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	W6970/2024/1
Applicant	Hamersley HMS Pty Ltd
ACN	115 004 129
File number	DWERVT16226~1 and APP-0026025
Premises	Hope Downs 1 Multi-User Camp Legal description - Part of mining tenement M282SA As defined by the coordinates in Table 1 and in Schedule 2 of the works approval
Date of report	4 March 2025
Decision	Works approval granted

Melissa Chamberlain

Digitally signed by Melissa Chamberlain
Date: 2025.03.04 10:54:39 +08'00'

Melissa Chamberlain
MANAGER WASTE 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 W6970/2024/1 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. Due regard has also been given to the Western Australian Government Parallel decision making policy.

2.2 Application summary and overview of premises

2.2.1 Application

On 11 September 2024, 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 construction of a 200 m^3/day wastewater treatment plant (WWTP), irrigation sprayfield and associated pipelines. The application is also requesting commissioning and time limited operations (TLO) of the works.

The WWTP is required to service an additional accommodation facility to house the construction and operational workforce for the Hope Downs 2 and Bedded Hilltop Project, as well as to provide flexibility across the existing Greater Hope Downs operations. A combined construction camp and operations village with a maximum occupancy of 800 personnel is proposed. Average occupancy is expected to be approximately 640 persons (80%).

The proposed works are located on mining tenement M282SA in the area defined by the coordinates shown in Table 1 below, which is herein referred to as the premises. The premises is approximately 70 km northwest of Newman.

Table 1: Premises coordinates (GDA2020 MGA Zone 50)

Point	Eastings	Northings	Point	Eastings	Northings
1	719827	7455039	**6**	719535	7454633
2	719868	7455072	**7**	719538	7454623
3	719930	7454993	**8**	719264	7454604
4	719890	7454961	**9**	719238	7454638
5	719909	7454932	**10**	719793	7455077

The premises relates to the category and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in Table 2 below.

Table 2: Type of prescribed premises

Category number	Prescribed premises category description	Proposed design capacity
54	Sewage facility: premises — (a) on which sewage is treated (excluding septic tanks); or (b) from which treated sewage is discharged onto land or into waters.	200 cubic metres per day

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 2020b) are outlined in Works Approval W6970/2024/1.

2.2.2 Proposed works

The proposed works are expected to take approximately 4 to 6 weeks and will include installation of the WWTP and bunding; installation of an effluent pipeline from the WWTP to the sprayfield; and installation of sprinklers, pipework, signage, bunding and perimeter fencing at the sprayfield.

The WWTP and sprayfield will have the key design features listed in Table 3 and Table 4 below.

Table 3: WWTP containment infrastructure

Equipment	Capacity	Number
Balance tanks	50 kL	5
Waste activated sludge tank	50 kL	1
Sequential batch reactor (SBR) and plant room	50 kL	5
Effluent chlorine contact tank and blended RO brine storage tanks	50 kL	5

Table 4: Process and treatment specifications

Design features	Specifications
Maximum hydraulic load	200 kL/day
Treatment process	Five train SBR featuring sequences of multiple anoxic and aerobic biological suspended growth treatment cycles followed by settling, decanting and refilling. Each cycle will decant approximately 9,500 litres and treat approximately 8,400 litres of sewage. Five trains provides a total maximum of 30 cycles per day. A proprietary denitrification process will also be used prior to the SBR treatment and decanted effluent will receive tertiary filtration.
Disinfection	Effluent dosed with sodium hypochlorite during decant with chlorine contact time in the effluent tanks targeting a residual chlorine concentration of 0.7 mg/L after 3 hours.

Design features	Specifications
Target effluent quality	• Total nitrogen (TN): < 20 mg/L • Total phosphorus (TP): < 7.5 mg/L • Faecal coliforms: < 1,000 cfu/100 mL • Biological oxygen demand (BOD): < 20 mg/L • Total suspended solids (TSS): < 30 mg/L • Electrical conductivity: < 2,800 µs/cm • pH: 6.5 – 8.5 • Dissolved oxygen (DO): > 2 mg/L • Residual chlorine: 0.2 – 2.0 mg/L
Effluent disposal	Spray irrigation to a 10.6 ha sprayfield using zone controlled 360° rotating sprinklers
Sludge disposal	Dewatering via 1 m^3 polypropylene geobags and polymer dosing, with sludge leachate returned to the treatment process and dry geobags disposed to an approved landfill facility

2.2.3 Commissioning

Following construction, the applicant intends to commission the WWTP for a period of 12 weeks to stabilise the treatment process so that it consistently achieves the target effluent quality values shown in Table 4. The application includes two key stages of commissioning; wet commissioning and biological commissioning, which are summarised in Table 5 below.

Table 5: Commissioning plan

Activity description	Inputs and outputs	Monitoring and controls
Stage 1 – Wet commissioning (1 week duration)		
Energisation of the system. Leak testing, flow testing, testing of level and flow instrumentation and testing of the complete automated process. Undertake Site Acceptance Test (SAT) to verify all components meet performance and functional requirements.	Inputs Approximately 200 m^3/day of potable water Outputs Up to 200 m^3 of clean water discharged to the sprayfield	Daily inspection by competent plant operator and recorded in log sheet Volume monitoring (kL)
Stage 2 – Biological commissioning (12 week duration)		
Bioaugmentation support will be utilised to inoculate the system with suitable bacteria and continue to build the biomass quickly using this for support.	Inputs Up to 200 m^3/day of village sewage Outputs Initially approximately 200 m^3/day	Daily inspection by competent plant operator and recorded in log sheet. Fortnightly samples of effluent discharge and monthly volume

Activity description	Inputs and outputs	Monitoring and controls
	of treated effluent discharged to the sprayfield. Dewatered sludge removed in 1 m^3 liftable dry geobags to an approved landfill facility. Dewatered supernatant will be returned to the WWTP for reprocessing.	monitoring. Significant exceedances of target effluent quality will be reported and corrective actions undertaken immediately. This may include a representative of the plant manufacturer to attend the premises and make process adjustments.

2.2.4 Time limited operations and proposed operations

Once commissioning is completed, the applicant proposes a TLO period of 180 days where activities will be the same as those proposed during normal operations.

The WWTP will operate 24 hours per day, seven days a week. Based on the maximum 800 person occupancy of the camp, a normal sewage load of 160 m^3/day and peak load of 200 m^3/day is expected to be received.

The storage tanks at the end of the treatment process will also receive reverse osmosis (RO) brine for blending with the treated sewage prior to discharge. The tanks are expected to receive a normal load of 55 kL/day and a peak load of 70 kL/day.

Up to 270 kL/day of blended effluent will be irrigated to the 10.6 ha sprayfield, with normal hydraulic loads being 215 kL/day. Irrigation will occur through zone controlled 360° rotating sprinklers to ensure adequate distribution and maximum spread over the area.

The applicant will manage zone rotation on a timed schedule or maintenance schedule, based on as witnessed system operation and soil conditions. Multiple zones are proposed to allow flexibility in managing irrigation to avoid soil saturation and ponding in particular areas. The sprinkler system will also be manually zoned to allow drying of certain areas if required.

To record discharge volumes and ensure that target effluent quality is being met, the applicant proposes to undertake the monitoring listed in Table 6 below. Blended effluent samples will be collected from a sample point located where the effluent pump discharges and discharge volume will be continuously measured by a flow meter.

Table 6: Monitoring of treated wastewater discharge during operations

Monitoring point	Parameter	Frequency
Effluent pump discharge sample point	TN (mg/L)	Quarterly
	TP (mg/L)	
	Thermotolerant coliforms (cfu/100 mL)	
	5-day BOD (mg/L)	
	TSS (mg/L)	
	pH	
Effluent flow meter	Discharge volume (kL)	Recorded weekly and reported as monthly cumulative volumes

Routine daily operational and maintenance inspections will be undertaken that involve ensuring operational aspects of the WWTP are functioning properly (e.g. alarms, tank levels, dosing, pressures, levels, leaks etc.). Routine weekly inspections will be undertaken that involve measuring and recording levels of dissolved oxygen, residual chlorine, waste sludge, pH and the clarity of the effluent.

2.2.5 Existing premises

The applicant holds existing Licence L8117/2006/9 for the Hope Downs 1 Iron Ore Mine which already includes Category 54 due to the existing site administration and north village WWTPs and sprayfields. Following construction of the proposed works, a licence amendment will be submitted to include the new WWTP and increase the design capacity for Category 54 to 602 m^3/day.

The proposed works are located approximately 4 km south from the main Hope Downs 1 non-processing infrastructure area and 350 m north of the Hope Downs 1 putrescible landfill.

Licence L8117/2006/9 relates to the categories and assessed design capacities under Schedule 1 of the EP Regulations which are defined in Table 7 below.

Table 7: L8117/2006/9 prescribed premises categories

Category number	Prescribed premises category description	Approved design capacity
5	Processing or beneficiation of metallic or non-metallic ore: premises on which — (a) metallic or non-metallic ore is crushed, ground, milled or otherwise processed; or (b) tailings from metallic or non-metallic ore are reprocessed; or (c) tailings or residue from metallic or non-metallic ore are discharged into a containment cell or dam.	32,000,000 tonnes per year
6	Mine dewatering: premises on which water is extracted and discharged into the environment to allow mining of ore.	40,150,000 tonnes per year
12	Screening etc. of material: premises (other than premises within category 5 or 8) on which material extracted from the ground is screened, washed, crushed, ground, milled, sized or separated.	10,000,000 tonnes per year
54	Sewage facility: premises — (a) on which sewage is treated (excluding septic tanks); or (b) from which treated sewage is discharged onto land or into waters.	402 cubic metres per day
64	Class II or III putrescible landfill site: premises (other than clean fill premises) on which waste of a type permitted for disposal for this category of prescribed premises, in accordance with the *Landfill Waste Classification and Waste Definitions 1996*, is accepted for burial.	11,500 tonnes per year
73	Bulk storage of chemicals etc.: premises on which acids, alkalis or chemicals that — (a) contain at least one carbon to carbon bond; and (b) are liquid at STP (standard temperature and pressure), are stored.	1,500 tonnes per year

2.3 Part IV of the EP Act

The Hope Downs Iron Ore Mine proposal was referred to the Environmental Protection Authority (EPA) under section 38 of the EP Act in December 1999 and assessment at the level of Public Environmental Review (PER) was completed in August 2001. Ministerial Statement (MS) 584 authorising implementation of the proposal was issued on 1 February 2002, with a number of amendments to the proposal having been subsequently approved via MS 584 (2005, 2006, 2009, 2010, 2012, 2013), MS 893 (2012) and MS 1025 (2015).

The Hope Downs 2 proposal was referred to the EPA on 24 August 2021 under s.38 of the EP Act. On 29 October 2021, the EPA decided to assess the proposal at the level of PER with a two-week public review period. The referred proposal was then amended through two s.43A applications that were approved by the EPA on 17 January 2023 and 6 September 2024. The EPA's report recommending that the proposal may be implemented subject to conditions was published on 27 November 2024. Implementation of the proposal is still pending authorisation under a ministerial statement.

The premises is located within the development envelope of both Hope Downs proposals and the Proposal Content Document for Hope Downs 2 lists that the proposal includes the following, which is considered relevant to the application:

- Accommodation: including installation of an upgrade of existing accommodation and/or new construction camp.

The WA Government has progressed legislative reforms to the EP Act to remove the previous restriction under s.41(3) and enable Decision Making Authorities to make decisions in parallel to an environment assessment process under Part IV of the EP Act. Due to the reforms, the department has the option to parallel approve related Part V works approval or licence applications, while the Part IV process is completed.

Decisions made in parallel to a Part IV assessment do not have the effect of authorising a proposal to be implemented. Proposals are still not to be implemented before authorisation under s.45 of the EP Act occurs.

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 2020b).

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 8 below. Table 8 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 8: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Construction and installation of the wastewater treatment plant, pipelines and irrigation infrastructure Vehicle/machinery movements	Air/windborne and inhalation or deposition	• Areas are only cleared as required and rehabilitation of cleared areas is implemented as construction is completed. • Water carts will be used during clearing and construction activities and in areas with frequent vehicle movement on unsealed roads. • Control of vehicle movements / restricted speeds. • Restriction of works that have the potential to generate high dust levels during times of high winds. • Implementation of a Construction Environmental Management Plan (CEMP) during the works.
Noise		Air/windborne	• Adherence to the construction requirements of the *Environmental Protection (Noise) Regulations 1997*. • Implementation of a CEMP during the works. • No vegetation clearing or blasting will be completed at night.

Emission	Sources	Potential pathways	Proposed controls
Electromagnetic radiation (light)		Light spill	• Implementation of a CEMP during the works. • If works are undertaken at night, light will be directed to the work area, kept low to the ground and shielded to avoid light spill.
Waste	Wastes generated during construction	Air/windborne and deposition Direct discharge	• Recycling and general waste collection areas will be established and labelled with the relevant waste type to facilitate the management of waste. • Recyclable materials will be separated from other waste and recycled wherever possible. • Non-recyclable materials will be disposed of at an approved landfill facility.
Hydrocarbon spills and contaminated stormwater	Vehicle/machinery movements and refueling	Overland runoff Seepage to groundwater and migration in groundwater	• Spill response equipment will be provided.
Operation			
Odour	Operation of the WWTP and sludge removal	Air/windborne	• Enclosed tanks and treatment process designed and operated to mitigate odour emissions. • Routine inspection and maintenance of the WWTP.
Sludge and sludge leachate		Overland runoff Seepage to groundwater and migration in groundwater Direct discharge to land	• Geobags will be held on a concrete bunded slab with a recovery sump. • Supernatant collecting in the sump will be returned to the treatment tanks • Dewatered sludge will be disposed to an approved landfill facility.

Emission	Sources	Potential pathways	Proposed controls
Raw, partially treated and treated sewage containing associated contaminants (nutrients, metals, pathogens, PoPs)	Spills, leaks, overflows or containment failures from the WWTP and associated pipelines Discharge of blended effluent containing treated sewage and RO brine to the sprayfield	Overland runoff Seepage to groundwater and migration in groundwater	• Level, alarm and leak detection systems installed on WWTP infrastructure. • Bunding and sumps will be placed around the WWTP to contain potential spills and overflows. • Pipeline from the WWTP to the sprayfield will be separated from the vehicle access track by a windrow, to prevent leaks and spills resulting from vehicle collisions. • 10.6 ha size of sprayfield is sufficient to ensure no ponding occurs during peak flow and aligns with the principles for irrigating wastewater to a Soil Risk Category D as per the *Water Quality Protection Note 22: Irrigation with nutrient-rich wastewater*. • Bunding will be placed around the sprayfield to contain potential surface runoff. • Fencing and signage will be installed around the sprayfield perimeter. • 360° rotating sprinklers are designed and installed in an evenly spaced non-overlapping manner. • Zoning of the irrigation area to allow drying of specific areas if required to avoid soil saturation or ponding. • Spill response equipment will be provided. • Routine inspection and maintenance of the WWTP and irrigation infrastructure. • Monitoring of effluent discharge as proposed in Table 5 during commissioning and Table 6 during operations. • Groundwater monitoring program carried out under ministerial statements and Groundwater Operating Strategy for abstraction licence GWL 161141.
RO brine			
Contaminated stormwater			
Treatment chemicals			

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020b), 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 9 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 2020a)).

Table 9: Human and environmental receptors and distance from prescribed activity

Receptors	Distance from prescribed activity
Human receptors	
Sensitive receptors –	No sensitive receptors located within 25 km of the premises Not considered further in risk assessment due to distance.
Environmental receptors	
Underlying groundwater – Localised fractured and weathered rock aquifers of the proclaimed Pilbara Groundwater Area	Approximately 60 mbgl (542 mAHD). Groundwater is understood to flow in a northerly direction towards Weeli Wolli Creek.
Inland waters – Unnamed non-perennial drainage line	Approximately 10 m northeast of the works.
Inland waters – Unnamed non-perennial drainage line	Approximately 70 m south of the works.
Inland waters – Weeli Wolli Creek, a major non-perennial watercourse of the proclaimed Pilbara Surface Water Area.	Approximately 1.5 km northeast of the works.
Inland waters – Pebble Mouse Creek, a major non-perennial watercourse of the proclaimed Pilbara Surface Water Area.	Approximately 750 m west of the works.
Native vegetation – Stony plain and hillslope mulga woodland habitat containing records of priority flora species, threatened fauna and Priority 4 fauna.	The works areas proposed to be cleared or disturbed have been subject to flora and fauna surveys which did not locate any conservation significant species. The closest flora record (*Acacia subtiliformis)* is located approximately 920 m east of the works and the closest fauna record (*Pseudomys chapmani*) is located 3.3 km south.
Priority Ecological Communities (PEC) – Weeli Wolli Spring Community	Approximately 5.5 km south of the works. Not considered further in risk assessment due to distance.

3.1.3 Pathways

Information relating to pathways and environmental conditions at the premises are provided in Table 10.

Table 10: Potential pathways and environmental conditions relevant to the premises

Aspect	Details
Topography	The premises slopes slightly in an easterly to southeasterly direction, from 611 mAHD to 609 mAHD.
Meteorology	The closest Bureau of Meteorology weather station to the premises is the Newman Aerodrome (Station 007176) which provides the following information: • Average maximum daily temperatures range from 39.4 °C in summer to 23.1 °C in winter, based on records from 1996 to 2024. • Average annual rainfall is 318.2 mm based on records since 1971, with the highest rainfall occurring between December and February and lowest rainfall between August and October. • Average annual evaporation is 2,400 mm based on records since 2009, with the highest evaporation rates occurring from October to January. • Monthly evaporation exceeds monthly rainfall across the entirety of the year.
Hydrology	The local topography consists of a series of plateaus, hills, ridges and valleys. As a result, numerous ephemeral drainage lines are found across the wider region. The premises is situated in an area of land enclosed by Pebble Mouse Creek to the west and north, Weeli Wolli Creek to the east and north, and a ridgeline to the south. There are no drainage lines located within the premises, however two minor ephemeral drainage lines associated with Weeli Wolli Creek are within 100 m to the south and northeast. There are no major watercourses within the premises, with the closest being Pebble Mouse Creek and Weeli Wolli Creek, situated approximately 750 m west of the sprayfield and 1.5 km northeast of the WWTP respectively. Pebble Mouse Creek is a major tributary of Weeli Wolli Creek and their confluence is approximately 6.75 km northeast of the premises. Surface water may pond in low lying areas across the premises due to the relatively low permeability of the soils encountered.
Hydrogeology	Regional information suggests the area contains localised fractured and weathered rock aquifers comprised of the following sequence: • Surficial sediments (Tertiary age detritals and chemical sediments including calcrete) occur locally and may be saturated and are often in hydraulic connection with underlying units. • The Wittenoom Formation (comprising weathered dolomite, mainly within the Paraburdoo and the West Angela member). The Paraburdoo Member of the Wittenoom Formation is the dominant aquifer within the regional groundwater system. The dolomite of the Paraburdoo Member can show extensive karstification. • Marra Mamba Iron Formation (Mount Newman Member). Site specific bore log information (Bore: MB24HD1S0003) provided by the applicant indicates there is 44 m of detrital material (detrital, calcrete, clay) overlying the basement rock in the area, with groundwater having an electrical conductivity of 900 µS/cm and a pH level of 7.9.

Aspect	Details
Soils and surface geology	Regional landscape level information indicates the premises occurs in an area with the following features: • The land system is mapped as the Pindering Land System, described as a gravelly hardpan plain which supports groved mulga shrublands with hard and soft spinifex (van Vreeswyk *et al.* 2004). • Surface soils are within the Hamersley Plateaux Zone, which is described as hills and dissected plateaux (with some stony plains and hardpan wash plains) on sedimentary and volcanic rocks of the Hamersley Basin (Opthalmia Fold Belt). Stony soils with red shallow loams and some red/brown non-cracking clays and red loamy earths (Tille 2006). • Surface geology is classified as Colluvium, which has been described as colluvium, sheetwash, talus; gravel piedmonts and aprons over and around bedrock; clay-silt- sand with sheet and nodular kankar; alluvial and aeolian sand-silt-gravel in depressions and broad valleys in the Canning Basin; local calcrete, reworked laterite (Stewart *et al.* 2008). <u>Soil profile</u> Eight trial pits with a 1 m target depth were excavated at the proposed location of the sprayfield as part of a site-and-soil evaluation commissioned by the applicant. The investigations found the following: • The soil was considered Kandosol Clayey Gravelly Sand (Sc). Described as red-brown, sub-angular to sub rounded, fine to coarse grained, low plasticity soil, with a B Horizon characterised by a lack of strong texture with limited contrast between the A (topsoil) and B horizon. • The soil profile became cemented at depths between 0.2 mbgl to 0.4 mbgl and was difficult to penetrate beyond this depth. • Particle size distribution showed the soil contains approximately 30% fines. • In-situ permeability testing of soils ranged between 4.32 m/day to 7.8 m/day. Laboratory constant head permeability testing of samples taken from 0.1 m to 0.4 m depths ranged between 0.04 m/day to 0.06 m/day. • Water holding capacity of the soil was considered to be 60 mm, based on a root zone of 40 cm (depth to cemented layers) and published available water value of 1.5 mm per cm depth for sandy clay soil. • Phosphorus buffering index ranged between 44 to 100 and Colwell phosphorus ranged between 2.1 mg/kg to 6.9 mg/kg. • Soils were considered non-saline, based on electrical conductivity ranging from 12 µS/cm to 86 µS/cm. • Exchangeable sodium percentage and Emerson class testing of soils indicated they are not sodic or dispersive. • In accordance with Department of Health guidance material (DoH 2021), a minimum irrigation area of 5.4 ha is required for zero storage to occur at peak flow, based on local climate data and soil information. • In accordance with Schedule 2 of the Government Sewerage Policy 2019, a minimum irrigation area of 7.2 ha is required.

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020b) 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 11.

Works Approval W6970/2024/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 11 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence 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. sewage treatment and disposal 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 11: 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
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Construction								
Construction and installation of the wastewater treatment plant, pipelines and irrigation infrastructure Vehicle/machinery movements	Dust	**Pathway:** Air/windborne and inhalation **Impact:** Health and amenity	No viable human receptors	Refer to Section 3.1.1	Not considered further in risk assessment due to distance.			
		Pathway: Air/windborne and deposition **Impact:** Smothering and ecosystem disturbance	Native vegetation and fauna		C = Minor L = Unlikely **Medium Risk**	Y	N/A – Impacts to native vegetation and fauna are managed through ministerial statements relating to the Hope Downs proposals.	
	Noise	**Pathway:** Air/windborne **Impact:** Health, amenity and ecosystem disturbance	No viable human receptors Native fauna	Refer to Section 3.1.1	C = Minor L = Rare **Low Risk**	Y	N/A – Impacts to native fauna are managed through ministerial statements relating to the Hope Downs proposals.	
	Electromagnetic radiation (light)	**Pathway:** Light spill **Impact:** Ecosystem disturbance	Native fauna	Refer to Section 3.1.1	C = Minor L = Rare **Low Risk**	Y	N/A – Impacts to native fauna are managed through ministerial statements relating to the Hope Downs proposals.	
Wastes generated during construction	Waste	**Pathway:** Air/windborne and deposition or direct discharge to land **Impact:** Health, amenity and ecosystem disturbance	No viable human receptors Native vegetation and fauna	Refer to Section 3.1.1	C = Slight L = Unlikely **Low Risk**	Y	N/A – Impacts to native vegetation and fauna are managed through ministerial statements relating to the Hope Downs proposals.	
Vehicle/machinery movements and refueling	Hydrocarbon spills and contaminated stormwater	**Pathway:** Overland runoff **Impact:** Soil contamination, ecosystem disturbance or impact to water quality	Underlying soil Native vegetation Inland waters	Refer to Section 3.1.1	C = Minor L = Rare **Low Risk**	Y	Condition 20	N/A
		Pathway: Seepage to groundwater and migration in groundwater **Impact:** Impact to groundwater quality and downgradient use	Underlying groundwater	Refer to Section 3.1.1	C = Minor L = Rare **Low Risk**	Y		
Operation (including commissioning and time-limited-operations operations)								
Operation of the WWTP and sludge removal	Odour	**Pathway:** Air/windborne and inhalation **Impact:** Amenity	No viable human receptors	Refer to Section 3.1.1	Not considered further in risk assessment due to distance.			
	Sludge and sludge leachate	**Pathway:** Direct discharge to land, overland runoff, seepage to groundwater and migration in groundwater **Impact:** Soil contamination, ecosystem disturbance or impact to water quality	Underlying soil Native vegetation Inland waters	Refer to Section 3.1.1	C = Moderate L = Rare **Medium Risk**	Y	Conditions 1, 5, 6, 7, 12, 13, 14, 15, 16, 17, 20, 21	Applicant proposed controls are considered suitable given the level of risk and have been included in the works approval as regulatory conditions.

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Spills, leaks, overflows or containment failures from the WWTP and associated pipelines	Raw, partially treated and treated sewage containing associated contaminants (nutrients, metals, pathogens, PoPs) RO brine Treatment chemicals Contaminated stormwater	**Pathway:** Overland runoff **Impact:** Soil contamination, ecosystem disturbance or impact to water quality	Underlying soil Native vegetation Inland waters	Refer to Section 3.1.1	C = Moderate L = Rare **Medium Risk**	Y	Conditions 1, 5, 6, 7, 12, 13, 14, 15, 16, 17, 20, 21	Applicant proposed controls are considered suitable given the level of risk and have been included in the works approval as regulatory conditions.
		Pathway: Seepage to groundwater and migration in groundwater **Impact:** Impact to groundwater quality and downgradient use	Underlying groundwater	Refer to Section 3.1.1	C = Minor L = Rare **Low Risk**	Y	Conditions 1, 5, 6, 7, 12, 13, 14, 15, 16, 17, 20, 21	
Discharge of blended effluent containing treated sewage and RO brine to the sprayfield	Treated and partially treated sewage containing associated contaminants (nutrients, metals, pathogens, PoPs) RO brine	**Pathway:** Overland runoff **Impact:** Soil contamination, ecosystem disturbance or impact to water quality	Underlying soil Native vegetation Inland waters	Refer to Section 3.1.1	C = Moderate L = Unlikely **Medium Risk**	Y	Conditions 1, 5, 6, 7, 12, 13, 14, 15, 16, 17, 20, 21	While the Delegated Officer considers the applicant proposed controls are generally sufficient given the level of risk, changes to the proposed monitoring suite have been included. *E. coli* is considered a more suitable indicator of human faecal pathogens and has been included in place of thermotolerant coliforms. Electrical conductivity has also been included in the monitoring suite due to the co-disposal of treated sewage and RO brine.
		Pathway: Seepage to groundwater and migration in groundwater **Impact:** Impact to groundwater quality and downgradient use	Underlying groundwater	Refer to Section 3.1.1	C = Minor L = Rare **Low Risk**	Y	Conditions 1, 5, 6, 7, 12, 13, 14, 15, 16, 17, 20, 21	

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk Assessments* (DWER 2020b).
Note 2: Proposed applicant controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

4. Consultation

Table 12 provides a summary of the consultation undertaken by the department.

Table 12: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 4 November 2024	None received	N/A
Local Government Authority advised of application on 4 November 2024	None received	N/A
Karlka Nyiyaparli Aboriginal Corporation advised of proposal on 4 November 2024	None received	N/A
Department of Planning, Lands and Heritage (DPLH) advised of proposal on 4 November 2024	DPLH replied on 7 November 2024 advising that that a review of the Register of Places and Objects as well as the DPLH Aboriginal Heritage Database concluded that the subject area does not intersect with any known Aboriginal heritage Places or Registered Sites. Therefore, based on the current information held by DPLH, no approvals under the Aboriginal Heritage Act 1972 (AHA) are required in this instance. It is recommended that the proponent consult with Karlka Aboriginal Corporation RNTBC as representatives for the Nyiyaparli people in relation to any potential impact from dust, noise and odour on Aboriginal Registered Site Djadjiling Range (ID 25664) and Aboriginal heritage Place Jinayri Yard (ID 23525) which are in proximity to the subject area. The following was also advised: • The grant of the works approval does not impact the Aboriginal heritage of the area; • Given that the granting of the works approval will facilitate development in the area the applicant needs to contact the Aboriginal Heritage Conservation Team for their own advice prior to the commencement of works; and • It should be emphasised to the applicant that the granting of the works approval does not count as approval under the AHA.	Noted.

Consultation method	Comments received	Department response
Department of Health (DoH) advised of proposal 4 November 2024	DoH replied on 5 December 2024 advising that they have received an Application to Construct / Install an Apparatus for the Treatment of Sewage from Hamersley HMS Pty Ltd in accordance with the Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974. The DoH is currently assessing the application (application number: 218.24) The details provided in the application to construct align with those in the works approval application W6970/2024/1. The DoH will be able to provide further comments after completion of the application assessment process.	Noted.
Applicant was provided with draft documents on 16 January 2025	Refer to Appendix 1	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.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Health (DoH) 2021, *Guidance on Site-and-soil evaluation for on-site wastewater management*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2019, *Guideline: Industry Regulation Guide to Licensing*, Perth, Western Australia.
4. DWER 2020a, *Guideline: Environmental Siting*, Perth, Western Australia.
5. DWER 2020b, *Guideline: Risk Assessments*, Perth, Western Australia.
6. Kendrick P. 2001, *Pilbara 3 (PIL3 - Hamersley subregion)*. Department of Conservation and Land Management, Western Australia. pp 568-580.
7. Standards Australia 2012, *AS/NZS 1547:2012 On-site domestic wastewater management.*
8. Stewart A.J., Sweet I.P., Needham R.S., Raymond O.L., Whitaker A.J., Liu S.F., Phillips D., Retter A.J., Connolly D.P. and Stewart G.R. 2008, *Surface Geology of Australia 1: 1 000 000 Scale, Western Australia [Digital Dataset]*. The Commonwealth of Australia, Geoscience Australia (http://www.ga.gov.au), Canberra.
9. Tille P.J. 2006, *Soil-landscapes of Western Australia's rangelands and arid interior*. Department of Agriculture and Food, Western Australia, Perth. Report 313.
10. van Vreeswyk A.M., Leighton K.A., Payne A.L. and Hennig P. 2004, *An inventory and condition survey of the Pilbara region, Western Australia*. Department of Agriculture, Western Australia, Perth. Technical Bulletin 92.

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

Condition/Section	Summary of applicant's comment	Department's response
Works approval conditions		
Premises name	Please update the 'Premises Details' name from "Hope Downs Camp Expansion" to "Hope Downs 1 Multi-User Camp". The applicant requests an update to the premise name to better reflect the scope and objectives of the camp.	Premises name updated.
Assessed design capacity	Please amend the 'Assessed Design Capacity' from "250 m^3" to "200 m^3". The Applicant requests to amend the 'Assessed Design Capacity'. Following the updated Soil Evaluation Report (Revision 1), submitted to DWER on 29 November 2024, along with the updated Ecofarmer Design Overview, Process Certification and Functional Description Report, submitted along with this response, the design capacity has been reduced from 250 m3 to 200 m3. Hydraulic loading has been determined in accordance with the Department of Health (DoH) and utilising flow rates provided within Hope Downs HD1 Project Sewage Treatment Plant Design Overview. This overview attributes a flow rate of 200L/person/day for mine site accommodation camps. The Hope Downs HD1 Project Sewage Treatment Plant Design Overview also provided a 'peak' flow rate, which should only occur during unforeseen events. This design overview reported the 'peak' flow at 250L/person/day. This results in a design 'peak' hydraulic loading of 200,000L/day. In addition, the RO reject effluent may discharge an additional 70,000L/day during 'peak' operations. Based on the above, the maximum design 'peak' hydraulic loading is 270,000L/day of blended effluent/RO reject effluent.	Assessed design capacity revised to 200 m^3/day.

Condition/Section	Summary of applicant's comment	Department's response
1 – Table 1: Item 1(a)	Please amend Condition 1 (a) of the 'Design and Construction / Installation Requirements' to read as "Must be designed to treat up to 200 m^3 of sewage per day to the following criteria:" The Applicant requests to amend the 'Assessed Design Capacity'. Following the updated Soil Evaluation Report (Revision 1), submitted to DWER on 29 November 2024, along with the updated Ecofarmer Design Overview, Process Certification and Functional Description Report, submitted along with this response, the design capacity has been reduced from 250 m^3 to 200 m^3.	Treatment capacity revised to 200 m^3/day.
1 – Table 1: Item 1(b)(v) 12 – Table 5: Item 1(a)(v)	Please amend Condition 1 (b) (v) within Table 1, from "Tertiary Filtration System" to "Nitrogen and Phosphorous Removal System". The WWTP process consists of a two-step Nitrogen and Phosphorus removal process which removes chemical nitrogen and phosphorus, and biological nitrogen and phosphorus respectively. Therefore, to ensure alignment with the Technical Reports and ensure operational accuracy, the Applicant requests "Tertiary Filtration System" is reworded to better reflect the system's function.	Naming updated.
1 – Table 1: Item 2 6 – Table 3: Discharge point location 12 – Table 5: Item 2 Infrastructure location 15 – Table 8: Discharge point location	Figure 4 provided (reference HD-6200-P-00001). At the request of DWER, the Applicant has provided and attached an updated sprayfield design that includes the non-overlapping irrigation system.	Figure included in works approval as Figure 4.
5 – Table 2: Commissioning requirement (d)(i)	Please amend Condition (d)(i) within Table 2 of the 'Commissioning Requirements' to read as "the inflow of no more than 200 m^3 of sewage to the system; and" The Applicant requests to amend the 'Assessed Design Capacity'. Following the updated Soil Evaluation Report (Revision 1), submitted to DWER on 29 November 2024, along with the updated Ecofarmer Design Overview, Process Certification and Functional Description Report, submitted along with this response, the design capacity has been reduced from 250 m^3 to 200 m^3.	Inflow during commissioning changed to no more than 200 m^3 of sewage.

Condition/Section	Summary of applicant's comment	Department's response
11(a): Duration of time limited operations	Please amend the wording of Condition 11(a) to allow for the 180 day TLO period to commence on the actual date that the plant starts operating after the Environmental Commissioning Report has been submitted, rather than commencing immediately on submission of the Environmental Commissioning Report. The Applicant requests enhanced flexibility regarding the initiation of Time Limited Operations (TLO). This flexibility will accommodate varying operational demands and unforeseen circumstances that may arise. By allowing more adaptable initiation times, the Applicant can optimise resource allocation, improve efficiency, and respond more effectively to dynamic conditions. HHMS assures that comprehensive records will be maintained to document the exact timing of TLO commencement.	The existing condition wording and commencement date of the time limited operations period has been retained. The standard condition for the duration of the time limited operations period has been used, which is structured this way due to the purpose of the time limited operations period being to authorise operational emissions during the transition to licensed operations. Section 57(2) of the EP Act requires works completed under a works approval to be completed to the CEO's satisfaction in accordance with the relevant conditions of the works approval, before a licence application (new licence or amendment) for the premises may be assessed by the Department. This generally means a licence application cannot be made until after the Environmental Compliance Report, Critical Containment Infrastructure Report and/or Environmental Commissioning Report have been submitted. The Department recognises that occupiers will want to start operations as soon as or shortly after construction and/or commissioning of works is complete, which would be during the time taken for the licence application process. To facilitate this, the Department uses the time limited operations period under a works approval to authorise operational emissions to occur during the assessment of the subsequent licence application. The time limited operations period commences on submission of the Environmental Commissioning Report, as generally the documentation needed to confirm the works were completed to the CEO's satisfaction has now been provided and there should be minimal further time needed to develop the licence application. 180 days from this date is considered sufficient time to resolve the licence application, provided the works were completed in accordance with the conditions of the works approval. This is because an assessment of the ongoing operational impact of the activities was completed when granting the works approval and where it's confirmed that the basis of the assessment has not materially altered, the Department will be able to use this during the licence application.

Condition/Section	Summary of applicant's comment	Department's response
12 – Table 5: Infrastructure location	Please amend the 'Infrastructure Locations' to reference the correct Figures. The Applicant has identified that Table 5 currently references the incorrect figures within the 'Infrastructure Location' column. This does not accurately reflect the data and operational parameters. An amendment is therefore requested to ensure that the licence accurately represents our operations and correcting this incorrect reference will provide clarity and prevent any potential misunderstandings or compliance issues in the future.	Figure references corrected.
13 – Table 6: Rate at which sewage waste is received	With regards to the 'Sewage' waste type, please amend the 'Rate at which Waste is Received' from "250 m^3/day" to "200 m^3/day". The Applicant requests to amend the 'Assessed Design Capacity'. Following the updated Soil Evaluation Report (Revision 1), submitted to DWER on 29 November 2024, along with the updated Ecofarmer Design Overview, Process Certification and Functional Description Report, submitted along with this response, the design capacity has been reduced from 250 m^3 to 200 m^3. Therefore, the rate at which sewage is received has been reduced from "No more than 250 m^3/day" to "No more than 200 m^3/day".	The rate at which sewage waste is received was changed to to 200 m^3/day.
Decision Report		
Risk assessment	The Applicant is satisfied with the risk assessment and provides no comments or suggested changes.	Noted.
Normal sewage load and peak sewage load	The Applicant is satisfied with the detail provided in the Decision Report. Please refer to the updated Soil Evaluation Report (Revision 1), submitted to DWER on 29 November 2024, along with the updated Ecofarmer Design Overview, Process Certification and Functional Description Report, submitted along with this response, to confirm the normal sewage load and the peak sewage load. Please align the Decision Report with the requested changes outlined in this letter.	The Decision Report has been updated to reflect the information in the revised Ecofarmer Design Overview, Process Certification and Functional Description Report.