWER comments
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Stockyard stormwater runoff containing sediments	Sediment / ore laden water	Stockyard stormwater runoff containing sediments impacting on vegetation health Sedimentation of creeks and waterways	Minor drainage lines which feed to Jimblebar Creek	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements includes stormwater controls. Condition 6, Table 2 Environmental commissioning requirements include maintenance of stormwater controls and visual inspections.	The *Environmental Protection (Unauthorised Discharges) Regulations 2004* also apply to operations.
IPTSFs								
Tailings and decant pipelines leaks and spills	Tailings with elevations in arsenic, iron and selenium	Tailings discharge from a ruptured pipeline Impacts to vegetation Sedimentation of creeks and waterways Contamination of creeks and waterways	Surface water including minor drainage lines which feed to Jimblebar Creek	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements include pipeline controls. Condition 6, Table 2 Environmental commissioning requirements include pipeline controls and visual inspections.	N/A
Overtopping of the IPTSFs due to inadequate freeboard	Tailings with elevations in arsenic, iron and selenium	Overtopping of the IPTSFs due to inadequate freeboard Impacts to vegetation Sedimentation of creeks and waterways Contamination of creeks and waterways	Surface water including minor drainage lines which feed to Jimblebar Creek	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements includes freeboard controls. Condition 6, Table 2 Environmental commissioning requirements includes freeboard controls and visual inspections.	N/A

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls / DWER comments
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Seepage	Tailings with elevations in arsenic, iron and selenium	Seepage from the IPTSFs Reduction in groundwater quality Impact to stygofauna habitat	Groundwater Ethel Gorge TEC located >5 km west of the facility Groundwater depth ranges 30 mbgl – 120 mbgl Impact to stygofauna habitat	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements include seepage controls. Condition 6, Table 2 Environmental commissioning requirements includes seepage controls and visual inspections. Condition 7 requires groundwater monitoring during commissioning in accordance with Condition 13, Table 4 Monitoring of ambient concentrations for baseline concentrations and during environmental commissioning and time limited operations inlcudes groundwater monitoring. Condition 15, Table 5 Management actions required in the event of trigger value exceedance during environmental commissioning and time limited operations include trigger values for SWL, pH and TDS.	N/A
Operation (including time-limited-operations operations)								
Beneficiation Plant								
Dry Inflow and Outflow System	Dust	Air / windborne pathway causing impacts to health and amenity Impact on amenity at Newman and	Town of Newman >30 km east of the facility Sylvania homestead	Refer to Section 3.1	C = Minor L = Rare **Low Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements include dust controls. Condition 12, Table 3 Infrastructure and equipment	N/A

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls / DWER comments
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
		Sylvania homestead	>24 km east of the facility				requirements during time limited operations include maintenance of dust controls.	
		Air / windborne pathway causing impacts to vegetation	Vegetation	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y		N/A
Dry inflow and Outflow System and Beneficiation / Wet Processing Plant and Plant Services	Noise	Air / windborne pathway Impact on amenity at Newman and Sylvania homestead	Town of Newman >30 km east of the facility Sylvania homestead >24 km east of the facility	Refer to Section 3.1	C = Slight L = Rare **Low Risk**	Y	N/A	N/A
Stockyard stormwater runoff containing sediments	Sediment / ore laden water	Stockyard stormwater runoff containing sediments impacting on vegetation health Sedimentation of creeks and waterways	Minor drainage lines which feed to Jimblebar Creek	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements includes stormwater controls. Condition 12, Table 3 Infrastructure and equipment requirements during time limited operations includes maintenance of stormwater controls and visual inspections.	The *Environmental Protection (Unauthorised Discharges) Regulations 2004* also apply to operations.
Use of these products onsite	Hydrocarbons / Chemicals	Spills, infiltration and/or stormwater containing chemicals and/or hydrocarbons Reduction in groundwater quality Impact to stygofauna habitat Impact on	Groundwater Ethel Gorge TEC located >5 km west of the facility Surface water including minor drainage lines which feed to Jimblebar	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements include hydrocarbons / chemicals controls. Condition 12, Table 3 Infrastructure and equipment requirements during time limited operations include maintenance of hydrocarbons / chemicals	N/A

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls / DWER comments
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
		vegetation health	Creek				controls and visual inspections.	
Rainfall through the site	Sediment laden water	Stormwater runoff containing sediments Loss of vegetation Sedimentation of creeks and waterways	Surface water including minor drainage lines which feed to Jimblebar Creek	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements include stormwater controls. Condition 12, Table 3 Infrastructure and equipment requirements during time limited operations include maintenance of stormwater controls and visual inspections.	The *Environmental Protection (Unauthorised Discharges) Regulations 2004* also apply to operations.
IPTSFs								
Tailings and decant pipelines leaks and spills	Tailings with elevations in arsenic, iron and selenium	Tailings discharge from a ruptured pipeline Impacts to vegetation Sedimentation of creeks and waterways Contamination of creeks and waterways	Surface water including minor drainage lines which feed to Jimblebar Creek	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements include pipeline controls. Condition 12, Table 3 Infrastructure and equipment requirements during time limited operations includes pipeline controls and visual inspections. **Conditions 16 and 17 require saturated column kinetic testing of tailings**	Refer to Section 2.5 for details on kinetic testing of tailings.
Overtopping of the IPTSFs due to inadequate freeboard	Tailings with elevations in arsenic, iron and selenium	Overtopping of the IPTSFs due to inadequate freeboard Impacts to vegetation Sedimentation of creeks and	Surface water including minor drainage lines which feed to Jimblebar Creek	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements includes freeboard controls Condition 12, Table 3 Infrastructure and equipment requirements during time limited operations inlcude freeboard controls and visual	Refer to Section 2.5 for details on kinetic testing of tailings.

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls / DWER comments
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
		waterways Contamination of creeks and waterways					inspections. **Conditions 16 and 17 require saturated column kinetic testing of tailings.**	
Seepage	Tailings with elevations in arsenic, iron and selenium	Seepage from the IPTSFs Reduction in groundwater quality Impact to stygofauna habitat	Groundwater Ethel Gorge TEC located >5 km west of the facility Groundwater depth ranges 30 mbgl – 120 mbgl Impact to stygofauna habitat	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 1, Table 1 Design and construction / installation requirements includes seepage controls. Condition 12, Table 3 Infrastructure and equipment requirements during time limited operations include seepage controls and visual inspections. Condition 13, Table 4 Monitoring of ambient concentrations for baseline concentrations and during environmental commissioning and time limited operations include groundwater monitoring. Condition 15, Table 5 Management actions required in the event of trigger value exceedance during environmental commissioning and time limited operations include trigger values for SWL, pH and TDS. **Conditions 16 and 17 require saturated column kinetic testing of tailings.**	Refer to Section 2.5 for details on kinetic testing of tailings.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk Assessments* (DWER 2020).

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

4. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

Table 4: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 04 April 2025	None received.	N/A
Local Government Authority advised of proposal on 04 April 2025	None received.	N/A
Department of Mines, Petroleum and Exploration (DMPE) advised of proposal 04 April 2025	DMPE replied on 30 July 2025 stating that they had no geotechnical concerns at this stage.	Noted.
Department of Planning, Land and Heritage advised of proposal on 04 April 2025	DPLH replied on 08 May 2025 stating / advising that the subject area intersects with the below Aboriginal heritage sites and places. Registered sites: • Shovelanna Hill 07 (ID 9232); • Shovelanna Hill 10 (ID 9183); • Shovelanna Hill 12 (ID 9185); • Jimblebar Railway 1 (ID 799); • Jimblebar Railway 2 (ID 800). Lodged places: • Shovelanna Hill 08 (ID 9233); • Shovelanna Hill 09 (ID 9234); and • PIL_385 (ID 32417). Therefore, based on the current information held by DPLH, approvals under the *Aboriginal Heritage Act 1972* will be required by the Applicant prior to commencing works within the subject area. DPLH recommends that the Applicant contacts the Nyiyaparli Native Title Claim group, giving them an opportunity to provide any comments or recommendations regarding the proposed works.	Noted.

Department of Jobs, Tourism, Science and Innovation advised of proposal on 04 April 2025	None received.	N/A
Nyiyaparli Aboriginal Corporation advised of proposal on 04 April 2025	None received.	N/A
Applicant was provided with draft documents on 28 August 2025	The Applicant provided comments on 10 September 2025. The comments included timeframes on proposed investigations should an exceedance occur (groundwater mounding or water quality) and the proposed new and existing monitoring bores have been selected as they are the key monitoring bores down gradient to determine changes to groundwater depth and quality associated with the facility. These bores will be supplemented with a broader internal (non-licensed) network of monitoring bores which will also be used to monitor potential changes.	Incorporated.

5. Conclusion

Based on the assessment in this 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.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
4. BHP Iron Ore Pty Ltd, Application for a New Works Approval - Jimblebar Beneficiation Plant and In-Pit Tailings Facility 20 January 2025 (APP-0027214 - Application and Supporting Documentation).
5. BHP Iron Ore Pty Ltd, RE: Application for a New Works Approval - Jimblebar Beneficiation Plant and In-Pit Tailings Facility 31 January 2025 (APP-0027214 – Update to map).
6. BHP Iron Ore Pty Ltd, RE: Application for a New Works Approval - Jimblebar Beneficiation Plant and In-Pit Tailings Facility 12 February 2025 (APP-0027214 – Provision of TSF checklist).
7. BHP Iron Ore Pty Ltd, RE: Application for a New Works Approval - Jimblebar Beneficiation Plant and In-Pit Tailings Facility 24 February 2025 (APP-0027214 – tailings characteristics).
8. BHP Iron Ore Pty Ltd, RE: APP-0027214 -APPLICATION FOR A WORKS APPROVAL (W2918/2025/1) -REQUEST FOR FURTHER INFORMATION 07 May 2025 (APP-0027214 - Reply to RFI on technical advice).
9. BHP Iron Ore Pty Ltd, RE: W2918 Jimblebar Map 12 May 2025 (APP-0027214 - Provision of map).
10. BHP Iron Ore Pty Ltd, RE: W2918 Jimblebar Map 13 May 2025 (APP-0027214 - Provision of flow diagrams).
11. (2024j). Jimblebar In-Pit Tailings Storage Facility Definition Phase Study (DPS), IPTSF Closure Strategy WSP document no PS134791-WSP-ADL-MNG-REP-091 Rev0. Dated December 2024. 7731-A-85248-VD-00029.
12. Søndergaard, J., Hansen, V., Bach, L, Jørgensen, C.J., Jia, Y and Asmund, G., 2018. Geochemical Test Work in Environmental Impact Assessments for Mining Projects in Greenland – Recommendations by DCE and GNR. Aarhus University, DCE- Danish Centre for Environment and Energy, Technical Report 132. The document is available from the following website: http://dce2.au.dk/pub/TR132.pdf.
13. Watson, A., Linklater, C. and Chapman, J., 2016. Backfilled Pits – Laboratory-scale Tests for Assessing Impacts on Groundwater Quality. Proceedings of the AusIMM Life-of-Mine Conference, Brisbane, 28-30 September 2016. The paper is available from the following website: https://www.ausimm.com/publications/conference-proceedings/life-of-mine-2016/backfilled-pits---laboratory-scale-tests-for-assessing-impacts-on-groundwater-quality/.
14. BHP Iron Ore Pty Ltd, RE: APP-0027214- APPLICATION FOR A WORKS APPROVAL W2918/2025/1 – DRAFT INSTRUMENT AND DECISION REPORT 10 September 2025 (APP-0027214 - Reply to drafts).