



Application for Licence

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

Licence Number	L9440/2024/1
Applicant	Australian Garnet Pty Ltd
ACN	646 741 157
File number	DER2024/000202
Premises	<p>Lucky Bay Garnet Project George Grey Drive YALLABATHARRA WA 6535</p> <p>Legal description - Tenements M70/1280, G70/253, L70/215, L70/134 and L70/178 within Lot 1 on Diagram 91564, Lot 300 on Plan 60565, and Lot 1431 on Plan 251608.</p> <p>As defined by the premises maps attached to the issued licence</p>
Date of report	16 December 2024
Decision	Licence granted

**A/SENIOR MANAGER, RESOURCE INDUSTRIES
INDUSTRY REGULATION (STATE-WIDE DELIVERY)**

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 operation of the premises. As a result of this assessment, licence L9440/2024/1 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 which are available at <https://dwer.wa.gov.au/regulatory-documents>.

2.2 Application summary and overview of premises

On 9 May 2024, Australian Garnet Pty Ltd (the applicant) submitted an application for a licence to the department under section 57 of the *Environmental Protection Act 1986* (EP Act).

The application is to seek a licence relating to the ongoing operation of mineral sands mining and processing at the premises. The current works approval W6214/2019/1 infrastructure, equipment, and operational requirements are to be transferred over to the licence as part of the application. The premises is approximately 35 km south of Kalbarri and is situated within tenement M70/1280, general purpose lease tenements G70/253, L70/215, L70/134, and L70/178 within Lot 1 on Diagram 91564, Lot 300 on Plan 60565, and Lot 1431 on Plan 251608. Figure 1 (Schedule 1) of the licence L9440/2024/1 depicts the licensed premises boundary.

The premises relates to category 8 as defined in Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) and the assessed production capacity which is specified in licence L9440/2024/1. 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 2020a) is also outlined in licence L9440/2024/1.

The premises includes an above groundwater progressive open pit mine with a mobile Mining Unit Plant that feeds to the Central Processing Area to produce a heavy mineral concentrate, including garnet and ilmenite final products. The premises' operations are discussed in further detail under section 2.4.

The premises also includes wind turbines located on general purpose lease L70/178 that are managed and regulated under the Windfarm Mining Proposal Reg ID 58732 under the *Mining Act 1978* (Mining Act). It should be noted that the department does not regulate the operation of these wind turbines, however, any potential noise emissions are to comply with the assigned noise levels in the *Environmental Protection (Noise) Regulations 1997*.

2.2.1 Previous licence application

A previous licence application was submitted on 3 May 2023 for the Lucky Bay Garnet Project. During the stakeholder and public consultation period, several complaints were made to the department. On 12 September 2023, the department undertook a compliance site inspection of the premises in response to the complaints made, and to get a progress update on remediation works that were being undertaken on the premises from a diesel spill that was notified to the department on 3 April 2023.

Based on the assessment of the application (including requests for information) and findings from the inspection process, DWER determined that the original licence application, which was advertised for public comment and referred to external stakeholders, differed significantly to that which was ultimately being assessed. On 3 October 2023 DWER advised Australian Garnet Pty Ltd of its position recommending they withdraw the application and resubmit a revised licence application with the inclusion of updated information. Australian Garnet Pty Ltd acknowledged this and withdrew the licence application on 6 November 2023.

2.2.2 Compliance reporting

Works approval W6214/2019/1 compliance requirements were assessed by the department. Table 1 below provides a summary of the items of infrastructure constructed and their compliance status.

The Environmental Construction Report (ECR) and subsequent Commissioning Report under the works approval were deemed compliant, apart from the solar drying ponds (originally four ponds), and only the initial stage of sand tailings storage area was constructed. As detailed in Table 1 the applicant has provided further information on the design and construction changes to these items of infrastructure as part of this licence application. The department will assess the proposed changes and review the original risk assessment as part of this application assessment.

Table 1: Summary of compliance for items of infrastructure constructed under works approval W6214/2019/1

Infrastructure	Compliance assessment date	Compliance status	Commissioning assessment date	Compliance status	Comment
Wet Concentrator Plant (WCP) including the thickener and associated pumps.	09/12/2022	Compliant	27/03/2023	Compliant	-
Dry Separation Plant (DSP) including the rotary dryer, baghouse, screening, and packaging.	09/12/2022	Compliant	27/03/2023	Compliant	-
Mobile Mining Unit Plant (MUP) including slurry pipelines, pumps, and conveyors.	N/A	-	N/A	-	Works approval W6214/2019/1 did not list the MUP as an item of infrastructure, although it was mentioned in the works approval decision report. As the MUP is already constructed and operating, the department will undertake a risk assessment of the operational aspects as part of this licence application.

Infrastructure	Compliance assessment date	Compliance status	Commissioning assessment date	Compliance status	Comment
					DWER is not able to grant retrospective approval for the construction of the MUP. Pipelines and pumps associated with the MUP have been assessed and deemed compliant.
Heavy Metal Concentrate (HMC) Stockpile	09/12/2022	Compliant	27/03/2023	Compliant	-
Sand tails and clay fines system including pipelines, pumps, and stackers	09/12/2022	Compliant	27/03/2023	Compliant	-
Process Water Pond	09/12/2022	Compliant	27/03/2023	Compliant	-
Sand Tailings Storage Area	09/12/2022	Not determined	27/03/2023	Compliant	Only the initial stage of the storage area was constructed, however, the applicant had previously stated that as the storage area is a continued expansion, no further ECRs would be submitted as the storage area will not exceed the design dimensions specified under the works approval. The department will review the original risk assessment and design requirements as part of this licence application.
	15/03/2023	Compliant for the initial stage			
Solar Drying Ponds	09/12/2022	Not determined	27/03/2023	Compliant	Compliance was determined for one out of the four ponds. The applicant provided design and construction changes to the solar drying ponds under works approval W6214/2019/1. This will be discussed in further detail under section 2.4.
	15/03/2023	Compliant for one pond			

Infrastructure	Compliance assessment date	Compliance status	Commissioning assessment date	Compliance status	Comment
					The department will review the original risk assessment related to these changes as part of this licence application.
Return water pipeline network	09/12/2022	Compliant	27/03/2023	Compliant	-
Groundwater monitoring bores	09/12/2022	Compliant	27/03/2023	Compliant	-

2.3 Other regulatory approvals and works approval history

Approvals under the Mining Act and EP Act were granted for the Project in 2010 to the previous occupier, Altura Mining Pty Ltd (Altura), through its subsidiary company, Australia Garnet Pty Ltd. However, the Project did not immediately proceed due to market conditions. In 2014, the applicant acquired the Australian Garnet portfolio from Altura and completed an updated feasibility study, which identified optimisation to the design, extent, and operating parameters of Altura’s original proposal. Mining Act approval was subsequently sought and approved for the expansion; however, the EP Act approval expired in 2016. A new works application was submitted to the department on 19 November 2018 and was issued on 29 April 2019, namely works approval W6214/2019/1.

The applicant has provided the following information relating to other regulatory approvals required as outlined in Table 2.

Table 2: Relevant approvals

Legislation	Number	Approval and / or status
<i>Mining Act 1978</i>	Reg ID 102866(2)	<p>The following Mining Proposals (MPs) and Mine Closure Plans (MCPs) have been approved for the premises:</p> <ul style="list-style-type: none"> Reg ID 55347 (MP/MCP) approved on 23 October 2015; Reg ID 58732 approved on 16 March 2016 for the windfarm on tenement L70/178; Reg ID 97057 approved on 30 June 2021; Reg ID 102866 approved on 27 September 2022 to amalgamate and replace previously approved MPs (Reg ID: 55347, 58732, and 97057). <p>An updated MP application was submitted on 4 October 2024 and under assessment to seek approval for the additional activities and variations.</p> <p>An updated MCP was submitted on 4 October 2024 that accompanies the MP and detailed how disturbance will be rehabilitated as required by tenement conditions set under the Mining Act.</p>

Legislation	Number	Approval and / or status
<i>Mining Act 1978</i>	Reg ID 58732	MP for the Windfarm on L70/178 approved on 22 February 2016.
EP Act – Section 51(E) (Native Vegetation)	CPS 3891/5, CPS 8358/3, and CPS 9057/1	<ul style="list-style-type: none"> Clearing permit CPS 3891/5 was approved on 7 September 2021 for 90 hectares (ha) within the northern half of M70/1280 and L70/134. CPS 9057/1 approved on 13 July 2021 for 71 ha within the southern half of M70/1280 and tenements G70/253, L70/178, and L70/215. CPS 8353/3 first approved in June 2019, and most recently amended on 15 February 2024, for 5.24 ha on L70/178 and G70/253. An additional amendment is being sought for clearing of approximately 0.58 ha. A Clearing Permit application may be required for the mining of Menari North areas in M70/1387 in the future and will be sought, as required.
<i>Rights in Water and Irrigation Act 1914</i> (RIWI Act)	GWL170860(6)	<ul style="list-style-type: none"> Approved 5C groundwater licence (GWL) for 2.015 gigalitres (GL) per year. An application for an increase in groundwater allocation has been made to the department for assessment. The application was submitted in September 2020. The department requested a H3 Hydrogeological Report that was not available at the time and the application was put on hold. The 5C amendment application was recommenced and included correspondence with the department in August and September 2024 to prepare the required hydrogeology investigations.
<i>Radiation Safety Act 1975</i> (RS Act)	Reg No. RS 78/2022 3536 RM-221/474302	<p>Risks to human health and the environment from radiological materials are jointly managed by Department of Energy, Mines, Industry Regulation, and Safety (DEMIRS) and the Radiological Council of WA.</p> <p>As the premises produces non-magnetic material that contains Naturally Occurring Radioactive Material (NORM) above threshold concentrations, the material is regulated under the RS Act.</p> <p>A Radiation Management Plan (RMP) for the premises has been assessed and approved by DEMIRS. The RMP outlines the management measures required to ensure worker and public radiation exposures are managed in accordance with the legislation.</p>
<i>Dangerous Goods Safety Act 2004</i>	DGS022910	The Dangerous Goods licence was issued on 14 July 2022 and expires on 14 July 2027.
<i>Health Act 1911</i>	-	Permit to install and operate apparatus for the treatment of sewage granted.
<i>Local Government Act 2011</i>	-	Wastewater disposal application submitted and approved by the Shire of Northampton.

2.4 Infrastructure and operational aspects

2.4.1 Operational activities

The premises operates in two 12-hour shifts per day, 365 days a year. A schematic of the premises' operational activities is shown in Figure 1. Topsoil and overburden removal will occur on a 12-hour (7 am to 7 pm), 7 days per week basis, while mining will occur continuously (24 hours per day). Processing will occur on a 24-hour, 7 days per week basis.

The mining and processing operations incorporate conventional dry mining, followed by wet separation to produce both garnet and heavy mineral concentrates using conventional gravity separation. By design, the mine does not intersect the water table that is mostly below the basement of the resource. The applicant has advised that groundwater intersects some limited areas of the deposit, however these are only small in size and will be excluded from mining, to avoid the requirement for dewatering.

Further processing in the Mineral Separation Plant (MSP), which predominantly use magnetic separation and screening techniques, will upgrade the concentrate to produce high grade garnet, ilmenite / iron and non-magnetic minerals.

Mine Voids will be backfilled progressively throughout the life-of-mine by tailings.

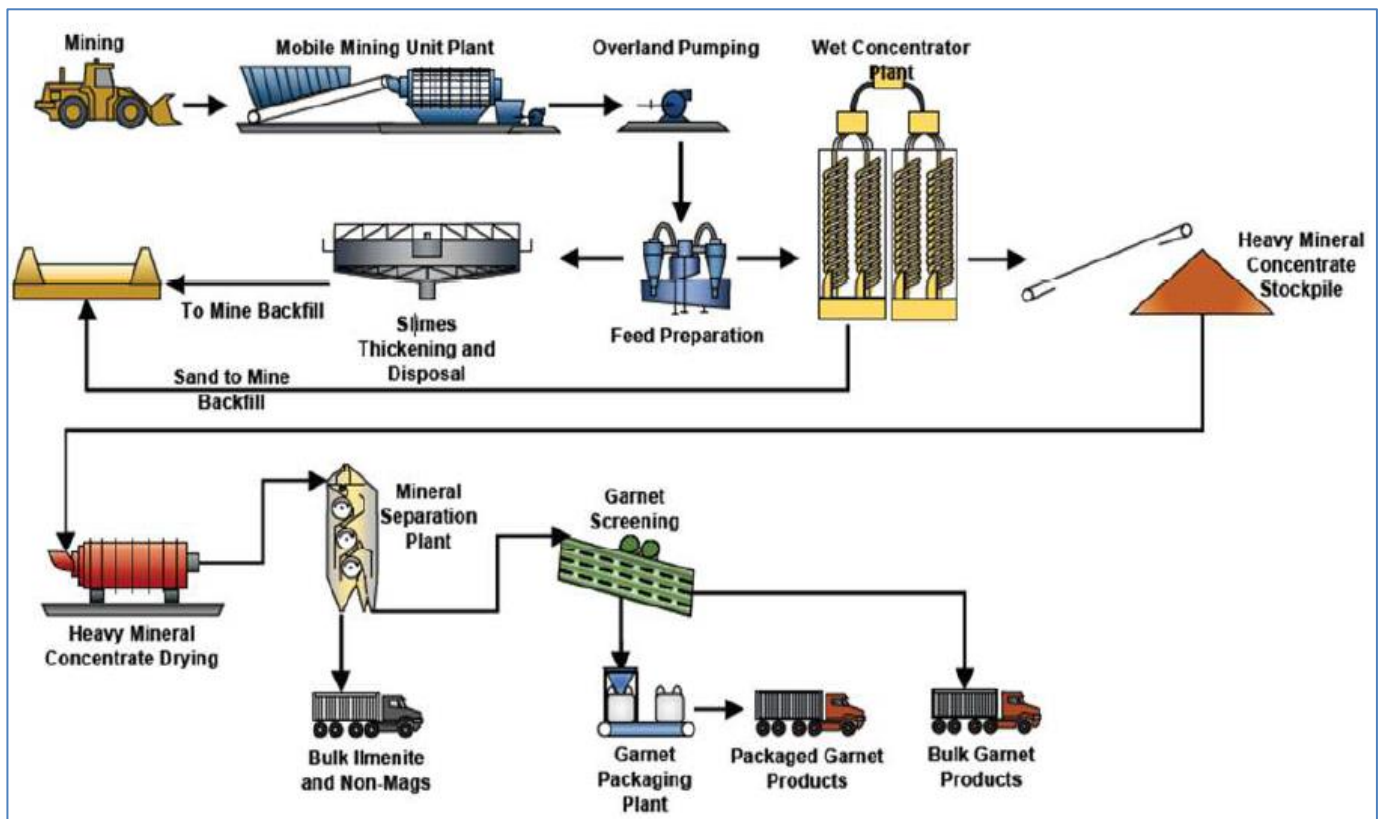


Figure 1: Operational activities flow diagram.

2.4.2 Mining operations

The 'Menari' deposit is predominantly a small undeveloped low strip, medium grade alluvial garnet deposit. Topsoil and subsoil are pre-stripped and stockpiled separately or placed on areas undergoing rehabilitation. The garnet resource is located close to the surface; therefore, overburden is minimal.

The 'Menari' deposit is mined as a single mine pit, which has been divided into 39 mining blocks. A general overview of the proposed mining sequence is provided in Table 3. Mining is progressing from the southern extent of the pit, and the mining face will be excavated northwards whilst alternately traversing east and west width of the deposit. Further projections are indicative and subject to change, which are addressed through revisions to the MP.

Mining will be carried out up to a maximum depth of around 45 metres below ground level (mBGL), but the target sands are relatively shallow with an average depth of approximately 19 mBGL. Areas will be avoided from mining where there is the potential to intersect the groundwater table as mining is only above-groundwater table mining.

Table 3: Indicative operation timing

Mine block	Timing	Comment
1-11	December 2020 – July 2027	Start in south of Menari Mine Pit
12-25	August 2027 – July 2028	Progression of mine
26-39	August 2028 – June 2029	Progression of mine

Mineralised ore is excavated using earth-moving equipment, including an excavator, dozer, and front-end loader (FEL). The removal of topsoil and minor quantities of overburden prior to excavation of the ore are predominantly undertaken by dozers. The FEL delivers the mined ore directly into the mobile MUP. The FEL operates continuously and is supported by a dozer during the day shift to tidy up the pit floor and push over the mining face when required. The MUP is located on the base of the pit floor and as the mining face advances a suitable distance (about every 100 m), the MUP is shut down and moved closer to the pit face to allow short tramming distance for the FEL. The dozer is used to maintain a safe working pit face of approximately 30 degrees, clean-up, level the pit floor, and to move the MUP.

The MUP consists of a hopper and coarse oversize screening that removes any oversize rocks, sticks and other material greater than 2.5 millimetres (mm) that could damage the trommel screen. The screened sand is then conveyed up to the trommel feed chute, where an equal mass of water is added. The ore is screened in the rotating trommel to remove any rocks and other material. This oversized material is then stockpiled in the pit for burial with sand tails.

The MUP pumps the screened material, nominally 2.0 mm in size, as a slurry through high-density polyethylene (HDPE) pipelines to the Wet Concentration Plant (WCP) located at the Central Processing Area (CPA). The applicant has advised that garnet is not present in the oversize material, thus is discarded early in the process. It should be noted that the screen aperture selection can be altered to meet the sand conditions during the life of the operation.

2.4.3 Processing operations

The CPA is located within tenements M70/1280 and G70/253 that contains the majority of the plant and utilities, including power and supporting infrastructure, for example, the wastewater treatment plant (WWTP) and the reverse osmosis (RO) plant. The CPA is comprised of the following processing plants:

- WCP;
- MSP; and
- Screening and Bagging Plant (SBP).

The plant components are modular and will be removed at the end of the Life of Mine.

Wet Concentration Plant

The WCP can process up to 3.6 million tonnes per annum (Mtpa) of ore feed from the MUP. The WCP separates out the waste tailings and produces a heavy mineral concentrate (HMC) through several processes as summarised in Table 4.

Table 4: WCP processes

Process	Process explanation
Desliming	Separation of slimes. Slurried ore travels through a bank of desliming cyclones mounted above a constant density tank (CD tank) that is located adjacent to the spiral classification circuit.
Slimes thickening	Flocculant addition to settle out solids and recycle process water. Overflow from the cyclones contain the bulk of the slimes material and report through to a high rate thickener, while the underflow goes to the CD tank to provide a steady state de-slimed feed to the WCP gravity spiral classification circuit.
Spirals classification circuit	Use of water and gravity induced centrifugal forces to separate garnet product and heavy minerals from the lighter reject sand. The HMC from the rougher spirals and middlings cleaner spirals is upgraded on the concentrate cleaner spirals, where a heavy mineral sands product is cut, dewatered, and sent forward for classification.
Up-current classifiers (UCC)	Size and density separation of intermediate concentrate and additional reject of find and light minerals.
Attrition	To remove calcrete coating from the HMC.
Filtering and product washing	Dewatering and rinsing excess chloride from the HMC with RO water. The product is washed to remove excess chloride that is naturally present in the HMC. Elution flow is set to remove fine silica to the classifier overflow for discarding. The separated tailings sands are initially deposited into the tailings dam, from where the tailings are to be transferred to the mine void for disposal. Final wet plant garnet product, is stockpiled on unsealed storage area using dewatering cyclones and allowed to drain to <5% moisture content.

Dry Separation Plant (DSP)

Stockpiled garnet from the WCP will be further processed on-site at the DSP (also known as the Mineral Separation Plant), which comprises of a feed bin feeding a rotary dryer, followed by Rare Earth Magnetic Separators (REMS). The HMC is fed into drier feed hopper by conveyor.

The exhaust from the dryer is drawn through a baghouse with reverse pulse filter cleaning by an induced draft fan. The gas is separated from the dust by the fabric bags and is vented to atmosphere via a 2.8 m high muffled stack, with the dust discharged and collected in drums or kibbles and returned to the WCP. Particulate emissions from the baghouse are expected to be less than 50 milligrams per cubic metre (mg/m³) (target concentration below 20 mg/m³). A second baghouse was installed on 6 August 2023 that reduces dust emissions produced from the operation of the DSP, whilst the primary baghouse reduces emissions from the diesel fired rotary dryer.

Dried product discharging from the dryer is screened to remove oversize waste then further screened into coarse and fine heavy mineral streams. Each of these streams are fed to two 1,500 mm REMS units which are hybrid units, with the initial separation into magnetic, paramagnetic, and non-magnetic products preformed on a drum and retreatment of selected products on more selective rolls.

Non-magnetic minerals (silica sand with leucoxene, rutile, and zircon) spin off and are returned to the Mine Void as backfill. Magnetic products (consist primarily of ilmenite) are further treated and placed in a load-out silo in preparation for trucking off-site, while the paramagnetic product (garnet concentrate) is stored in separate silos in preparation for haulage to the Geraldton port.

The end products range in particle diameter from 125 microns up to 850 microns and are stored in silos located adjacent to the DSP, prior to haulage off-site.

Screening and Bagging Plant

The SBP produces final packaged goods ready for the market by using a primary screen, blast grade screen, and water jet screen. The SBP is in a shed adjacent to the DSP and the bulk of the shed is used for packaged goods storage. High frequency multi-deck screens produce the garnet products that are then transferred to product silos, then fed into bagging machines, the bulk shipment silo or 25 kg bagging plant.

The screening circuit is a continuous process to allow screens to be fed at a constant tonnage to maintain efficiency and consistent product size distribution. Excluding the use of inert flocculant and minor viscosity modifier, the physical separation process does not use any chemicals.

Pipeline network

Slurried materials are transferred around the premises using HDPE pipelines. The pipelines are in 10 m lengths with flanged sections (butt flange welded to the end of the line and bolted to a corresponding flange).

Pipelines have designated pipeline corridors, and have been designed with spillage sumps at suitable locations approximately every 500 m. These locations are contained and have the ability for water recovery. Further pipeline corridors across access roads have drainage swales cut out of the roads to allow surface water runoff.

Tailings management

Clean sand tailings

The clean sand tailings are pumped from the WCP to the Sand Tailings Storage Area for stockpiling until there is enough space in the Mine Void for progressive backfilling. The off-path storage area is located to the west of the mining area, where sand tailings are wet stacked (20 – 30 % moisture content) at natural recline via a series of 12 cyclone stackers. Future sand tailings will eventually be stacked in the Mine Void, and once space is available as part of the progressive mine rehabilitation programme.

It should be noted that the Sand Tailings Storage Area is required to not exceed a height of 10 m (vertical height from the base of the stockpile) in accordance with condition 3 of works approval W6214/2019/1. During the compliance site inspection on 12 September 2023, it was observed that the height exceeded the 10 m. On 14 September 2023 the department's Assurance Directorate requested further information related to the inspection findings, including the storage area height exceedance. As a result, the applicant has since been actively addressing the height exceedance through a schedule of actions, referred to as a Tailings Height Reduction Program.

The applicant has stated that *“as part of works carried out in late 2023 and early 2024, reprofiling of the sand stockpile occurred to reduce the stockpile to a relative level of 30 m. Works are planned in the mid-2024, to avoid the higher wind speed conditions and further reduce this relative level to 25 m. As of March 2024, the southern half of the stockpile was reduced below ten metres. Further work is also progressing to prepare the adjacent service corridor, to enable further battering of the slope, resulting in an overall height reduction of the stockpile.”*

The storage area has drains and perimeter bunds to capture any runoff and reduce potential washouts. A polymer binder has been applied to the clean sand tailings for stabilisation and to limit dust generation.

Solar drying ponds – clay fines / slimes

Solar drying ponds are containment infrastructure designed to receive and settle clay fines / slimes from the WCP via the pipeline and dried through solar evaporation. The supernatant water is decanted from the surface and returned to the Process Water Pond for reuse in the processing plant. No lining is required for the drying ponds due to the inert and self-sealing nature of the slimes material.

It should be noted that the original works approval application W6214/2019/1 indicated that a series of solar drying ponds were to be constructed off the mine-path before being relocated to the Sand Tailings Storage Area and Mine Void, as well as a four-cell drying pond north of the CPA. Notwithstanding, the final works approval specified the construction of solar drying ponds (four-cell layout) located north of the CPA only.

Only one large drying pond was constructed, contrary to the works approval requirements. The applicant stated that *“the fourcell design with internal walls proved to reduce efficiency in water recovery and hence the design was updated to construct the facility as one single cell with no internal dividers... The change from original design does not result in a material change in storage capacity or change the environmental risk associated with the Pond.”*

Currently one large drying pond is located north of the CPA and four drying ponds are within the southern portion of the Sand Tailings Storage Area. The four drying ponds in the storage area were constructed after the installation of the northern drying pond, as the applicant identified that additional storage was needed to manage the volume of slimes being generated. The drying ponds have been constructed as paddock-style dam structures with the base floor constructed with overburden material or similar, and outer walls with a 1V:2H slope. The height of the outer wall varies with a maximum height of 4 m.

Once sufficient space is available in the Mine Void dried slimes will be excavated from the drying ponds and relocated to assist in the progressive rehabilitation of the void. The drying ponds will still be operational for further deposition of wet slimes from the WCP and will be filled within one metre on the top of the embankment. Drying ponds when no longer in operational use will then be progressively covered with sand tailings, with the slimes remaining in situ.

The applicant has indicated that as space becomes available in the Mine Void, additional solar drying ponds are proposed to be constructed. A future licence amendment application will be sought for the construction of these proposed solar drying ponds.

Water management

As discussed above, mining will not occur below the water table and therefore mine dewatering is not required. In addition, due to high hydraulic conductivity of the ore and surrounds, the applicant expects very little rainfall runoff to be recovered directly from the Mine Void.

Raw water at the site is brackish (3,000 – 7,000 mg/L Total Dissolved Solids) and is suitable for ore processing, dust suppression and equipment wash-down. A small RO desalination plant provides potable water for rinsing of the final garnet products and for human consumption. The RO plant is capable of producing 440 kL of treated water per day and produces approximately 140 kL brine per day, which is recycled into the process water circuit.

The RO desalination plant does not meet the threshold requirements for prescribed premises 85B (water desalination plant) and is therefore not included as a prescribed premises category on the licence.

The annual premises water demand is up to 2.1 gigalitres per year (GL/yr), with the following major water use categories:

- Ore processing – 2,810,000 kilolitres (kL);
- Dust suppression – 300,000 kL; and
- Feed water to the RO plant – 290,000 kL.

The RO plant is expected to produce approximately 203,000 kL/yr of potable water and 86,400 kL/yr of brine. The brine will be combined with elute from the product rinsing and discharged to the Process Water Pond for reuse in the processing plant.

Approximately 1,300,000 kL/yr of process water is expected to be lost via seepage from and entrainment in sand tailings, with a further 1,200,000 kL/yr lost from evaporation and 300,000 kL/yr used for dust suppression. As the sand deposits is comprised of very low fines, it is likely that seepage from sand tailings will infiltrate through the base of the Mine Void to the underlying groundwater table.

Mine water demand is supplemented via production bores that have been located close to the sand tailings facilities to intercept and recover a portion of the tailings water lost as seepage. As previously mentioned under 'Tailings Management', supernatant water from the solar drying ponds is decanted and returned to the Process Water Pond for reuse.

Water distribution network

Water abstracted from the Tumblagooda sandstone aquifer via production bores is transferred to the Process Water Pond and process water tank, located near the process plant. The water is then distributed to the processing facilities and associated activities.

Within the premises, water containing infrastructure includes the Process Water Pond and Overflow Pond within the CPA and Turkey's Nest south of the Sand Tailings Storage Area. The Process Water Pond holds raw water from the borefield, process water (tails sand cyclone overflow, thickener overflow, RO brine), and supernatant water. The Overflow Pond, whilst not in operation, was constructed to capture runoff from Process Water Pond and wet plant overflow and provide additional capacity for process water. The Turkey's Nest contains groundwater from production bores PB1 and PB9 to provide water for dust suppression. It should be noted during the consultation period of the applicant reviewing the draft licence and decision report, that a request was made to remove reference to the Overflow Pond as the infrastructure has since been decommissioned and no longer in use.

Stormwater management

Due to the high infiltration rates associated with the sand and sandy loam soils present at the premises (12-13 mm/hr), only events of 1-hour duration for all ARI events and a 6-hour 1:100-year ARI event would exceed the estimated infiltration rates and generate surface water runoff.

All potential drainage lines are directed away from infrastructure and mining areas. Surface water runoff from concrete plant areas and buildings are collected via sumps and returned to the Process Water Pond.

Additional support facilities

Support facilities and infrastructure occur on the premises include a WWTP, workshop, fuel storage facilities, power, site and administration buildings, crib rooms, laboratory, and laydown / hardstand area. These facilities are not typically regulated under Part V of the EP Act, with exception of the WWTP, fuel storage and power generation equipment and infrastructure; these facilities can be regulated if they trigger a category under the Schedule 1 of the *Environmental Protection Regulations 1997*. Where they are under threshold they can still be regulated as a 'directly related activity' based on environmental risk.

Currently the WWTP, fuel storage facilities, and power generation are below respective threshold levels for the relevant prescribed premises category as outlined below:

- Power generation infrastructure and equipment has a design capacity of 4.2 megawatts (Category 54 *Electric power generation (using a fuel)*) licensing threshold of 10 MW or more in aggregate (using a fuel other than natural gas);
- Fuel storage consists of two self-bunded 100 kL diesel storage tanks located at the CPA and an additional 100 kL storage tank at the Mining Workshop. The total storage of diesel and hydrocarbons on site are 293,400 L (Category 73 *Bulk storage of chemicals etc.* licensing threshold of 1,000m³ in aggregate); and
- The WWTP has a processing capacity of 6 m³/day (Category 85 *Sewage facility* licensing threshold >20m³/day but <100m³/day).

Proposed upgrades and improvements

The department notes that the applicant has proposed several upgrades and improvements to existing infrastructure and equipment, namely the WCP, dryer, baghouse and tails stacking upgrade. The applicant has stated that “*the improvements will be addressed through an updated Environmental Compliance Report (ECR) prepared in accordance with Conditions 2 and 3(b) of Works Approval W6214/2019/1*”. The department has not included these upgrades or improvements to this licence.

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 2020a).

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 operation which have been considered in this decision report are detailed in Table 5 below. Table 5 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 5: Proposed applicant controls

Sources / activities	Emission	Potential pathways	Proposed controls
Mining and processing of ore	Groundwater acidification associated with disturbance (oxidation) of acid sulphate soils (ASS)	Leaching from in situ ASS material	No further risk assessment will be undertaken as mining activities will not occur below the water table. Furthermore, the high carbonate content of the dunes further lowers the risk of acid generation. The mined sands are also classified as non-acid forming, acid consuming (NAF-AC).
	Noise	Air / wind pathway	<ul style="list-style-type: none"> • existing controls from works approval W6214/2019/1 will be transferred to the licence; • implementation of the revised <i>Australian Garnet Noise Management Plan</i> with the following key controls; <ul style="list-style-type: none"> ○ planting of long-term tree lined shelter belts; ○ potential use of noise screens along the boundary of the premises; ○ control of noise at the source by maintaining and operating equipment within the premises to ensure optimum noise performance is achieved; ○ noise reduction on earthmoving equipment; and ○ preventative maintenance of equipment to reduce / prevent abnormal noise generation • commitment by applicant to ensure noise emissions to comply with the <i>Environmental Protection (Noise) Regulations 1997</i>; • mobile MUP must be located in the Menari Pit (Mine Void) below natural ground level; • motors are to be located in enclosed housings with sound-absorbing materials; mufflers used to manage exhaust noise; and baffles / loures used to control fan noise; • equipment is to be maintained using a preventative maintenance program following the manufacturer’s recommendations; • mobile equipment must be equipped with broadband reversing alarms; and • mobile equipment must be equipped with flashing lights (to replace alarms) after dusk when headlights are in use.

Sources / activities	Emission	Potential pathways	Proposed controls
Mining and processing of ore	<p>Dust (potentially containing respirable crystalline silica)</p> <hr/> <p>Dust lift-off from stockpiles</p>	Air / wind pathway	<ul style="list-style-type: none"> • existing controls from works approval W6214/2019/1 will be transferred to the licence; • implementation of the revised <i>Australian Garnet Dust Management Plan</i> with the following key controls; <ul style="list-style-type: none"> ○ daily forecast and work planning are checked to considered wind speed and wind direction; ○ review of site activities when high winds speeds are forecasted to ensure dust controls can be implemented and are effective; ○ watering of exposed tailings are undertaken to prevent drying out and further dust emissions; and ○ regular inspections of the stabilisation stockpiles and assess the effectiveness of the stabilisation to reduce dust lift-off. • maintain and operate water trucks on-site at all times, used for dust suppression, and ensuring an adequate supply of water is available onsite at all times; • tailings disposed are initially wet, preventing dust emissions when deposited; • application of clay slimes from the thickener; • routine application to the Sand Tailings Storage Area with a binding polymer; • exposed surfaces are stabilised using various surface treatments including, but not limited to hydromulch and polymer emulsion; • undertake ongoing re-contouring of the Sand Tailings Storage Area; and • application of topsoil and seeding in future works as part of the <i>Rehabilitation Plan</i>.
Mining and processing of ore	Surface water and potentially contaminated stormwater runoff	Direct discharge to land	<ul style="list-style-type: none"> • any contaminated stormwater runoff must be diverted and contained within sumps; • clean water must be diverted around the operational area via bunding and drains; and • surface water runoff from the concrete plant areas and buildings must be collected via sumps and returned to the Process Water Pond.

Sources / activities	Emission	Potential pathways	Proposed controls
Drying and classification of garnet concentrate in the Drying Separation Plant	Particulate emissions from the drying garnet concentrate	Air / wind dispersion	<ul style="list-style-type: none"> existing controls from works approval W6214/2019/1 will be transferred to the licence; implementation of the revised <i>Australian Garnet Dust Management Plan</i>; maintain and operate the two baghouses with reverse pulse filter cleaning; and maintain and operate the 3 m high stack at the rotary dryer baghouse.
Rinsing of final garnet products	Disposal of saline wash water	Direct discharge to land	Saline wash water from the rinsing of final garnet concentrate must be transferred to the Process Water Pond.
Use of the Process Water Pond, Turkey Nest, and Overflow Pond	Process water and decant supernatant water	Direct discharge / overtopping	<ul style="list-style-type: none"> maintain a minimum total freeboard of 500 mm; and daily visual inspection of the integrity of the HDPE liner and freeboard level.
Stockpiling of Heavy Mineral Concentrate	Dust lift-off from stockpile(s)	Air / wind pathway	<ul style="list-style-type: none"> existing controls from works approval W6214/2019/1 will be transferred to the licence; Implementation of the revised <i>Australian Garnet Dust Management Plan</i>; daily forecast and work planning are checked to considered wind speed and wind direction; maintain 40 feet stacked (3-high) shipping containers to protect stockpiles from the wind; and maintain HMC at a 6% moisture content whilst stacking.
	Seepage of water entrained within HMC	Through the base of the stockpile pad	No controls specified.

Sources / activities	Emission	Potential pathways	Proposed controls
Stockpiling of Heavy Mineral Concentrate	Surface water and potentially contaminated stormwater runoff	Direct discharge to land	<ul style="list-style-type: none"> any contaminated stormwater runoff must be diverted and contained within a sump for reuse within the Process Plant; water used to separate the HMC is bore water treated through the RO plant to reduce the salt content, so any potential seepage is predominantly fresh water compared to existing groundwater quality (3,000 to 7,000 mg/L TDS); and HMC is stockpiled on an unsealed surface to allow for draining to around 5% w/w.
Stockpiling of sand tailings on the Sand Tailings Storage Area	Dust lift-off from stockpile(s)	Air / wind pathway	<ul style="list-style-type: none"> existing controls from works approval W6214/2019/1 will be transferred to the licence; implementation of the revised <i>Australian Garnet Dust Management Plan</i>; daily forecast and work planning are checked to considered wind speed and wind direction; review of site activities when high winds speeds are forecasted to ensure dust controls can be implemented and are effective; tailings disposed are initially wet, preventing dust emissions when deposited; application of clay slimes from the thickener; routine application to the Sand Tailings Storage Area with a binding polymer; exposed surfaces are stabilised using various surface treatments including, but not limited to hydromulch and polymer emulsion; undertake ongoing re-contouring of the Sand Tailings Storage Area; watering of exposed tailings are undertaken to prevent drying out and further dust emissions; regular inspections of stabilised stockpiles and assess the effectiveness of the stabilisation to reduce dust lift-off; and application of topsoil and seeding in future works as part of the <i>Rehabilitation Plan</i>.
	Surface water / potentially contaminated runoff	Direct discharge to land	Any contaminated stormwater runoff must be diverted and contained within sumps.

Sources / activities	Emission	Potential pathways	Proposed controls
Disposal of sand tailings to the Mining Void (Menari Mine Pit)	Seepage of water entrained in the sand tails to groundwater	Infiltration through the base	<ul style="list-style-type: none"> groundwater level monitoring to be undertaken around the Mine Void; and trigger values for groundwater recovery to limit any potential groundwater mounding effects to within one metre of the natural ground level.
	Rupture of pipeline causing mine tailings discharge to land	Direct discharge to land	<ul style="list-style-type: none"> pipelines located in bunded corridors are to be maintained to completely contain any spills from pipeline leakage or breach for a period equal to the time between routine inspections; daily visual inspections to be carried out to ensure integrity of pipelines and identify potential leaks; and maintain and operate flow meters and pressure gauges on pipelines for early detection of spills and leaks.
Drying of clay slimes in Solar Drying Ponds	Seepage of water entrained in the clay slimes to groundwater	Through base of ponds	Allow sufficient time for clay fines to settle on the base and walls of Solar Drying Ponds to minimise seepage.
	Rupture of pipeline causing mine tailings discharge to land	Direct discharge to land	<ul style="list-style-type: none"> pipelines located in bunded corridors are to be maintained to completely contain any spills from pipeline leakage or breach for a period equal to the time between routine inspections; daily visual inspections to be carried out to ensure integrity of pipelines and identify potential leaks; and maintain and operate flow meters and pressure gauges on pipelines for early detection of spills and leaks.
	Dust lift-off from Solar Drying Ponds	Air / wind pathway	<ul style="list-style-type: none"> existing controls from works approval W6214/2019/1 will be transferred to the licence; and implementation of the revised <i>Australian Garnet Dust Management Plan</i>.

Sources / activities	Emission	Potential pathways	Proposed controls
Drying of clay slimes in Solar Drying Ponds	Tailings water	Direct discharge / overtopping	<ul style="list-style-type: none"> • maintain a minimum total freeboard of 500 mm; • cell wall height must not exceed 2.5 m above natural ground level; • weir boards are maintained and operating to ensure that overflow from the Solar Drying Ponds is clear, while ensuring that 1 m freeboard remains between the overflow level and the top of embankment; • excess supernatant water must be pumped to Process Water Pond and Turkey's nest; and • tailings consist principally of silica with other minor impurities, have undergone physical separation only, and do not contain significant levels of contaminants.
Stockpiles of topsoil and overburden	Dust-lift off from stockpiles	Air / wind pathway	<ul style="list-style-type: none"> • exposed surfaces are stabilised using various surface treatments including, but not limited to hydromulch and polymer emulsion; • regular inspections of stabilised stockpiles and assess the effectiveness of the stabilisation to reduce dust lift-off; • watering of topsoil stockpiles with a water cart; and • application of topsoil and seeding in future works as part of the <i>Rehabilitation Plan</i>.
Mining and processing operations including use of diesel generators, fuel storage containment	Hydrocarbon spills and leaks	Direct discharge to land and overland flow	<ul style="list-style-type: none"> • bulk fuel must be stored in self-bunded tanks with bunded refuelling stations; • other fuel and hydrocarbons (e.g., oils and lubricants) must be stored within secondary containment; and • spills and leaks must be managed as per the <i>Hydrocarbon and Spill Management Procedure</i> with the following key controls: <ul style="list-style-type: none"> ○ spills are to be confined and contained to prevent further harm or contamination of the surrounding environment through use of absorbent material, barriers, and spill trays or mats; ○ spills are to be cleaned up with the use of a spill kit on site ○ refuelling is only undertaken at the two established refuelling facilities and a mobile service truck; and ○ removal of hydrocarbons and other waste are to be cleaned up and contained appropriately to be disposed of at a licensed facility.

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020a), 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 6 and Figure 2 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emissions and discharges from the prescribed premises (*Guideline: Environmental Siting* (DWER 2020b)).

Table 6: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Residential property (Receptor 1)	Approximately 1 km east from the premises boundary and 2.5 km from the CPA.
Halfway Bay (Lucky Bay) camp (Receptor 2)	Ranges from 0.83 km (camp sites) to 2.5 km (includes the Lucky Bay shacks, main campground, recreational area, and ranger's station) southwest from the premises boundary.
Residential property (Receptor 3)	Approximately 2.5 km northeast from the premises boundary and 3.5 km from the CPA.
Environmental receptors	Distance from prescribed activity
Threatened / Priority Ecological Communities (TEC/PEC) <i>Subtropical and Temperate Coastal Saltmarsh</i>	<p>The TEC is listed a vulnerable under the <i>Environmental Protection and Biodiversity Conservation Act 1999</i> (EPBC Act). The TEC spans across six State jurisdictions with the most appropriate northern limit on the west coast as Shark Bay.</p> <p>It should be noted that the <i>EPBC Act Conservation Advice for Subtropical and temperate coastal saltmarsh</i> (DSEWPC 2013) states that "Currently, Queensland, Victoria, Tasmania, South Australia and Western Australia do not list this ecological community." However, through correspondence with Department of Biodiversity, Conservation, and Attractions (DBCA), the TEC has been identified, but not ground-truthed.</p> <p>In addition, the PEC <i>Subtropical and temperate coastal saltmarsh</i> priority 3 is synonymous to the TEC coastal saltmarsh, however, this PEC does not occur in the vicinity of the premises.</p>
Utcha Well Nature Reserve DBCA managed lands	Approximately 0.8 km south of the premises boundary.
Native vegetation, native flora and native fauna	Within and surrounding the Premises.
Hutt Lagoon System National Important Wetland (Criteria 1, 6)	Approximately 0.8 km south of the premises boundary (northern most portion of the lagoon system).
Surface water	Limited to shallow overland flow during and after heavy rainfall events. Temporary shallow ponding will occur in local depressions, with surface flow generally infiltrating or evaporating.

Environmental receptors	Distance from prescribed activity
Mappa lake – seasonally inundated area	Approximately 0.95 km west of the premises boundary.
Ocean	Approximately 1.3 km west of the premises boundary.
Groundwater	<p>The Superficial Formations overlie the Tumblagooda Sandstone (bedrock). Groundwater levels vary from 0 to 15 m Australian Height Datum (mAHD), but typically 5 mAHD in the area of the mineral sand deposits. Mining does not occur below the groundwater table; therefore, no dewatering has been approved.</p> <p>Halfway Bay campgrounds well, approximately 0.8 km west from the premises boundary has been identified as non-potable water.</p>
Other groundwater users	Selected third-party groundwater bores surrounding the Premises also use the licensed groundwater resource. One bore is held by MRWA to supply water for road construction and maintenance activities. Yanganooka Well bore is in the Yanganooka Reserve, where there are no stock or domestic users. The nearest bore in the superficial aquifer is 1.4 km from the nearest superficial aquifer, Production Bore PB6. The nearest Tumblagooda bore is the Neumann Bore located 1.3 km from TPB2.
<p><u>Threatened / Priority fauna</u></p> <ol style="list-style-type: none"> 1. Zuytdorp slider (<i>Lerista humphriesi</i>) P3 2. Peregrine falcon (<i>Falco peregrinus</i>) Other specially protected fauna 3. Fork-tailed swift (<i>Apus pacificus</i>) Migratory species 4. Grey falcon (<i>Falco hypoleucos</i>) Vulnerable 	<ol style="list-style-type: none"> 1. Recorded within the premises boundary. 2. The species has previously been recorded in the vicinity of the premises. 3. This species is predominately aerial with several records to the south of the premises near Port Gregory with the species likely to fly over the premises. 4. This species may utilise habitats, forage and fly over the premises. (Onshore Environmental 2022a)
<p><u>Threatened and Priority Flora</u></p> <ol style="list-style-type: none"> 1. <i>Caladenia bryceana</i> subsp. <i>cracens</i> Endangered 2. <i>Comesperma rhadinocarpum</i> P3 3. <i>Melaleuca huttensis</i> P3 4. <i>Frankenia confusa</i> P4 5. <i>Stenanthemum divaricatum</i> P3 6. <i>Anthocercis intricate</i> P3 7. <i>Bossiaea calcicole</i> P3 	<ol style="list-style-type: none"> 1. In the vicinity of the premises boundary. 2. Within 1 km outside the premises boundary. 3. Within the premises boundary in areas not being cleared. 4. Within the premises boundary. 5. Within 1 km outside the premises boundary. 6. Within and outside the premises boundary. 7. Within and outside the premises boundary. (Onshore Environmental 2022b).
<p><u>Aboriginal and other heritage sites</u></p> <p>Registered Site - Site ID 4647 – Lucky Bay</p> <p>Lodged - Site ID 29011 – Balline 1</p> <p>Lodged - Site ID 29012 – Balline 2</p> <p>Lodged - Site ID 29013 – Balline</p>	<p>Site ID 4647 – approximately 600 m north-west of the prescribed premises boundary.</p> <p>Site ID 29011 – approximately 300 m north-east of the prescribed premises boundary.</p> <p>Site ID 29012 – approximately 1.1 km north of the prescribed premises boundary.</p> <p>Site ID 2901 – within the prescribed premises boundary and approximately 22 m north of the expanded pit boundary.</p>

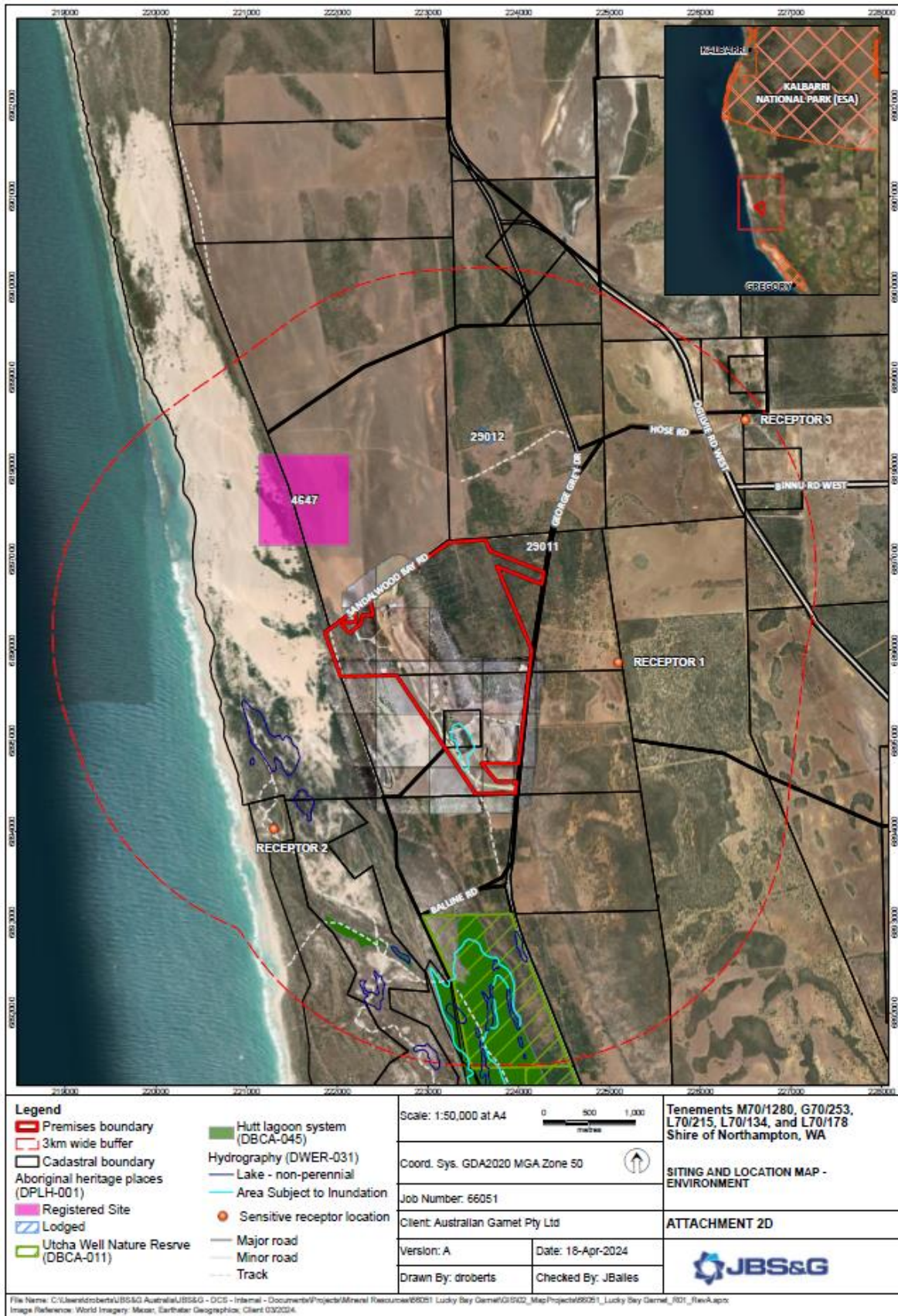


Figure 2: Siting and sensitive receptors

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020a) 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 licence 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 7.

Licence L9440/2024/1 that accompanies this decision report authorises emissions associated with the operation of the premises.

The conditions in the issued licence, as outlined in Table 7 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 7: Risk assessment of potential emissions and discharges from the premises during operation

Risk events					Risk rating ¹	Applicant controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood			
Mining and processing of ore	Noise	Air / wind pathway potentially causing amenity / health impacts	Rural / residential properties located less than 2 km of premises Users of George Grey Drive and the Halfway Bay Camp	Refer to section 3.1.1, Table 3	C = Moderate L = Possible Medium Risk	No	Condition 3 relates to the operational requirements for the infrastructure and equipment to adhere to within the Premises.	Conditions 2, 9, 15, 18, 22, 23, 24, and 25 Refer to section 3.3 below for a detailed explanation of the additional regulatory controls imposed. General provisions of the <i>Environmental Protection (Noise) Regulations 1997</i> applies. Condition 2 relates to mining and processing operations and hours of operation. Condition 9 relates to noise control requirements and management actions. Conditions 15 and 18 relates to noise monitoring and exceedances. Conditions 22, 23, 24, and 24 relates to noise assessment in particular nighttime mining operations and noise levels.
	Dust (potentially containing respirable crystalline silica)	Air / wind pathway causing serious health impacts to human receptors	Rural / residential properties located less than 2 km of premises Users of George Grey Drive and the Halfway Bay Camp		C = Severe L = Rare High Risk			
	Dust-lift off from stockpiles	Air / wind pathway potentially causing amenity / health impacts, degradation of surface water quality, impacts to water ecology / fauna and impacts to vegetation health	Rural / residential properties located less than 2 km of premises Users of George Grey Drive and the Halfway Bay Camp Nearby vegetation including threatened and priority flora Nearby aboriginal and heritage sites Utcha Well Nature Reserve Hutt Lagoon System Mappa Lake Subtropical and Temperate Coastal Saltmarsh Ocean Surface water		C = Major L = Likely High Risk	No	Condition 3 relates to the operational requirements for the infrastructure and equipment to adhere to within the Premises. Condition 7 relates to the emissions to air requirements for the DSP – rotary dryer stacks.	Conditions 8, 14, 17, 26, and 27 Refer to section 3.3 below for a detailed explanation of the additional regulatory controls imposed. Condition 8 relates to dust controls and management actions. Conditions 14 and 17 relates to ambient air quality monitoring and exceedances. Conditions 26 and 27 relates to submitting an ambient air / dust assessment report and revise the DMP.

Risk events					Risk rating ¹	Applicant controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood			
Mining and processing of ore	Surface water and potentially contaminated stormwater runoff	Direct discharge to land potentially causing soil, surface water and groundwater contamination and sedimentation	Soil Surface water Groundwater	Refer to section 3.1.1, Table 3	C = Minor L = Unlikely Medium Risk	Yes	Condition 3 relates to diverting contaminated stormwater from site infrastructure and equipment and containing the stormwater for example in sumps. Condition 6 relates to the applicant taking reasonable and practicable measures to prevent stormwater run-off becoming contaminated by the premises' activities.	No additional regulatory controls.
Drying and classification of garnet concentrate in the DSP	Particulate emissions from the drying garnet concentrate	Air / wind dispersion potentially causing amenity / health impacts	Rural / residential properties located less than 2 km of premises Users of George Grey Drive and the Halfway Bay Camp		C = Minor L = Rare Low Risk	Yes	Condition 3 relates to the operational requirements for the infrastructure and equipment to adhere to within the Premises. Condition 7 relates to the requirements for emissions to air from the two baghouses location at the Dry Separation Plant.	No additional regulatory controls.
Rinsing of final garnet products	Disposal of saline wash water	Direct discharge to land potentially causing soil, surface water, groundwater contamination, and impact to vegetation health	Nearby vegetation including threatened and priority flora Soil Surface water Groundwater		C = Moderate L = Unlikely Medium Risk	Yes	Condition 3 relates to the operational requirements for the infrastructure and equipment to adhere to within the Premises. Condition 4 relates to the requirements for discharges to land from the rinsing of final garnet products.	No additional regulatory controls.
Use of the Process Water Pond, Turkey Nest, and Overflow Pond	Process water and decant supernatant water	Direct discharge / overtopping potentially causing surface water and groundwater contamination and impact to vegetation health	Nearby vegetation including threatened and priority flora Surface water Groundwater		C = Moderate L = Unlikely Medium Risk	Yes	Condition 3 relates to the operational requirements for the infrastructure and equipment to adhere to within the Premises.	No additional regulatory controls.
Stockpiling of HMC	Dust lift-off from stockpile(s)	Air / wind pathway potentially causing amenity / health impacts, degradation of surface water quality, impacts to water ecology / fauna and impacts to vegetation health	Rural / residential properties located less than 2 km of premises Users of George Grey Drive and the Halfway Bay Camp Nearby vegetation including threatened and priority flora Nearby aboriginal and heritage sites Utcha Well Nature Reserve Hutt Lagoon System Mappa Lake Subtropical and Temperate Coastal Saltmarsh Ocean Surface water		C = Moderate L = Possible Medium Risk	No	Condition 3 relates to the operational requirements for the infrastructure and equipment to adhere to within the Premises.	Conditions 8, 14, 17, 26, and 27 Refer to section 3.3 below for a detailed explanation of the additional regulatory controls imposed. Condition 8 relates to dust controls and management actions. Conditions 14 and 17 relates to ambient air quality monitoring and exceedances. Conditions 26 and 27 relates to submitting an ambient air / dust assessment report and revise the DMP.
	Seepage of water entrained within HMC	Through the base of the stockpile pad potentially causing soil, surface water and groundwater contamination, and impacts to vegetation health	Nearby vegetation including threatened and priority flora Soil Surface water Groundwater	C = Minor L = Rare Low Risk	Yes	Condition 3 relates to the operational requirements for the infrastructure and equipment to adhere to within the Premises. Condition 21 relates to ambient groundwater monitoring to identify changes to standing water level, water quality changes, and potential groundwater contamination.	No additional regulatory controls.	

Risk events					Risk rating ¹	Applicant controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood			
Stockpiling of HMC	Surface water and potentially contaminated stormwater runoff	Direct discharge to land potentially causing soil, surface water and groundwater contamination, and impacts to vegetation health	Nearby vegetation including threatened and priority flora Soil Surface water Groundwater	Refer to section 3.1.1, Table 3	C = Minor L = Rare Low Risk	Yes	Condition 3 relates to the operational requirements for the infrastructure and equipment to adhere to within the Premises.	No additional regulatory controls.
Stockpiling of sand tailings on the Sand Tailings Storage Area	Dust lift-off from stockpile(s)	Air / wind pathway potentially causing amenity / health impacts and impacts to vegetation health	Rural / residential properties located less than 2 km of premises Users of George Grey Drive and the Halfway Bay Camp Nearby vegetation including threatened and priority flora Nearby aboriginal and heritage sites Utcha Well Nature Reserve Hutt Lagoon System Mappa Lake Subtropical and Temperate Coastal Saltmarsh Ocean Surface water		C = Major L = Likely High Risk	No	Condition 3 relates to the operational requirements for the infrastructure and equipment to adhere to within the Premises.	Conditions 8, 14, 17, 26, and 27 Refer to section 3.3 below for a detailed explanation of the additional regulatory controls imposed. Condition 8 relates to dust controls and management actions. Conditions 14 and 17 relates to ambient air quality monitoring and exceedances. Conditions 26 and 27 relates to submitting an ambient air / dust assessment report and revise the DMP.
	Surface water and potentially contaminated stormwater runoff	Direct discharge to land potentially causing soil, surface water and groundwater contamination, and impacts to vegetation health	Nearby vegetation including threatened and priority flora Soil Surface water Groundwater		C = Minor L = Unlikely Medium Risk	Yes	Condition 3 relates to the operational requirements for site infrastructure and equipment. Condition 9 relates to dust control and management actions that will also reduce unnecessary surface water runoff.	No additional regulatory controls.
Disposal of sand tailings to the Mining Void (Menari Mine Pit)	Seepage of water entrained in the sand tails to groundwater	Infiltration through the base potentially causing soil and groundwater contamination and mounding, and impacts to vegetation health	Nearby vegetation including threatened and priority flora Soil Groundwater		C = Minor L = Unlikely Medium Risk	Yes	Condition 3 relates to the operational requirements for site infrastructure and equipment. Condition 21 relates to ambient groundwater monitoring to identify changes to standing water level, water quality changes, and potential groundwater contamination.	No additional regulatory controls.
	Rupture of pipeline causing mine tailings discharge to land	Direct discharge to land potentially causing surface water and groundwater contamination and impact to vegetation health	Nearby vegetation including threatened and priority flora Surface water Groundwater		C = Minor L = Rare Low Risk	Yes	Condition 3 has operational requirements for all pipelines within the premises that include maintaining secondary containment to hold any spills or leaks until the next routine inspection and daily visual inspections of possible leaks and spills.	No additional regulatory controls.

Risk events					Risk rating ¹	Applicant controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood			
Drying of clay slimes in Solar Drying Ponds	Seepage of water entrained in the clay slimes to groundwater	Through base of ponds potentially causing surface water and groundwater contamination and impact to vegetation health	Nearby vegetation including threatened and priority flora Soil Groundwater	Refer to section 3.1.1, Table 3	C = Slight L = Unlikely Low Risk	Yes	Condition 3 relates to the operational requirements for site infrastructure and equipment. Condition 4 relates to approved locations for clay slimes to be disposed within the premises. Condition 21 relates to ambient groundwater monitoring to identify changes to standing water level, water quality changes, and potential groundwater contamination.	No additional regulatory controls.
	Rupture of pipeline causing mine tailings discharge to land	Direct discharge to land potentially causing surface water and groundwater contamination and impact to vegetation health	Nearby vegetation including threatened and priority flora Surface water Groundwater		C = Minor L = Rare Low Risk	Yes	Condition 3 has operational requirements for all pipelines within the premises that include maintaining secondary containment to hold any spills or leaks until the next routine inspection and daily visual inspections of possible leaks and spills.	No additional regulatory controls.
	Dust lift-off from Solar Drying Ponds	Air / wind pathway potentially causing amenity / health impacts and impacts to vegetation health	Rural / residential properties located less than 2 km of premises Users of George Grey Drive and the Halfway Bay Camp Nearby vegetation including threatened and priority flora Nearby aboriginal and heritage sites Utcha Well Nature Reserve Hutt Lagoon System Mappa Lake Subtropical and Temperate Coastal Saltmarsh Ocean Surface water		C = Minor L = Possible Medium Risk	No	Condition 3 relates to the operational requirements for the infrastructure and equipment to adhere to within the Premises.	Conditions 8, 14, 17, 26, and 27 Refer to section 3.3 below for a detailed explanation of the additional regulatory controls imposed. Condition 8 relates to dust controls and management actions. Conditions 14 and 17 relates to ambient air quality monitoring and exceedances. Conditions 26 and 27 relates to submitting an ambient air / dust assessment report and revise the DMP.
	Tailings water	Direct discharge / overtopping potentially causing surface water and groundwater contamination and impact to vegetation health	Nearby vegetation including threatened and priority flora Surface water Groundwater		C = Minor L = Unlikely Medium Risk	Yes	Condition 3 relates to the operational requirements for the infrastructure and equipment to adhere to within the Premises.	No additional regulatory controls.
Stockpiles of topsoil and overburden	Dust-lift off from stockpiles	Air / wind pathway potentially causing amenity / health impacts and impacts to vegetation health	Rural / residential properties located less than 2 km of premises Users of George Grey Drive and the Halfway Bay Camp Nearby vegetation including threatened and priority flora Nearby aboriginal and heritage sites Utcha Well Nature Reserve Hutt Lagoon System Mappa Lake Subtropical and Temperate Coastal Saltmarsh Ocean and Surface water	C = Moderate L = Possible Medium Risk	No	Condition 3 relates to the operational requirements for the infrastructure and equipment to adhere to within the Premises.	Conditions 8, 14, 17, 26, and 27 Refer to section 3.3 below for a detailed explanation of the additional regulatory controls imposed. Condition 8 relates to dust controls and management actions. Conditions 14 and 17 relates to ambient air quality monitoring and exceedances. Conditions 26 and 27 relates to submitting an ambient air / dust assessment report and revise the DMP.	

Risk events					Risk rating ¹	Applicant controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood			
Mining and processing operations including use of diesel generators, fuel storage containment	Hydrocarbon spills and leaks	Direct discharge to land and overland flow potentially causing soil and groundwater contamination, and impacts to vegetation health	Nearby vegetation including threatened and priority flora Soil Groundwater		C = Moderate L = Possible Medium Risk	Yes	Condition 3 relates to the operational requirements for the infrastructure and equipment to adhere to within the Premises.	Condition 5 relates to immediate removal and disposal off-site of any liquid resulting from spills or leaks of chemicals including fuel, oil, other hydrocarbons or other collected waste material. General provisions of the <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i> applies.

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

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

3.3 Regulatory controls

3.3.1 Dust emissions

Technical advice was sought from experts in the department's Air Quality Branch (AQB) on the adequacy of the *Australian Garnet Dust Management Plan* (DMP) and the dust monitoring undertaken at the Premises.

AQB noted that the DMP broadly meets the requirements set out in the document, *A guideline for managing the impacts of dust and associated contaminants from land development sites, contaminated sites remediation and other related activities* (Department of Environment and Conservation [DEC] 2011) (Dust Guideline). AQB noted that the Dust Guideline provides general guidance on dust controls and that the applicant is responsible for dust controls imposed based on their assessment of site-specific features of the operational activities. The dust control measures outlined in the DMP and the subsequent *Dust Management Actions* under Appendix 2 of the DMP are standard of those applied in mining activities.

AQB reviewed the suitability of the dust monitoring sites, their location and the dust monitoring data provided as part of the licence application supporting documentation. AQB noted that the locations of the dust monitoring sites M1, M2, and M3, align with the recommendations provided by Environmental Technologies and Analytics (ETA) 2023 technical note and consider the methodology to be reasonable for boundary monitoring purposes.

The boundary monitoring undertaken is primarily for dust management purposes using a non-standard method. The monitoring data, of which AQB noted limitations to the data, may give an indication of the ambient air quality with respect to public health standards, but does not provide data to assess potential impacts on nearby receptors. AQB has recommended that the DMP is revised to include regular data review including a focus on worst-case summer conditions. Furthermore, the review should include an assessment of data collection efficiency, identification of trends and quality assurance and quality control (QA/QC) checks recommended by ETA's (2023) technical note.

The technical advice and following considerations are summarised below:

- The DMP should include specifications of the particle and meteorological monitoring instrument(s) used as well as calibration, maintenance, and operational requirements.
- The table referring to the location and purpose of the monitoring sites, should be updated for M2 that serves as a downwind monitor during westerly winds, not for south to south-easterly winds as currently stated in the table.
- AQB notes that the Trigger Action Response Plan (TARP) framework in the DMP is preliminary and will be revised once six months of ambient monitoring data is collected and form appropriate quantitative trigger values. AQB recommends the following improvements to the TARP framework:
 - wind condition triggers – the sensitive receptor wind arcs and 'poor dispersion conditions' should be defined;
 - ambient PM₁₀ monitoring trigger value of 200µg/m³ – the TARP should include the procedure for identifying exceedances attributable to operational activities; and
 - the term 'instantaneous' in Table 4 of the DMP should be replaced with '10-minute'.

The department has included these considerations as licence conditions 8, 14, 17, 26, and 27.

3.3.2 Noise emissions

The applicant has previously provided the department with the *Australian Garnet Noise Management Plan* (NMP) and Environmental Noise Assessment Reports (ENAR) as part of the original works approval application (W6214/2019/1) and withdrawn licence application (L9390/2023/1). Technical experts within the department's Environmental Noise Branch (ENB) reviewed these documents and provided recommendations to the applicant for improvements to an updated Noise Management Plan and updated ENAR.

As part of this licence application, the applicant provided an updated NMP and updated ENAR prepared by Herring Storer Acoustics (HSA) (2024). The department's ENB undertook a technical review of these updated documents, including HSA's comments to the department's reviews on previous noise reports/plans.

ENB noted that HSA undertook continuous noise monitoring at three locations around the mine site since August 2023. ENB noted that two of these three continuous monitoring locations are different from what were used previously - one was a comparable location for the residence to the east (Residence Logger), and one was to the west of the mine operation (Hill West Logger). The third location was the previous Logger 1 located to the east (Laydown Logger). ENB indicated that these locations seem appropriate for assessing the noise compliance and noted that the Residence Logger was about the same distance to the mining operations as the closest residence.

Noise emission levels from three operational scenarios were modelled with the updated noise modelling and compared with the measured data at three continuous monitoring locations:

1. Night-time with the operation of processing plant, booster pumps and trommel;
2. Daytime with mining operations only; and
3. Daytime with all sources (processing and mining).

The modelled results indicated that operational noise complies with the assigned noise levels in the *Environmental Protection (Noise) Regulations 1997* (Noise Regulations) in all three operational scenarios, which ENB supports.

HSA also concluded that the noise levels complied with the assigned noise levels for day and night periods for all operating conditions, implying that noise from the full operation (mining plus processing) also complies with the night-time assigned noise level. However, the above scenarios do not include night-time mining operations, only processing operations. It is assumed that no noise from night-time mining operation has been measured and assessed. Therefore, conclusions made from daytime mining noise measurement may not be applicable to the night-time situation.

Before the concerns over the night-time mining operation are properly addressed, the following recommendations were made:

- the applicant should limit mining operations to 7:00 am to 7:00 pm Monday to Saturday; and
- the applicant should limit night-time operations to processing operations only.

The department has included these recommendations through licence conditions 2, 15, 18, 22, 23, 24, and 25. This risk assessment also considered the applicant's proposed controls, distance and sensitivity of noise, and compliance with the Noise Regulations through the conditions imposed on this licence.

4. Other departmental advice and considerations

The department recommends that the applicant seeks advice from the Department of Health (DoH), which their primary responsibility is the assessment of public health issues, including Health Risk Assessment, in relation to air pollution and potential impacts of respirable crystalline silica in ambient air and to offsite receptors.

The Delegated Officer suggests that the applicant continues open lines of communication with Resident 1 during ongoing operations, allowing residents to lodge concerns or complaints directly with the applicant and enabling management strategies to be implemented immediately, to reduce or avoid impacts.

The department has also considered the observations and information obtained from the compliance site inspection (referred to in section 2.2.1) at the premises and all the stakeholder comments in Appendix 1 when forming the conditions of this licence.

5. Consultation

Table 8 provides a summary of the consultation undertaken by the department.

Table 8: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 12 June 2024.	No comments were received.	N/A
Shire of Northampton advised of the proposal on 12 June 2024 and follow up email correspondence on 08 August 2024	No comments were received.	N/A
Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) advised of the proposal on 12 June 2024	Refer to Appendix 1 for the comments received.	Refer to Appendix 1 for the department's response.
Department of Planning, Land, and Heritage (DPLH) advised of the proposal on 12 June 2024	Refer to Appendix 1 for the comments received.	Refer to Appendix 1 for the department's response.
Main Roads of Western Australia (Main Roads) advised of the proposal on 12 June 2024	Refer to Appendix 1 for the comments received.	Refer to Appendix 1 for the department's response.
Yamatji Southern Region Corporation (YSRC) advised of the proposal on 12 June 2024	Refer to Appendix 1 for the comments received.	Refer to Appendix 1 for the department's response.

Consultation method	Comments received	Department response
Department of Biodiversity, Conservation, and Attractions (DBCA) advised of the proposal on 12 June 2024	Refer to Appendix 1 for the comments received.	Refer to Appendix 1 for the department's response.
Resident 1 letter sent about proposal on 17 June 2024 and advised via email on 05 July 2024	Refer to Appendix 1 for the comments received.	Refer to Appendix 1 for the department's response.
Resident 3 letter sent about proposal on 12 June 2024	No comments were received	N/A
Applicant was provided with draft documents on 2 October 2024	Refer to Appendix 2 for the comments received.	Refer to Appendix 2 for the department's response.

6. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

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2. Department of Environment and Conservation (DEC) 2011, *A guideline for managing the impacts of dust and associated contaminants from land development sites, contaminated sites remediation and other related activities*, Perth, Western Australia, Available at: <https://www.wa.gov.au/government/publications/guideline-managing-the-impacts-of-dust-and-associated-contaminants-land-development-sites-contaminated-sites-remediation-and-other-related-activities>
3. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia. Available at: <https://www.wa.gov.au/service/building-utilities-and-essential-services/integrated-essential-services/dwer-regulatory-documents>
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5. DWER 2020a, *Guideline: Risk Assessments*, Perth, Western Australia. Available at: <https://www.wa.gov.au/service/building-utilities-and-essential-services/integrated-essential-services/dwer-regulatory-documents>
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7. Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) 2013. *Conservation Advice for Subtropical and Temperate Coastal Saltmarsh*. Canberra: Department of Sustainability, Environment, Water, Population and Communities. Available from: <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/118-conservation-advice.pdf>. In effect under the EPBC Act from 10 August 2013.
8. Environmental Protection Authority (EPA) 2005. *Guidance Statement No. 3: Separation Distances between Industrial and Sensitive Land Uses*, Perth, Western Australia. Available at: <https://www.epa.wa.gov.au/guidelines-procedures>
9. Environmental Technologies and Analytics (ETA) 2023, *Review of Dust Management – Lucky Bay Operation*, Perth Western Australia. Unpublished report prepared by ETA for Australian Garnet Pty Ltd.
10. Herring Storer Acoustics (HSA) 2024, *Australian Garnet Pty Ltd – Lucky Bay Garnet Mine Project Commissioning – Environmental Noise Assessment*, Como, Western Australia. Unpublished report prepared by HAS for Australian Garnet Pty Ltd.
11. Onshore Environmental 2022a. *Lucky Bay Garnet Project Detailed Vertebrate Fauna Survey*, Yallingup, Western Australia. Unpublished report prepared by Onshore Environmental for Australian Garnet Pty Ltd.
12. Onshore Environmental 2022b. *Lucky Bay Garnet Project Detailed Flora and Vegetation Survey*, Yallingup, Western Australia. Unpublished report prepared by Onshore Environmental for Australian Garnet Pty Ltd.
13. URS 2010. *Lucky Bay Garnet Project, Groundwater Supplies – Water Bore Installation and Aquifer Testing Phase, January 2010*. Unpublished report prepared by URS for Australian Garnet Pty Ltd.

Appendix 1: Summary of stakeholder comments on licence application

Stakeholder	Summary of stakeholder's comment	Department's response
DEMIRS	<p>Inconsistencies with the current Mining Proposal:</p> <ol style="list-style-type: none"> DEMIRS identified that in the southern portion of the premises, topsoil stockpiling, along with a low-grade ore stockpile in the 'Site Layout Map' (Figure 2, Schedule 1 map) differs in location and extent of that in the current Mining Proposal (MP). DEMIRS identified that in the MP, the site layout displays a laydown area, borrow pits and plant site as opposed to the licence application where infrastructure has not been identified. DEMIRS has noted that the licence application refers to a 'Sand Tailings Storage Area' that has not been approved in the MP. In addition, DEMIRS notes that 0.07 ha was approved for use as an evaporation pond on M70/1280 and that any proposed changes will need to be reflected in a revised MP. DEMIRS notes further discrepancies between the MP and the licence application in terms of the infrastructure, including topsoil stockpiles and the 'Solar Drying Pond Area'. <p>Activities within tenure:</p> <ol style="list-style-type: none"> DEMIRS has noted stockpiling of topsoil in an area where there is not appropriate tenure. It is noted that G70/269 has an approved purpose of a 'tailings and waste storage facility', however topsoil stockpiles have been proposed on this tenement. It is unclear what material is being stockpiled but it will need to be in accordance with the purpose of a 'tailings and waste storage facility'. Tenure L70/215 has an approved purpose of a 'road', however topsoil stockpiles have been proposed on this tenement. <p>Non-compliances:</p> <ol style="list-style-type: none"> Previous non-compliance with tenement condition relating to the placement of sand tailings on Miscellaneous Licence L70/178 outside of <i>Mining Act 1978</i> (Mining Act) approvals. Noting this activity was not listed as a defined purpose for this tenement. Based on aerial imagery, it appears that the proposed 'Solar Drying Pond Area' to the north of the main plant site has been constructed without Mining Act approval. <p>DEMIRS states the following;</p> <p><i>"Considering the above, the proponent should be made aware of their obligations under the Mining Act and in the following circumstances a revised Mining Proposal should be submitted to DEMIRS for assessment and approval:</i></p> <ul style="list-style-type: none"> <i>When any disturbance is proposed outside the approved disturbance envelope;</i> <i>The characteristics of any 'Key Mine Activities' detailed in the Mining Proposal need to be altered;</i> <i>A new activity, or change to an activity type, beyond that listed in the 'Activity Details' section of the Mining Proposal is proposed; or</i> <i>An increase in area is required for any key mine activity or total activity area on any tenement."</i> 	<ol style="list-style-type: none"> The department notes the difference in location and extent of the stockpiling. The applicant is required to obtain a revised MP which incorporates what is depicted in the licence's Schedule 1 maps: Figure 2: Map of the site layout. The granting of a Part V EP Act approval does not remove the applicant's obligations under the Mining Act. The department notes the difference identified in the licence's Schedule 1 maps: Figure 2: Map of the site layout, and that the applicant requires a revised MP to include these changes. The department notes that the terminology differs between the current MP, the licence application and existing works approval W6214/2019/1, where the 'Sand Tailings Storage Area' is referred to as 'Waste Dump (Class 2)' in the MP. Refer to the department's responses for points 1 and 2. The department acknowledges that tenement G70/269 is not part of the prescribed premises and that no prescribed activities are permitted to occur within this tenement. The applicant is to ensure that all relevant approvals are sought for any activities within tenement G70/269 as identified by DEMIRS. The applicant is to ensure that all relevant approvals are sought for any proposed activities and uses for tenement L70/215 as identified by DEMIRS. Refer to the department's response for point 5. As previously mentioned, the terminology differs between the current MP, the licence application and existing works approval W6214/2019/1, where the 'Solar Drying Pond Area' is referred to as 'Tailings or residue storage facility (Class 2)' in the MP.
DPLH	<p>DPLH undertook a review of the Register of Places and Objects as well as the DPLH Aboriginal Heritage Database for the following mining tenements; M70/1280, G70/253, L70/215, L70/134, and L70/178. It was identified that the subject area, M70/1280 intersects with Aboriginal heritage place 'Balline Isolated Artefacts' (ID 29013).</p> <p>DPLH advises approvals under the <i>Aboriginal Heritage Act 1972</i> (AHA) are required and to refer to the DPLH website at Aboriginal Heritage Approvals (www.wa.gov.au) for information on 'Land use under the <i>Aboriginal Heritage Act 1972</i>' for the types of approvals available under the AHA that the applicant can apply for.</p> <p>DPLH noted that the supporting documents made reference to the Aboriginal heritage place 'Balline Isolated Artefacts' (ID 29013) and indicated that the site will not be impacted by the works. The applicant will need to submit a shapefile indicating the actual works area to the Aboriginal Heritage Conservation Team for further advice.</p> <p>DPLH also note that the supporting documents provide reference to stakeholder engagement with Traditional Owners, Hutt River and Nanda people. DPLH encourages additional engagement with Yamatji Nation to ensure the conservation of Aboriginal heritage.</p>	<p>The department notes DPLH's response.</p> <p>The applicant is to ensure that all relevant approvals and engagement are sought as identified by DPLH. The granting of a Part V EP Act approval does not remove the applicant's obligations under the AHA.</p> <p>The department sought direct comment from YSRC as part of this assessment process which is documented below.</p>

Stakeholder	Summary of stakeholder's comment	Department's response
Main Roads	<p>Main Roads has advised that a complaint was received on 8 August 2023 regarding dust affecting the visibility on George Grey Drive that was coming from the Lucky Bay Garnet Project. It was noted that some traffic came to a standstill during this event.</p> <p>Main Roads referred this complaint to Australian Garnet on the same day with no response received from the proponent.</p>	<p>The department notes this complaint.</p> <p>Impacts to users of George Grey Drive from premises dust emissions have been considered in Section 3.1.1 and 3.3.1 with conditions 3 and 8 included to mitigate dust impacts.</p> <p>The licence has a requirement for the applicant to record all complaints related to the prescribed premises' activities under condition 26 and also report a summary of these complaints and any actions undertaken annually as per condition 30, Table 12 requirements.</p> <p>Furthermore, conditions 3, 7, 8, 14, 17, 26 and 27 of the licence have been imposed for dust control, management and monitoring within the prescribed premises boundary.</p>
YSRC	<p>YSRC has provided the following considerations for the applicant:</p> <ul style="list-style-type: none"> • Impacts to the four aboriginal heritage sites; • Ongoing consultation and engagement with YSRC regarding heritage and environmental compliance; • Environmental impacts (dust, noise, and contaminated stormwater) from the mineral sand mining and processing; and • Impacts to the Yamatji Land Estate and social, cultural, and economic benefit that is in proximity to the Lucky Bay Garnet Project. 	<p>The department is not able to assess matters related to heritage or native title under Part V EP Act assessments, as these matters are assessed under other legislative frameworks. The applicant is required to obtain all relevant approvals for aboriginal heritage and the granting of a Part V EP Act approval does not remove the applicant's obligations under the AHA.</p> <p>The department acknowledges YSRC's role, significant cultural knowledge and connection to Country and living waters such as rivers, springs, soaks, jilas, and saltwater. The department is committed to listening to, learning from, and building stronger partnerships with Traditional Owners in the management of our precious environment and water resources.</p> <p>Our Reconciliation Action Plan is a journey and a collaborative partnership with Reconciliation Australia. It provides a framework for us to continuously develop and strengthen our reconciliation commitments and ensure we are genuinely inclusive, supporting and advocating for generational change. Other strategies and government priority reforms and targets that drive our work include our Aboriginal Empowerment Strategy, cultural heritage, Native Title settlements and our long-term strategic workforce and diversity planning.</p> <p>Although the department is not able to share information related to any open compliance investigations, the department is committed to engagement with YSRC where matters related to this project will, or may, have an impact to YSRC's social, cultural or environmental values.</p> <p>The department has undertaken a risk assessment that includes potential impacts to nearby human sensitive receptors which is provided in section 3.2, Table 7. Additional regulatory controls related to noise and dust have been discussed in more detail under section 3.3</p> <p>Furthermore, conditions 3, 7, 8, 14, 17, 26 and 27 of the licence have been imposed for dust control, management and monitoring within the prescribed premises boundary. Conditions 3 and 9 also relate to the control and management of stormwater run-off for the premises.</p> <p>Conditions 2, 3, 9, 15, 18, 22, 23, 24, and 25 of the licence have been imposed for noise control, management and monitoring for the premises.</p>
DBCA	<p>DBCA stated that <i>"the proposed operations are in close proximity to Utcha Well Nature Reserve, vested with the Conservation and Parks Commission and managed by DBCA under the CALM Act for the conservation of flora and fauna. DBCA has observed declines in vegetation health and condition in the general area, potentially linked to dust deposition (diffuse source) and groundwater abstraction from mining activities, particularly noticeable during dry summer months. Mining activities in the area also have the potential to spread weeds if not managed appropriately."</i></p> <p>DBCA also noted that the threatened orchid, <i>Caladenia bryceana</i> subsp. <i>cracens</i> has been recorded near the prescribed premises boundary. There is the potential for the threatened orchid's habitat to occur within the prescribed premises, however, a targeted survey within the appropriate flowering time is required to determine if the potential habitat in the prescribed premises may support a location population of this orchid.</p> <p>DBCA recommended a review of Australian Garnet's management on dust, groundwater, and weeds to avoid any environment risk or impact from their activities on sensitive receptors.</p>	<p>Decline in vegetation health and condition near the Utcha Well Nature Reserve and dust management</p> <p>In works approval W6214/2019/1, DBCA indicated that there was dust-related damage to the restricted Beard's Vegetation Association 'Tall Forest <i>Acacia rostellifera</i>'. The department's response at the time stated the following <i>"Conditions will be applied on the Licence to require operational dust management controls consistent with industry standard practices and the Applicant's dust management plan."</i></p> <p>Conditions 3, 7, 8, 14, 17, 26 and 27 of the licence have been imposed for dust control, management and monitoring within the prescribed premises boundary. Additional regulatory controls related to dust have been discussed in more detail under section 3.3.</p> <p>Threatened orchid</p> <p>The department has undertaken a risk assessment that includes potential impacts to nearby sensitive receptors which is provided in section 3.2, Table 7.</p> <p>The applicant is to ensure engagement with DBCA where recommendations have been provided, i.e. undertake a targeted orchid survey.</p> <p>Dust and groundwater management</p> <p>As part of the licence application, the Australian Garnet's Dust Management Plan has been reviewed and updated.</p>

Stakeholder	Summary of stakeholder's comment	Department's response
		<p>The department has undertaken a risk assessment that includes potential impacts to nearby sensitive receptors which is provided in section 3.2, Table 7. Additional regulatory controls related to dust have been discussed in more detail under section 3.3.</p> <p>Furthermore, conditions 3, 7, 8, 14, 17, 26 and 27 of the licence have been imposed for dust control, management and monitoring within the prescribed premises boundary.</p> <p>Current conditions 20 and 21 are in place for monitoring ambient groundwater quality and groundwater mounding with a set trigger for standing water level to implement groundwater recovery to limit any potential mounding effects to within 1 m of natural ground level.</p> <p>The premises also has a groundwater licence GWL 170860(6) and Groundwater Operating Strategy for the abstraction of water for authorised activities specified in the groundwater licence. It should be noted vegetation monitoring on groundwater dependent vegetation (vegetation health and condition assessments) is being undertaken as per the requirements under the Groundwater Operating Strategy under the RIWI Act. No vegetation monitoring has been considered in this licence as it is already regulated under separate approvals.</p> <p>Weed management</p> <p>Clearing Permits CPS 3891/5 and CPS 9057 under Part V of the EP Act states the following regarding weed control:</p> <p><i>"When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of weeds:</i></p> <p><i>(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;</i></p> <p><i>(b) ensure that no known weed-affected soil, mulch, fill or other material is brought into the area to be cleared; and</i></p> <p><i>(c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared."</i></p> <p>Furthermore, under the Mining Act, the tenement conditions states the following:</p> <p><i>"All reasonable and practicable measures will be taken to prevent the spread of dieback and weeds."</i></p> <p>As weed management has been considered and is regulated under separate approvals, no controls for weed management have been included in the licence.</p>
Receptor 1	<p>Concerns of no communication on previous applications and incorrect information provided in the works approval application for W6214/2019/1 and this licence application.</p> <p>Submitter has noted that the works approval application stated that no surface water bodies other than the Indian Ocean that lies 1.8 km west.</p> <p>Submitter has indicated that historic applications used misleading information.</p> <p>Submitter was unaware of the 2014, 2015, 2016 applications or the approval process and even the wind farm.</p> <p>Concerns of the separation distance between the premises and sensitive receptors.</p> <p>Submitter has noted mining is within 3000 to 5000 m of their residence, the Lucky Bay campsite and Halfway Bay houses. Mining should cease as per the EPA separation distances between industrial and sensitive land uses, for mining of mineral sands and processing that produces hydrogen sulfide, sulfur dioxide, noise, dust being silicon dioxide and odour.</p> <p>Submitter has queried why the buffer zone between their property and the mining operations is a road.</p> <p>Several sensitive receptors not included in the Dust Management Plan.</p>	<p>The department uses a risk-based approach to assess an application as per the department's <i>Guideline – Industry Regulation Guide to Licensing</i> (DWER 2019). In addition, information provided with the licence application is reviewed and verified by the department during the validation stage and if required in the assessment stage, ensuring that the most up-to-date and accurate information is used in the department's assessment.</p> <p>Under Section 2.2.1 the department indicated that the previous application information differed to what was observed during a site inspection on 12 September 2023.</p> <p>In reference to the wind farm (<i>Australian Garnet Windfarm Proposal Reg ID 58732</i>), wind farms are managed and regulated by DEMIRS under the Mining Act and therefore are not within the scope of this assessment.</p> <p>The department encourages applicants to undertake stakeholder engagement and consultation for their applications, however there is no legal requirement for them to do so. The department undertakes its own community consultation process and will seek direct comment from known stakeholders.</p> <p>The EPA's <i>Guidance Statement No. 3: Separation Distances between Industrial and Sensitive Land Uses</i> provides generic separation distances between industrial and sensitive land uses to avoid conflicts between these land uses.</p> <p>Under Appendix 1 of the document, mineral sand processing and mining has potential impacts related to emissions in the form of gaseous (hydrogen sulfide), noise, dust and odour. The generic buffer distance is ranging from 1000 to 2000 m.</p> <p>The document states that <i>"the distances outlined in Appendix 1 are not intended to be absolute separation distances, rather they are a default distance for the purposes of:</i></p> <ul style="list-style-type: none"> <i>identifying the need for specific separation distance or buffer definition studies; and</i>

Stakeholder	Summary of stakeholder's comment	Department's response
		<ul style="list-style-type: none"> providing general guidance on separation distances in the absence of site-specific technical studies.” <p>This document is used as guidance when considering key emissions and whether more detailed information, such as management plans, modelling etc., is provided to support an application. The recommendations in this document are not statutory limits on distance and the department will consider the risks posed to sensitive receptors in consideration of distance to emission sources. The department uses a risk-based approach to assess and application as per the department's <i>Guideline – Industry Regulation Guide to Licensing</i> (DWER 2019).</p> <p>Section 3 of this decision report assesses the risks of emissions from prescribed premises and identifies the potential source, pathway, and impact to receptors in accordance with the <i>Guideline: Risk Assessments</i> (DWER 2020a). Table 7 provides a risk assessment of potential emissions and discharges from the premises with reference to the controls imposed and conditions on the licence to manage and regulate the potential emissions and discharges.</p> <p>Section 3.1.2 in the decision report provides a table of the potential sensitive receptors that have been identified and may be impacted as a result of activities upon or emissions and discharges from the premises.</p>
	<p>Concerns on the information provided for clearing and water permits and notes that on the application form that the applicant marked 'No' for the following part 6.5 'Have you applied, or do you intend to apply for: 1. a licence or amendment to a licence to take water (surface water or groundwater)'.</p> <p>Submitter has noted the aquifer in this region is unable to sustain the water extraction of the Lucky Bay Garnet Project, the Port Gregory Garnet Mine, all proposed future garnet mines, 200 offshore wind turbines and an ammonia and hydrogen plant.</p>	<p>Groundwater abstraction / allocation is managed and regulated through a groundwater licence under the RIWI Act and provides a water allocation to be used on the premises for a specific purpose.</p> <p>The application to increase the water allocation was previously applied for and is already under assessment by the department.</p> <p>The department undertakes its own verification of application forms and supporting information provided. The department will use its own and external resources to determine if any other approvals are required, have been applied for, or have been granted in relation to a project.</p>
	<p>Submitter has queried the company on the 2014 works application and the company on the current works approval.</p>	<p>Australian Garnet Pty Ltd is the applicant that has submitted this licence application as stated under section 2.2 of this decision report and is the works approval holder for the current works approval W6214/2019/1.</p> <p>The department is aware that Altura Mining Pty Ltd was the previous occupier for this premises and this is detailed in Section 2.3 of the decision report, which summarises other regulatory approvals and the works approval history.</p>
	<p>Works approval history</p> <p>Submitter has requested evidence of the information around the background of the previous works approvals to be informed properly of the projects development.</p> <p>Submitter has advised that the only communication received was that the companies involved had no finances to proceed and that there has been no communication relating to applications from Australian Garnet only of recent.</p>	<p>On 21 June 2023 the department provided this submitter with the original works approval application form and supporting documentation for W6214/2019/1. This was provided by email when seeking comment on during the previous licence application (L9390/2023/1 – withdrawn). In addition, the email included an attachment of the department's original letter to the submitter dated 6 February 2016, informing them of the works approval (W6214/2019/1) application, and requesting them to provide comment. The department has been informed that the submitter did not receive the letter that was sent via post.</p> <p>This licence provides the most current information on the Lucky Bay Garnet Project in terms of project developments, processing and mining operation activities. Any changes to the premises in terms of project development and prescribed premises activities will require the applicant to submit future licence amendments and/or works approvals to the department for assessment.</p> <p>The department encourages applicants to undertake stakeholder engagement and consultation for their applications, however there is no legal requirement for them to do so. The department undertakes its own community consultation process and will seek direct comment from known stakeholders. This submitter has been identified as a stakeholder and the department will seek comments from them on future applications related to this project.</p>
	<p>Works approval compliance</p> <p>Submitter has noted that the works approval holder was non-compliance under W6214/2019/1.</p> <p>Submitter has also noted that under part 4.2 of the licence application form the time-limited operations field has 'Not applicable'.</p>	<p>Section 2.2.2 of the decision report provides a summary and table of compliance for the items of infrastructure constructed under the works approval W6214/2019/1. Compliance was met for the construction and commissioning of the items of infrastructure on the premises.</p> <p>Non-compliances related to conditions on the works approval observed during the site inspection on 12 September 2023 has been investigated by the department's Compliance and Enforcement Branch (now named Assurance Branch) and had engaged with the works approval holder to address the issues and non-compliances identified. In addition, a Prevention Notice detailing dust management controls and timeframes for implementation was provided to the works approval holder and these controls have been included in this licence as conditions.</p> <p>Under the application form, time limited operation activities relate to a works approval application, thus the applicant stated 'N/A' in this field. For a licence application, an applicant is to provide details of 'operations</p>

Stakeholder	Summary of stakeholder's comment	Department's response
		<p>activities' of which the applicant has by referring to the supporting documentation provided with the licence application.</p> <p>On 20 November 2023, the Assurance Branch provided a letter to the submitter outlining their concerns and providing information relating to approval documents – distance to residence, noise, dust, diesel spill, groundwater and ongoing regulatory approach.</p>
	<p>Previous licence application</p> <p>Submitter notes that the previous licence application was withdrawn based on the outstanding information and compliance inspection findings and observations that were not what was previously advertised and should be enough evidence to show that the projected should be halted.</p>	<p>As noted above, non-compliances related to conditions on the works approval observed during the site inspection on 12 September 2023 has been investigated by the department's Compliance and Enforcement Branch (now named Assurance Branch) and had engaged with the works approval holder to address the issues and non-compliances identified.</p> <p>Under Section 2.2.1 the department indicated that the previous application information differed to what was observed during a site inspection on 12 September 2023. The department requested that upon resubmission of the licence application, updated information was to be provided reflecting actual site operations and infrastructure, to allow for the original risk assessment under the works approval to be reviewed and assessed.</p> <p>The licence includes existing controls from the works approval W6214/2019/1 as well as additional controls and conditions based on the department's technical advice, stakeholder comments, reviewed risk assessment and supporting documentation provided with the licence application.</p>
	<p>Current operational activities relating to the mine site and groundwater table with concern of mining intersecting the groundwater table.</p>	<p>W6214/2019/1 states that <i>"the applicant has advised that groundwater intersects some limited areas of the deposit, however these are only small in size and will be excluded from mining, to avoid the requirement for dewatering."</i></p> <p>Under section 2.4 the mining and processing operations have indicated that the maximum pit depth will be to 45 m, with target sands around 19 m depth, with mining not intersecting the groundwater table.</p> <p>Furthermore, the Mining Proposal states that <i>"the Lucky Bay Garnet Mine will include open pit, above-groundwater mineral sand mining. Target sands are relatively shallow at an average depth of approximately 19 m below ground level although the pit depth varies according to the position over the two-crest dune system with the maximum pit depth of 51 m under the eastern dune crest. By design, mining will not intersect the watertable, which is located mostly below the basement zone of the resource. In addition, due to the high hydraulic conductivity of the ore and surrounding landform, it is expected that only negligible volumes of rainfall runoff will be captured in mining voids."</i></p>
	<p>Concerns about the high content of silica in the mineral sands and the risk of silica dust including dust lift off from the drying of slimes.</p> <p>Queries related to dust composition, the occupational health monitoring undertaken of employees.</p> <p>Concerns of dust and the impacts</p> <p>Management of dust-lift off from solar drying ponds and excavation of dried slimes</p>	<p>The department sought technical advice from the department's Air Quality Branch and the advice is detailed under section 3.3.1 of this decision report.</p> <p>Upon the advice from the Air Quality Branch, the revised Dust Management Plan, ambient air quality monitoring, and concerns from nearby receptor, additional regulatory controls have been imposed on the licence.</p> <p>Operation of the solar drying ponds and slimes are detailed in section 2.4 – Infrastructure and operational aspects, section 3.1, Table 5 – Proposed applicant controls, and section 3.2, Table 7 – Risk assessment of potential emissions and discharges from the premises during operation.</p> <p>Conditions 3, 7, 8, 14, 17, 26 and 27 of the licence have been imposed for dust control, management and monitoring within the prescribed premises boundary.</p> <p>Occupational health of employees is not regulated by the department. These matters are regulated by DEMIRS, who have their own approvals and monitoring frameworks for worker's health and safety,</p>
	<p>Querying how much water is used for the height reduction program for the Sand Tailings Storage Area and how long it will take to reduce the height to the approved 10 m.</p>	<p>Groundwater abstraction / allocation is managed and regulated through a groundwater licence under the RIWI Act and provides a specific use for water used on the premises, including water use for the height reduction program.</p> <p>The Department's Assurance Branch was advised on 21 August 2024 that the height reduction program is complete, where the Sand Tailings Storage Area is below the 10 m height limit.</p>
	<p>Stormwater management – submitter is concerned that the calculations for the ARI events are incorrect.</p>	<p>ARI events within the licence application supporting documentation have been obtained from the current Mining Proposal Reg ID 102866(2) of which surface hydrology was assessed and reported by URS (2010). Further information is provided under section 8.8.2 – Surface hydrology of the Mining Proposal.</p> <p>Conditions 3 and 9 also relate to the control and management of stormwater run-off for the premises.</p>

Stakeholder	Summary of stakeholder's comment	Department's response
	Diesel spill event concerns	<p>A diesel spill that was reported to the department's Pollution Watch (now known as Environment Watch) and has been investigated and reported by the department's Contaminated Site Branch as required under the <i>Contaminated Sites Act 2003</i>.</p> <p>Hydrocarbon leaks and spills are managed as per Australian Garnet's <i>Hydrocarbon and Spill Management Procedure</i> and the general provisions of the <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i> applies.</p> <p>Condition 5 has been included on the licence to mitigate risk of diesel spills at the premises.</p>
	Concerns over the proposed upgrades and improvements detailed in section 2.5 of the Licence Application Supporting Document.	As stated in section 2.5, the proposed upgrades and improvements will be provided in an updated Environmental Compliance Report in accordance with conditions 2 and 3 of works approval W6214/2019/1, that will be submitted to the department for a compliance assessment.
	Concerns for the potential of acid sulphate soils	<p>Acid sulphate soils were assessed during the works approval W6214/2019/1 and determined that "<i>mining activities will not occur below the water table, and the high carbonate content of the dune sand further lowers the risk of acid generation.</i>"</p> <p>Further information is provided in the current Mining Proposal Reg ID 102866(2) of which the soils have been deemed non-acid forming as detailed in section 8.4.1.</p>
	Concerns of the use of Geraldton Airport weather and climate data instead of other nearby weather stations (e.g. North Island) for the licence application	<p>Environmental Technologies & Analytics (ETA) 2023 prepared the 'Review of Dust Management – Lucky Bay Operation' report. ETA (2023) and states that '<i>as there is no Bureau of Meteorology (BoM) station within the immediate region that records continuous meteorological data the hourly averaged (from 1-minute data) wind speed and direction data was sourced from the BoM Automatic Weather Station (AWS) at the Geraldton Aero (Station ID 008315). The data from this station is expected to be broadly similar to that experienced at the Australian Garnet operations.</i>'</p> <p>It should be noted that although North Island weather station (Station ID 008290) is closer to the premises, weather and climate data will vary from the mainland due to geography and prevailing winds. For the basis of management plans, long-term climate data trends are considered as opposed to immediate weather forecasts. The department considers that data from the Geraldton Airport weather station is comparable for the premises.</p>
	Ambient air quality monitoring not undertaken during the works approval W6214/2019/1	<p>The department acknowledges that the ambient air quality monitoring noted in the Dust Management Plan was not undertaken from construction at the premises under works approval W6214/2019/1.</p> <p>As part of this licence application, the applicant has provided a revised Dust Management Plan and conditions 14 and 17 have been imposed on the licence for ambient air quality monitoring and to investigate, undertake management actions, record the cause of any air quality exceedance.</p>
	Concerns with ongoing noise emissions from the premises' operations and queries related to the installation of noise monitors and the noise monitoring undertaken	<p>The department sought technical advice from the department's Noise Branch and the advice is detailed under section 3.3.2 of this decision report.</p> <p>Upon the advice from Noise Branch, the revised noise assessment, noise monitoring, and concerns from nearby receptor, additional regulatory controls have been imposed on the licence.</p> <p>Conditions 2, 3, 9, 15, 18, 22, 23, 24, and 25 of the licence have been imposed for noise control, management and monitoring for the premises.</p>
	Concerns of impacts to the surrounding environment including the Hutt Lagoon System and Utcha Well Nature Reserve.	<p>Section 3.1.2 provides a summary of the potential human and environmental receptors that may be impacted by prescribed activities. These receptors were identified during the works approval W6214/2019/1 and have been revised as part of this licence application. Figure 2 also provides a map of siting and sensitive receptors. The Hutt Lagoon System and Utcha Well Nature Reserve have been considered as receptors.</p> <p>Section 3.2 provides a risk assessment of potential emissions and discharges from the premises during operation. For each identified emission source, a potential source-pathway and receptor linkage is identified and taking the applicant's proposed mitigation measures and controls, a final risk rating is determined. Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient.</p>

Appendix 2: Summary of applicant's comments on risk assessment and draft conditions

Item	Section / condition	Summary of applicant's comment	Department's response																																							
Department comments																																										
Licence																																										
1.	Infrastructure and equipment Condition 3 – Table 3	<p>Department requested licence holder to provide operational requirements for the Screening and Bagging Plant.</p> <p>Applicant: The proposed Operational Requirements for the SBP are:</p> <ul style="list-style-type: none"> • Must not exceed the design capacity of 47 tph • Located within an enclosed shed 	The department has included the operational requirements for the Screening and Bagging Plant.																																							
2.	Infrastructure and equipment Condition 3 – Table 3	<p>Department requested the storage capacity for the Process Water Pond.</p> <p>Applicant: The maximum storage capacity of the Process Water Pond is 3,396 m³.</p>	The department has included the storage capacity for the Process Water Pond.																																							
3.	Ambient air quality and noise monitoring Condition 14 – Table 9	<p>Department requested the locations of the TSP monitoring.</p> <p>Applicant: The monitoring equipment currently installed on site is not suitable for monitoring Total Suspended Particulates. Dust gauges for ambient air quality monitoring have been ordered and will be installed, with monitoring to commence in November. The monitors will be installed at the same location as PM₁₀ monitoring: M1, M2, and M3 Schedule 1 Maps: Figure 4</p>	<p>The department sought further technical advice from the department's AQB to ensure the relevant monitoring is undertaken for dust and air quality. AQB has revised condition 14, Table 9 as follows (excerpt only, full table can be seen in the licence):</p> <table border="1"> <thead> <tr> <th>Monitoring point reference</th> <th>Parameter</th> <th>Unit¹</th> <th>Averaging period</th> <th>Target</th> <th>Frequency</th> <th>Method</th> </tr> </thead> <tbody> <tr> <td>To be determined – near R1 and a background location</td> <td>Deposited dust</td> <td>g/m²/month</td> <td>Monthly</td> <td>4g/m²/month (maximum), 2g/m²/month above background levels</td> <td>Monthly</td> <td>In accordance with AS/NZS 3580.10.1</td> </tr> <tr> <td>PM₁₀ high volume sampler</td> <td>PM₁₀</td> <td>µg/m³</td> <td>24 hours</td> <td>50</td> <td>Sample collected every sixth day for a period of 12 months starting from licence</td> <td>In accordance with AS/NZS 3580.9.6</td> </tr> <tr> <td rowspan="3">To be determined – at or near R1)¹</td> <td>Major ions</td> <td rowspan="3">µg/m³</td> <td rowspan="3">24 hours</td> <td>-</td> <td rowspan="3"></td> <td rowspan="3">In accordance with AS/NZS 3580.9.15</td> </tr> <tr> <td>Calcium</td> <td>-</td> </tr> <tr> <td>Magnesium</td> <td>-</td> </tr> <tr> <td></td> <td>Potassium</td> <td></td> <td></td> <td>-</td> <td></td> <td></td> </tr> </tbody> </table>	Monitoring point reference	Parameter	Unit ¹	Averaging period	Target	Frequency	Method	To be determined – near R1 and a background location	Deposited dust	g/m ² /month	Monthly	4g/m ² /month (maximum), 2g/m ² /month above background levels	Monthly	In accordance with AS/NZS 3580.10.1	PM ₁₀ high volume sampler	PM ₁₀	µg/m ³	24 hours	50	Sample collected every sixth day for a period of 12 months starting from licence	In accordance with AS/NZS 3580.9.6	To be determined – at or near R1) ¹	Major ions	µg/m ³	24 hours	-		In accordance with AS/NZS 3580.9.15	Calcium	-	Magnesium	-		Potassium			-		
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4.	Ambient air quality and noise monitoring Condition 14 – Table 9	<p>Department requested the locations for PM₁₀ monitoring.</p> <p>Applicant: PM₁₀ monitoring will occur at: M1, M2, and M3 Schedule 1 Maps: Figure 4</p>																																								
5.	Ambient air quality and noise monitoring Condition 14 – Table 9	<p>Department requested the licence holder to confirm the above dust monitoring schedule with the monitoring undertaken by ETA and to ensure appropriate dust monitoring and dust deposition is undertaken in accordance with relevant Australian standards.</p> <p>Applicant: PM₁₀ monitoring is currently undertaken, and therefore applicant can meet conditions related to this monitoring on grant of the licence. Monitoring for Total Suspended Particulates and other analytes is not yet in place but will be implemented as soon as practicable. Applicant proposes to commence this monitoring in November. All monitoring will be undertaken in accordance with the relevant Australian standards.</p>	<p>Dust deposition monitoring AQB recommends that dust deposition monitoring is conducted for at least 12 months and then reviewed.</p> <p>Ambient air monitoring Monitoring is required to be undertaken at or near the nearest sensitive human receptor location using Australian Standard compliant monitoring equipment and methods. This differs from the current boundary monitoring undertaken, where non-standard monitoring equipment (Kunak Air Pro Microsensor) at the locations M1, M2, and M3 are being used.</p>																																							
6.	Ambient air quality and noise monitoring Condition 15 – Table 10	<p>Department advised the licence holder that if the licence holder agrees to condition 2 then condition 15 and 18 can be removed from the draft licence.</p> <p>Applicant: Applicant accepts condition 2, subject to amendments described in Table 2 (below). However, it is happy to continue to accept conditions 15 and 18, as it intends to conduct ongoing noise monitoring.</p>	The department has retained conditions 15 and 18 for ongoing noise monitoring.																																							

Item	Section / condition	Summary of applicant's comment	Department's response
Decision Report			
7.	Section 2.3	<p>Department has requested to confirm if a revised MP has been submitted to DEMIRS.</p> <p>Applicant: A revised Mining Proposal application was submitted to DEMIRS on 4 October 2024 and is under assessment.</p>	The department has included the submission date of the revised MP to DEMIRS.
8.	Section 2.3	<p>Department has requested the application submission date and current application status.</p> <p>Applicant: The application to increase the groundwater abstraction volume under GWL170860 was submitted in September 2020. DWER requested a H3 Hydrogeological Report, which was not available at the time, so the application was put on hold. The applicant has recommenced work to progress the 5C amendment application. This has included meetings with DWER in August and September 2024, and engagement of a consultant to prepare the required Hydrogeology Investigations.</p>	The department has included the details provided from the applicant.
9.	Section 2.4.2	<p>Department has requested the licence holder to confirm that areas of potential intersection of the groundwater table will be avoided.</p> <p>Applicant: Applicant confirms that only above-groundwater table mining is proposed, and that potential intersection of the groundwater table will be avoided.</p>	The department notes the applicant's response.
10.	Section 2.4.3	<p>Department has requested the licence holder to provide further detail on the use of chloride, where 'excess chloride' is referred to in the 'filtering and product washing process' below.</p> <p>Applicant: The product is washed to remove excess chloride which is naturally present in the HMC. No chloride is added throughout any of the processing stages.</p>	The department has included the information provided by the applicant.
11.	Section 2.4.3	<p>Department has requested the licence holder to specify the date.</p> <p>Applicant: The second baghouse was commissioned on 6 August 2023.</p>	The department has included the date.
12.	Section 2.4.3	<p>Department has requested the licence holder to indicate if any potential risk of groundwater contamination from sand tailings water infiltrating to the water table.</p> <p>Applicant: Darkwater Consulting was commissioned to prepare a Sand Tailings Stockpile Groundwater Assessment for the Lucky Bay project (Attachment A). The assessment found that: <i>'Material characterisation of subsoil and slime leachate indicates that any seepage will exhibit low salinity, low concentrations of metals, and will be non-acid forming. Leachate water chemistry reported below drinking water and livestock guideline values, with the exception of one sample slightly exceeding NPUG aluminium concentrations.'</i></p> <p>The report did identify the potential for water quality changes from the mixing of leachate from the sand tails stockpile (leachate testing reported high pH, low salinity, low concentrations of trace metals) with ground water (circumneutral pH, saline and low concentrations of trace metals). The issue was raised as a knowledge gap and beyond the capabilities of the authors, however the potential for any material changes in water quality through a mixing mechanism is considered low.</p> <p>Assuming a worst-case scenario that leachate quality is representative of the long-term seepage through the tailings stockpile, the mixing of these waters would likely raise the pH of the groundwater. Generally, metals are less soluble at high pH, hence the raising of the pH will not result in an increase in metal availability. A notable exception is aluminium (Al), which could potentially be leached from the aquifer under a sustained elevated pH scenario. The livestock drinking water guideline is high for Al at 5mg/L and Al is not known to cause widespread environmental concerns. Water samples have been taken in April 2023 and March 2024 from production bores immediately adjoining the sand tails stockpile and to its south (~ 300 m & 900 m away) and north (~ 600 m, 1400 m, and 2500 m away). Results from the water samples analyses show Al at all sites and all occasions below 0.05 mg/L.</p> <p>Previous studies indicate that direct rainfall recharge makes up a small portion of the overall water balance. Based upon the stockpile footprint (0.2 km²) and previous rainfall recharge estimates by URS (2010), the footprint may potentially intercept 700 to 3,500 kL per annum. This volume is a small portion of total aquifer throughflow and rainfall recharge across the Project area. Previously approved scenarios, included burial of slime cells, would also act as a barrier to recharge.</p> <p>Accordingly, potential impacts to groundwater quality are not anticipated to be significant.</p>	<p>The department notes the information provided by the applicant and the associated document, <i>Lucky Bay Sand Tailings Stockpile Groundwater Assessment (July 2024)</i> prepared by Darkwater Consulting.</p> <p>The department deems the information provided indicates that there is a low risk to the groundwater levels and quality from the desktop assessment undertaken by Darkwater Consulting.</p>
13.	Section 2.4.3	<p>Department requested the licence holder to provide detail (e.g. water discharged into it) on the approved 'Overflow Pond' in the current MP.</p>	The department has made note that the applicant has notified the department during the draft licence and decision report consultation period that the

Item	Section / condition	Summary of applicant's comment	Department's response																																							
		<p>Applicant: The Overflow Pond is no longer in use and has been backfilled.</p> <p>The Turkeys Nest is currently being used as a decant pond, to capture water from the tailings cyclone stackers. The water discharged to the Turkeys Nest has been sampled, and the analysed parameters were within the livestock drinking water guideline triggers (ANZECC & ARMCANZ 2000). Results are summarised below, with full results shown in Attachment B.</p> <p>Turkeys Nest / Decant Pond Water Analysis</p> <table border="1"> <thead> <tr> <th>Elements</th> <th>ANZECC Guidelines (Livestock) Trigger Value (mg/L)</th> <th>Decant Water Quality (mg/L)</th> </tr> </thead> <tbody> <tr> <td>Nitrate</td> <td>400</td> <td>7.1</td> </tr> <tr> <td>Sulfate</td> <td>1000</td> <td>370</td> </tr> <tr> <td>Calcium</td> <td>1000</td> <td>130</td> </tr> <tr> <td>pH</td> <td><4 or >9</td> <td>8</td> </tr> <tr> <td>Arsenic</td> <td>0.5</td> <td>0.025</td> </tr> <tr> <td>Cadmium</td> <td>0.01</td> <td>0.0004</td> </tr> <tr> <td>Chromium</td> <td>1</td> <td>0.06</td> </tr> <tr> <td>Copper</td> <td>0.4</td> <td>0.006</td> </tr> <tr> <td>Magnesium</td> <td>2000</td> <td>180</td> </tr> <tr> <td>Mercury</td> <td>0.002</td> <td><0.0001</td> </tr> <tr> <td>Nickel</td> <td>1</td> <td>0.02</td> </tr> <tr> <td>Zinc</td> <td>20</td> <td>0.032</td> </tr> </tbody> </table>	Elements	ANZECC Guidelines (Livestock) Trigger Value (mg/L)	Decant Water Quality (mg/L)	Nitrate	400	7.1	Sulfate	1000	370	Calcium	1000	130	pH	<4 or >9	8	Arsenic	0.5	0.025	Cadmium	0.01	0.0004	Chromium	1	0.06	Copper	0.4	0.006	Magnesium	2000	180	Mercury	0.002	<0.0001	Nickel	1	0.02	Zinc	20	0.032	<p>Overflow Pond has been decommissioned and will be removed from the licence.</p> <p>The department notes that decant water from the tailings cyclone stackers has been discharged into the Turkeys Nest. However, under the licence application scope and the supporting documentation, only groundwater from bores PB1 and PB9 was permitted to be discharged into the Turkeys Nest.</p> <p>The applicant has to provide justification that the reuse of decant water for dust suppression is acceptable to human health and environmental sensitive receptors. Furthermore, the applicant has to consider the Department of Health requirements related recycled water use (Recycled water in WA) and the Guidelines for the non-potable uses of recycled water in Western Australia.</p> <p>Although decant water quality data has been provided, request for additions after the stakeholder referral process and advertising period are not generally accepted to ensure procedural fairness to concerned parties and relevant government stakeholders that may need to feed into our decision-making process. Furthermore, request for additions may also require a risk assessment to be undertaken that could have the potential to impact nearby human and environmental sensitive receptors and further information to be provided.</p> <p>The department does not accept the discharge of decant water into the existing Turkeys Nest that only permits groundwater to be stored.</p> <p>The applicant will have to submit a future licence amendment application to permit the discharge of decant water into the Turkeys Nest and for the use of decant water for dust suppression.</p>
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14.	Section 2.4.3	<p>Department requested the licence holder to state power generation throughput and confirm total storage of diesel / hydrocarbons on site.</p> <p>Applicant: Power generation throughput is 4.2 megawatts. The total storage of diesel / hydrocarbons on site is 293,400 L.</p>	<p>The department has included the power generation throughput and total storage volume of diesel / hydrocarbons.</p>																																							
15.	Section 3.2	<p>Department has indicated that condition 15 and 18 may be removed if applicant accepts condition 2 in the licence.</p> <p>Applicant: Applicant accepts condition 2, subject to amendments described in Table 2 (below). However, it is happy to continue to accept conditions 15 and 18, as it intends to conduct ongoing noise monitoring.</p>	<p>The department will retain condition 15 and 18 for ongoing noise monitoring.</p>																																							
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1.	Condition 2	<p><i>The licence holder must carry out mining and processing operations in accordance with that specified in Table 2.</i></p> <p><i>Table 2, row 1, specifies that the days and hours of operation are:</i></p> <p><i>Monday to Saturday</i> 7:00 AM to 7:00 PM</p> <p><i>Sunday and Public Holidays</i> 9:00 AM to 7:00 PM</p> <p>Applicant: As described in the Licence application, civil and earthmoving activities and associated works are proposed to be undertaken from 6:00 AM to 6:00 PM. Applicant requests amendment to Table 2, row 1 as follows:</p> <p>Monday to Saturday 6:00 AM to 6:00 PM</p>	<p>The department does not accept the proposed change for the mining operations for the following reason.</p> <p>The <i>Environmental Protection (Noise) Regulations 1997</i> (Noise Regulations), under section 8, Table 1 determines the assigned noise level for all premises is to be determined by reference to Table 1. As the nearest human receptor is defined as a 'highly sensitive area' the operating hours between Monday to Sunday are 7:00 AM to 7:00 PM.</p> <p>It should also be noted that internal advice from the department's Environmental Noise Branch has indicated that 6:00 AM is considered as night-time under the Noise Regulations. As detailed under section 3.3.2 of this decision report, night-time mining operations require a noise assessment to determine that noise emissions comply with the relevant assigned levels under the Noise Regulations.</p> <p>This has been imposed as conditions 22 to 25 of the licence.</p>																																							

Item	Section / condition	Summary of applicant's comment	Department's response
		<p>Sunday and Public Holidays 9:00 AM to 7:00 PM</p>	
2.	Condition 2	<p><i>The licence holder must carry out mining and processing operations in accordance with that specified in Table 2.</i></p> <p><i>Table 2, row 2, specifies that the days and hours of operation are:</i></p> <p><i>Monday to Sunday (including Public Holidays)</i> <i>(12-hr shifts)</i> <i>6:00 AM to 6:00 PM</i> <i>6:00 PM to 6:00 AM</i></p> <p>Applicant:</p> <p>Applicant removal of the specified shifts from this condition. The start and end time of shifts may change on occasion, with minimal effects on the operational noise generated from the project.</p> <p>Table 2, row 2, is requested to be amended to read:</p> <p>Monday to Sunday (including Public Holidays) (12-hr shifts) 6:00 AM to 6:00 PM 6:00 PM to 6:00 AM</p>	<p>The department accepts the removal of the suggested shift hours as this relates to processing operations that have met the assigned noise levels for daytime and night-time operations as detailed in section 3.3.2 of this decision report.</p>
3.	Condition 3	<p><i>Table 3 – Overflow Pond</i></p> <p>The Overflow Pond has been decommissioned and filled in. Applicant requests that this infrastructure be removed from the Licence.</p>	<p>The department has removed this item of infrastructure under Table 3 of the licence.</p>
4.	Condition 3	<p><i>Table 3 – Turkeys Nest Pond</i></p> <ul style="list-style-type: none"> • <i>maximum storage capacity of 5,993.5 kL;</i> • <i>maintain a minimum operational freeboard of 500 mm;</i> • <i>contains groundwater for dust suppression; and</i> • <i>daily visual inspections must be undertaken to ensure integrity of HDPE liner.</i> <p>The Turkeys Nest Pond is currently being used as a decant pond, accepting water from the tailings cyclone stackers. The quality of the water is described in Table 1 item 13, above. As the water meets the livestock drinking water guideline triggers (ANZECC & ARMCANZ 2000) it is considered to be suitable for use for dust suppression within the prescribed premises boundary. It is requested that the condition be amended to reflect this activity, as follows:</p> <ul style="list-style-type: none"> • maximum storage capacity of 5,993.5 kL; • stores abstracted groundwater and/or discharge from the tailings cyclone stackers; • maintain a minimum operational freeboard of 500 mm; • water to be used for dust suppression and / or for return to the processing plant; and • daily visual inspections must be undertaken to ensure integrity of HDPE liner. 	<p>The department notes the proposed changes and has proposed a revised suggestion as follows:</p> <ul style="list-style-type: none"> • maximum storage capacity of 5,993.5 kL; • stores abstracted groundwater; • maintain a minimum operational freeboard of 500 mm; • water to be used for dust suppression and / or for return to the processing plant; and • daily visual inspections must be undertaken to ensure integrity of HDPE liner. <p>Refer to the reasoning to not permit discharge of decant water into the Turkeys Nest and use for dust suppression under the 'Decision Report', item 13, section 2.4.3 of this table.</p>
5.	Condition 3	<p><i>Table 3 – Sand Tailings Storage Area</i></p> <ul style="list-style-type: none"> • <i>storage area to not exceed 10 m in height;</i> • <i>use of stockpile height markers;</i> • <i>dimensions must be maintained at 250 m x 800 m x 10 m;</i> • <i>active areas must be maintained in a damp state; and</i> • <i>any contaminated surface water runoff must be diverted away from the storage area and contained.</i> <p>Containment of surface water runoff from the Sand Tailings Storage Area is currently achieved through the use of earthen (sand) bunds. Applicant has interpreted that the use of these bunds would meet the intention of this proposed condition. Additionally, applicant requests that following minor amendment to this condition:</p>	<p>The department accepts the proposed change of the length of the Sand Tailings Storage Area from 800 m to 806 m.</p> <p>In addition, the department has revised the last operational requirement to the following, based on the applicant's response:</p> <ul style="list-style-type: none"> • any surface water runoff must be contained within the perimeter bunds and drains.

Item	Section / condition	Summary of applicant's comment	Department's response
		<ul style="list-style-type: none"> storage area to not exceed 10 m in height; use of stockpile height markers; dimensions must be maintained at 250 m x 806 m x 10 m; active areas must be maintained in a damp state; and any contaminated surface water runoff must be diverted away from the storage area and contained. 	
6.	Condition 3	<p><i>Table 3 – Solar Drying Ponds</i></p> <ul style="list-style-type: none"> maintain a minimum operational freeboard of 500 mm; pond wall height must not exceed 2.5 m above natural ground level; and maintain sloped pond floors to allow for collection of supernatant water. <p>Applicant requests that following amendments to this condition, which are consistent with the description of this activity provided in the Licence application:</p> <ul style="list-style-type: none"> Located in the Solar Drying Pond Areas, within the Sand Tailings Storage Area, and/or in Mining Voids within the Menari Mine Pit; maintain a minimum operational freeboard of 500 mm; pond wall height must no exceed 4 m above natural ground level; the pond floor will be built to follow natural grades; and supernatant water will be recovered for reuse. 	The department accepts the proposed changes to the operational requirements for the Solar Drying Ponds.
7.	Condition 4	<p><i>Table 4 – Sand tailings from the WCP and DSP</i></p> <p>Must be:</p> <ul style="list-style-type: none"> temporarily stockpiled at the sand tailings storage area; OR deposited directly into the mined void using cyclone stackers. <p>Applicant requests minor amendment to this condition as follows:</p> <p>Must be:</p> <ul style="list-style-type: none"> temporarily stockpiled at the sand tailings storage area; OR deposited directly into the mined void using cyclone stackers. 	<p>The department will retain the word 'temporarily' as approval is currently being sought through the works approval application W6958/2024/1 to have the Sand Tailings Storage Area as a permanent landform as opposed to the original works approval W6214/2019/1 of it being a temporary landform.</p> <p>The department advises that a future licence amendment application is submitted to request the proposed change once the works approval W6598/2024/1 approves that the Sand Tailings Storage Area is a permanent landform.</p>
8.	Condition 4	<p><i>Table 4 – Clay slimes from the thickener</i></p> <p>Must be pumped as a thickened slurry to:</p> <ul style="list-style-type: none"> solar drying ponds; OR deposited directly into solar drying ponds within the mined void. <p>The current Works Approval for the site enables use of the clay slimes to be used as a dust suppressant on exposed areas within the areas within the premises. Applicant requests that this activity be included in the Licence:</p> <p>Must be pumped as a thickened slurry to"</p> <ul style="list-style-type: none"> solar drying ponds; OR deposited directly into solar drying ponds within the mined void; OR used as a dust suppressant on exposed areas within the Premises. 	<p>The department notes that under works approval W6214/2019/1, clay slimes were listed as an option for dust suppression, however during the revised risk assessment under section 3.2, Table 7 of the decision report and the complaints received relating to dust concerns the department considers clay slimes not to be used as a dust suppressant.</p> <p>During the risk assessment, the department considered potential impacts from dust-lift off from dried clay slimes in solar drying ponds and to nearby sensitive receptors, which the department determined as 'Medium Risk'.</p> <p>Under condition 8, Table 6, additional controls have been imposed for dust control management including the use of alternative dust suppressants – groundwater, polymer emulsion, chemical stabilisers, and hydromulch.</p>
9.	Condition 4	<p><i>Table 4</i></p> <p>Applicant requests amendment to Table 4 to include the capture and reuse of water from the tailings cyclone stackers. It's requested that Table 4 be amended to include the following row:</p>	<p>The department will include the capture and reuse of the tailings cyclone stackers discharge (decant water) into the Process Water Pond and reuse in the processing plant only.</p> <p>The department does not accept the use of the decant water in the Turkeys Nest and used for dust suppression.</p>

Item	Section / condition	Summary of applicant's comment	Department's response						
		<table border="1"> <thead> <tr> <th data-bbox="566 247 736 310">Emission</th> <th data-bbox="736 247 1130 310">Requirements</th> <th data-bbox="1130 247 1317 310">Location</th> </tr> </thead> <tbody> <tr> <td data-bbox="566 310 736 541">Tailings cyclone stackers discharge</td> <td data-bbox="736 310 1130 541"> <ul style="list-style-type: none"> Water discharged from the cyclone stackers will be discharged to the Process Water Pond and/or the Turkeys Nest Water will be recovered from these ponds and returned to the processing plant for reuse or used for dust suppression within the prescribed premises boundary. </td> <td data-bbox="1130 310 1317 541">Schedule 1 Maps: Figure 2</td> </tr> </tbody> </table>	Emission	Requirements	Location	Tailings cyclone stackers discharge	<ul style="list-style-type: none"> Water discharged from the cyclone stackers will be discharged to the Process Water Pond and/or the Turkeys Nest Water will be recovered from these ponds and returned to the processing plant for reuse or used for dust suppression within the prescribed premises boundary. 	Schedule 1 Maps: Figure 2	Refer to the reasoning to not permit discharge of decant water into the Turkeys Nest and use for dust suppression under the 'Decision Report', item 13, section 2.4.3 of this table.
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10.	Condition 8	<p><i>Table 6 – Water carts / sprays</i></p> <p>Applicant requests amendment to this condition to require that two water carts be used within the premises only during dry weather conditions and during strong southerly winds.</p>	<p>The department amended the dust control requirement as listed under Table 6 as 'water cart/s to be used within the premises'.</p> <p>The proposed amendment indicates that water carts would only have to be used during two specific weather events / conditions and not during other conditions / events where dust can be generated.</p>						
11.	Condition 8	<p><i>Table 6 – Stockpiles</i></p> <ul style="list-style-type: none"> use of water sprinklers and water carts where required; use of chemical stabilisers, polymer emulsion, or hydromulch to reduce dust emissions on all stockpiles when material is not being used for long periods; covering of stockpiles; limiting stockpiles numbers and size on the premises; place stockpiles near windbreaks e.g., buildings or topographical features; and orientation and shape of stockpiles constructed to minimise impact of prevailing winds. <p>Applicant requests amendment to this condition to remove the requirement for used of water sprinklers, covering of stockpiles or placement of stockpiles near windbreaks. These requirements cannot be practicably achieved at the premises, based on water availability and operational requirements.</p> <ul style="list-style-type: none"> use of water sprinklers and water carts where required; use of chemical stabilisers, polymer emulsion, or hydromulch to reduce dust emissions on all stockpiles when material is not being used for long periods; covering of stockpiles; limiting stockpile numbers and size on the premises; place stockpiles near windbreaks e.g., buildings or topographical features; and orientation and shape of stockpiles constructed to minimise impact of prevailing winds. 	The department accepts the licence holder's proposed changes based on the reasonings provided.						
12.	Condition 9	<p><i>Table 7 – MUP</i></p> <ul style="list-style-type: none"> must be located in the Menari Mine Void below the natural ground level at all times whilst operating; and maintain the location of the MUP as a minimum 1.5 km distance from the nearest sensitive receptor or at least 0.5 km from the premises boundary. <p>The separation distances specified in this condition cannot be achieved based on the current and proposed mine plan. The Mining Void is 1.1 km from the nearest sensitive receptor, and 115 m from the Prescribed Premises Boundary, and the MUP may operate at various locations within the Mining Void. It's proposed that the condition be amended as follows:</p> <ul style="list-style-type: none"> must be located in the Menari Mine Void below the natural ground level at all times whilst operating; and maintain the location of the MUP as a minimum 1.5 km distance from the nearest sensitive receptor or at least 0.5 km from the premises boundary. 	<p>The departments accepts the reasons as to why the proposed distance for the MUP is not feasible based on the current and proposed Mining Plan.</p> <p>The department accepts a minimum distance of 1 km from the nearest sensitive receptor.</p>						
13.	Condition 14	<p><i>Table 9 – Monitoring of ambient air quality</i></p> <p>Whole suite of analytes (metals, metalloids, minerals, mica, crystalline silica)</p> <p>Applicant accepts the proposed quarterly monitoring for the whole suite of analytes, but could DWER please provide advice on the list of</p>	<p>The department has provided a list of analytes to monitor and analyse.</p> <p><u>Major ions</u></p>						

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		analytes that it would like analysed?	Calcium, Chloride, Magnesium, Potassium, Sodium, Sulfate. <u>Metals and metalloids</u> Aluminium, Arsenic, Barium, Boron, Cadmium, Chromium (as CRVI), Chromium (as total), Cobalt, Copper, Iron, Lead, Lithium, Manganese, Mercury, Molybdenum, Nickel, Selenium, Thallium, Titanium, Thorium, Uranium, Vanadium, Zinc. <u>Other:</u> Respirable Crystalline Silica
14.	Condition 21	<i>Upon exceeding the bore groundwater trigger value set in accordance with condition 21 (above), the licence holder must commence groundwater recovery to limit any potential mounding effects to within one metre of the natural ground level.</i> Applicant requests amendment to this condition to enable implementation of seepage recovery only where exceedance of the trigger is attributable to its activities, rather than rainfall or seasonal conditions. It is also requested that sufficient time is allowed to effectively implement the seepage recovery following identification of the exceedance. The proposed amendment is as follows: Upon exceeding the bore groundwater trigger value set in accordance with condition 21 (above), where the exceedance is attributed to the Licence Holder's activities , the licence holder must commence groundwater recovery within two months to limit any potential mounding effects to within one metre of the natural ground level.	The department has made the proposed changes suggested by the licence holder.
15.	Condition 26	<i>The licence holder must retain the services of a person qualified and experienced in the area of environmental ambient air monitoring and assessment to prepare an ambient air / dust monitoring assessment report. The report should be submitted to the CEO, six months after the licence issue date:</i> (a) <i>investigate for crystalline silica in ambient air to monitor potential impacts to offsite human receptors and develop mitigation measures;</i> (b) <i>undertake ambient air / dust monitoring analysis from six to 12 months of data collected and provide an interpretation and assessment of the data; and</i> (c) <i>undertake dust deposition analysis and provide an interpretation and assessment of the data.</i> Applicant requests amendment to this condition to enable time to complete the required monitoring and prepare the report: The licence holder must retain the services of a person qualified and experienced in the area of environmental ambient air monitoring and assessment to prepare an ambient air / dust monitoring assessment report. The report should be submitted to the CEO, nine months after the licence issue date. The applicant provided additional comments to DWER on 12 December 2024 to request a submission timeframe of 12 months, allowing time for installation and commissioning	The department has amended submission timeframe from six months to 12 months from the commencement of monitoring from 20 January 2025.
16.	Condition 27	<i>The licence holder must prepare a revised dust management plan and submit the plan to the CEO, 6 months after the licence issue date:</i> (a) <i>include specifications of the particle and meteorological monitoring instrument(s) used as well as calibration, maintenance, and operational requirements in the Dust Management Plan (DMP);</i> (b) <i>revise the Trigger Action Response Plan framework in the DMP once six months of ambient monitoring is collected and form appropriate quantitative trigger values;</i> (c) <i>revise the DMP to include regular data review including a focus on worst-case summer conditions; and</i> (d) <i>revise the DMP to include an assessment of data collection efficiency, identification of trends and QA/QC checks.</i> Australian Garnet requests amendment to this condition to enable time to complete the required monitoring and prepare the report: The licence holder must retain the services of a person qualified and experienced in the area of environmental ambient air monitoring and assessment to prepare an ambient air / dust monitoring assessment report. The report should be submitted to the CEO, 9 months after the licence issue date. The applicant provided additional comments to DWER on 12 December 2024 to request a submission timeframe of 12 months, allowing time for installation and commissioning	The department has amended submission timeframe from six months to 12 months from the commencement of monitoring from 20 January 2025.
17.	Condition 31	<i>The licence holder must:</i> (a) <i>undertake an audit of compliance with the conditions of the licence during the preceding annual period; and</i> (b) <i>prepare and submit to the CEO an Annual Audit Compliance Report in the approved form by [day/month] each year.</i> Australian Garnet requests that the Annual Audit Compliance Report be provided by 30 September each year.	The department agrees to the requested submission date of 30 September each year for the Annual Compliance Report. This date will also be applicable for the submission of the Annual Environment Report.