Application for Licence

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

Licence Number	L9293/2021/1
Applicant	Silver Lake (Rothsay) Pty Ltd
ACN	151 137 450
File Number	DER2021/000158
Premises	Rothsay Gold Project Mining Tenements M59/39, M59/40 and L59/24 PERENJORI WA 6620 As defined by the Premises maps attached to the issued licence
Date of Report	8 November 2021
Decision	Licence granted

Melanie Bruckberger

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MELANIE BRUCKBERGER
A/MANAGER, RESOURCE INDUSTRIES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the operation of the Premises. As a result of this assessment, Licence L9293/2021/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

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

2.2 Application summary and overview of Premises

On 26 March 2021, Egan Street (Rothsay) Pty Ltd submitted an application for a licence to the department under section 57 of the *Environmental Protection Act 1986* (EP Act). On 20 April 2021, the applicant then advised the department of a name change to Silver Lake (Rothsay) Pty Ltd. The name change reflected no change to legal entity. On 23 June 2021 Silver Lake (Rothsay) Pty Ltd provided an addendum to the licence application to include the Ephemeral drainage line to the licence application.

The application is to seek a licence relating to the following at Rothsay Gold Project (Premises):

- Category 6: dewatering of the underground mine and discharge excess water to the Groundwater management Facility (GMF) (existing modified Tailings Storage Facility (TSF) Operational Pond for temporary water storage, settling and evaporation), Evaporation Pond / Infiltration Pond and Ephemeral drainage line;
- Category 54: operate a Wastewater Treatment Plant (WWTP) and sprayfield.; and
- Category 64: operate a putrescible landfill.

It should be noted that works approval W6195/2018/1 issued in November 2019 was originally for processing of gold bearing ore and the use of the TSF for the storage of tailings. In July 2020 the works approval was amended as the gold bearing ore is no longer to be processed at the mine site and is instead transported to the nearby Deflector Gold Mine for processing. The use of the TSF as a GMF was approved during this amendment. See Table 1 for compliance documentation details.

This licence application includes all categories and infrastructure that were approved under the amended works approval W6195/2018/1 (categories 6, 54 and 64).

Table 1: Compliance Documentation Details from W6195/2018/1.

Date received	DWER records	Infrastructure	Complied
14 September 2020	DWERDT336120	WWTP and sprayfield	Yes
14 September 2020	A1933525	Landfills	Yes
23 September 2020	A1936712	Evaporation / Infiltration Pond	Yes
27 November 2020	A2002758	TSF material sampling results	Yes
16 December 2020	A2019476	GMF Operational Pond	Yes
22 March 2021	DWERDT430271	GMF Operational Pond Infrastructure	Yes
18 June 2021	A2054311	GMF discharge locations and sedimentation basin	Yes
03 October 2021	DWERDT511349	GMF control systems and mechanical evaporator	Yes

The Premises is approximately 70 km east of Perenjori, within the Southern Murchison region of Western Australia.

The Premises relates to the categories and assessed production/design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in Licence L9293/2021/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guidance Statement: Risk Assessments* (DER 2017) are outlined in Licence L9293/2021/1.

It should be noted that L59/24 has been included on the licence (it is not on the works approval) as two groundwater abstraction bores, RYMP3 and RYMP4, are located on this land.

2.2.1 Category 6: Mine dewatering

Mine dewatering discharge was authorised under works approval W6195/2018/1 and Environmental Compliance Report received. Groundwater is extracted from the underground mine and then the following sequence occurs:

- Groundwater from the underground mine is pumped approximately 1.2 km to the GMF as shown in Figure 1;
- Water from the GMF is then collected via a concrete decant tower and is either:
  - Pumped to the header tanks for underground reuse, pumped to the washdown bay and/or to a standpipe for dust suppression;
  - Diverted to the evaporation/infiltration pond;
  - Diverted to the mechanical evaporator on the GMF wall (This is yet to be built. It is the only outstanding piece of equipment from works approval W6195/2018/1 that has not been constructed); and
  - Diverted to the Ephemeral drainage line for periodic discharge; and
- Distribution of water from the decant tower is automated as required.

A water balance flow chart is shown in Figure 2.

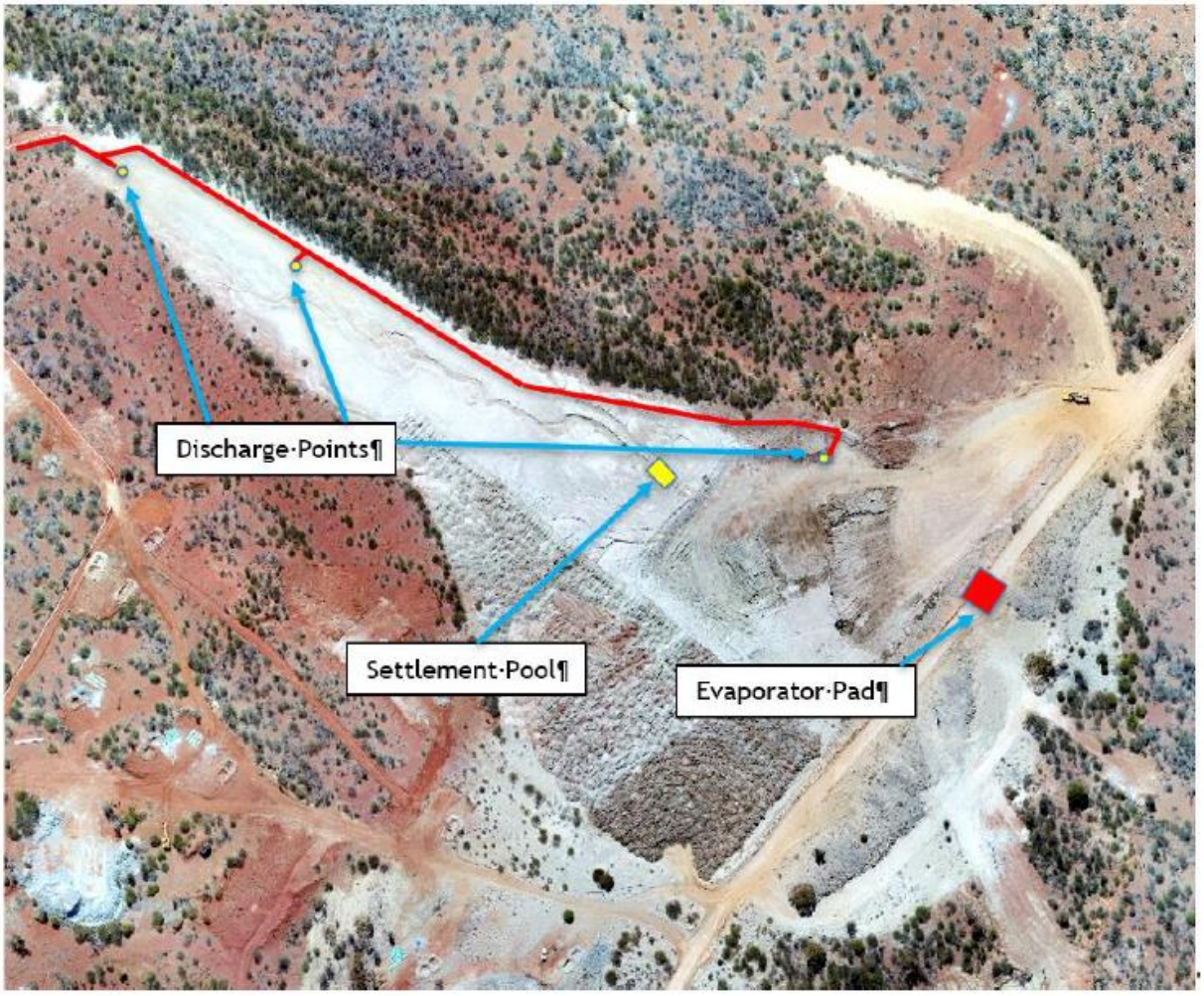

Figure 1: Dewatering discharge locations within the GMF

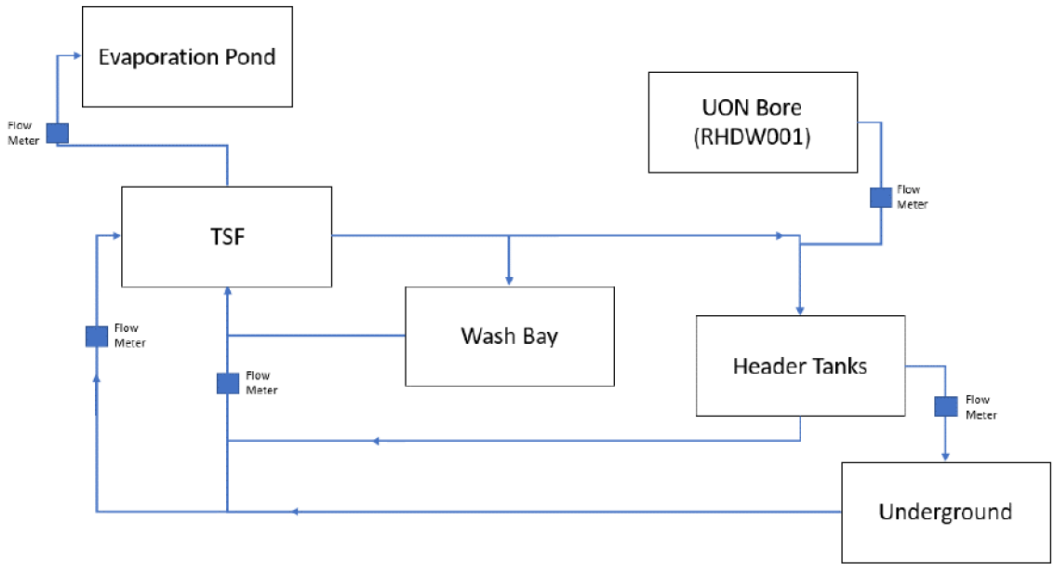

Figure 2: Water balance flow chart

Mine dewatering water is discharged at the discharge points located in Figure 1. Works approval W6195/2018/1 required that dispersion testing be conducted of the tailings with provision of a report to the department (see Section 3). The mobilisation of historic tailings fines is managed by lining the settlement areas with geofabric matting designed to reduce the volume of sediment mobilization. A small dugout pool in the GMF (~4m wide x 8m long x 2m deep) has been developed on the north-western side of the GMF to assist with reducing sediment deposition in the pond along with the geofabric matting. This is shown in Figure 1.

Water Quality

Water has been sampled quarterly, as per works approval W6195/2018/1, from the dewatering bore and from the GMF to show a comparison in the water quality as shown in Table 2. The comparison demonstrates that there is no discernable deterioration in water quality from storage within the GMF compared to the underground mine.

Table 2: Groundwater quality results

Analyte	Unit	Limit of reporting	RHDW001 (Dewatering Bore)	Dewatered UG groundwater from the TSF
pH Value	pH Unit	0.01	7.82	7.79
Electrical Conductivity	mS/cm	0.001	9.67	10.3
Total Dissolved Solids	mg/L	10	7370	8070
Total Hardness as CaCO3	mg/L	1	2030	2380
Hydroxide Alkalinity as CaCO3	mg/L	1	<1	<1
Carbonate Alkalinity as CaCO3	mg/L	1	<1	<1
Bicarbonate Alkalinity as CaCO3	mg/L	1	214	218
Total Alkalinity as CaCO3	mg/L	1	214	218
Sulfate as SO4 - Turbidimetric	mg/L	1	410	472
Chloride	mg/L	1	2810	3010
Calcium	mg/L	1	252	290
Magnesium	mg/L	1	340	403
Sodium	mg/L	1	1200	1220
Potassium	mg/L	1	27	29
Aluminium	mg/L	0.01	<0.01	<0.01
Arsenic	mg/L	0.001	0.096	0.077
Cadmium	mg/L	0.0001	0.0007	0.0010
Chromium	mg/L	0.001	<0.001	0.001
Copper	mg/L	0.001	0.012	0.007
Lead	mg/L	0.001	<0.001	<0.001
Manganese	mg/L	0.001	0.457	0.288
Nickel	mg/L	0.001	0.081	0.036
Selenium	mg/L	0.01	<0.01	<0.01
Zinc	mg/L	0.005	0.036	0.102
Iron	mg/L	0.05	<0.05	<0.05
Mercury	mg/L	0.0001	<0.0001	<0.0001
Weak Acid Dissociable Cyanide	mg/L	0.004	<0.008	<0.004
Ammonia as N	mg/L	0.01	5.98	5.75
Nitrite as N	mg/L	0.01	1.33	1.64
Nitrate as N	mg/L	0.01	34.8	28.1
Nitrite + Nitrate as N	mg/L	0.01	36.1	29.7
Total Kjeldahl Nitrogen as N	mg/L	0.1	13.3	12.7
Total Nitrogen as N	mg/L	0.1	49.4	42.4
Total Phosphorus as P	mg/L	0.01	0.04	0.05
Reactive Phosphorus as P	mg/L	0.01	0.04	0.03
Total Anions	meq/L	0.01	92.1	99.1
Total Cations	meq/L	0.01	93.4	101
Ionic Balance	%	0.01	0.74	1.18

GMF

Discharge locations of mine dewatering water into the GMF are shown in Figure 1.

A requirement of the works approval W6195/2018/1 was to *"Develop and submit to the CEO a program for monitoring the shallow groundwater monitoring bore. The program shall include*

standing water level trigger values with subsequent management actions." Triggers have been incorporated for shallow monitoring bore TSF BH-08 (see Figure 3 and Figure 4) to provide an early warning of groundwater level mounding around the GMF from seepage that could impact on vegetation. Two trigger levels have been incorporated:

- Warning Trigger Level – where the groundwater level comes within 6 m of the natural ground surface; and
- Action Trigger Level – where the groundwater level comes within 4 m of the natural ground surface.

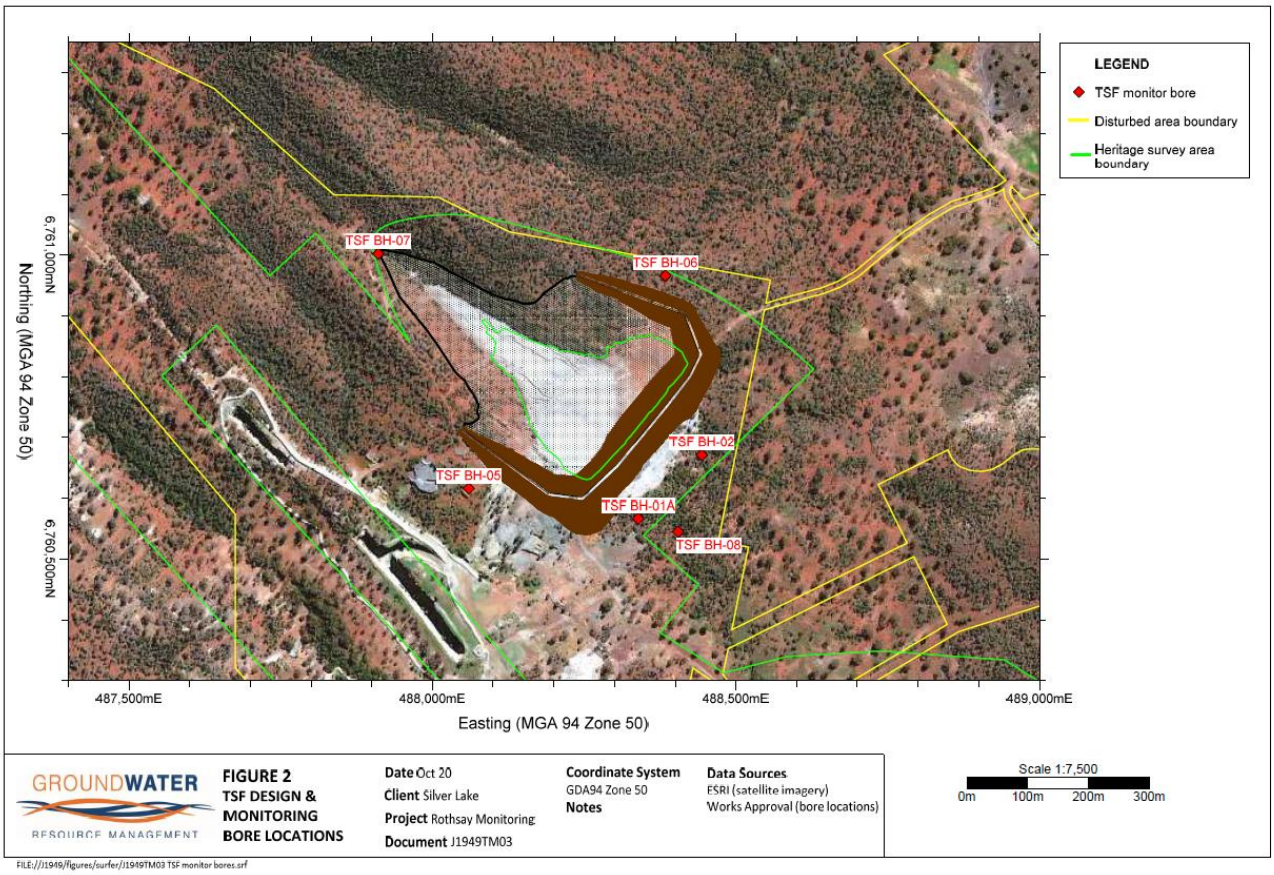

Figure 3: GMF design and monitoring bore locations

Figure 4: GMF monitoring bore and piezometer location

Evaporation / Infiltration Pond

Mine dewatering water is transferred to the GMF and then pumped to the Evaporation / Infiltration Pond (see Figure 5). The Reverse Osmosis Plant at the WWTP also discharges brine to the Evaporation / Infiltration Pond with a TDS quality of approximately < 10,000 mg/L.

Three groundwater monitoring bores are installed in proximity to the pond.

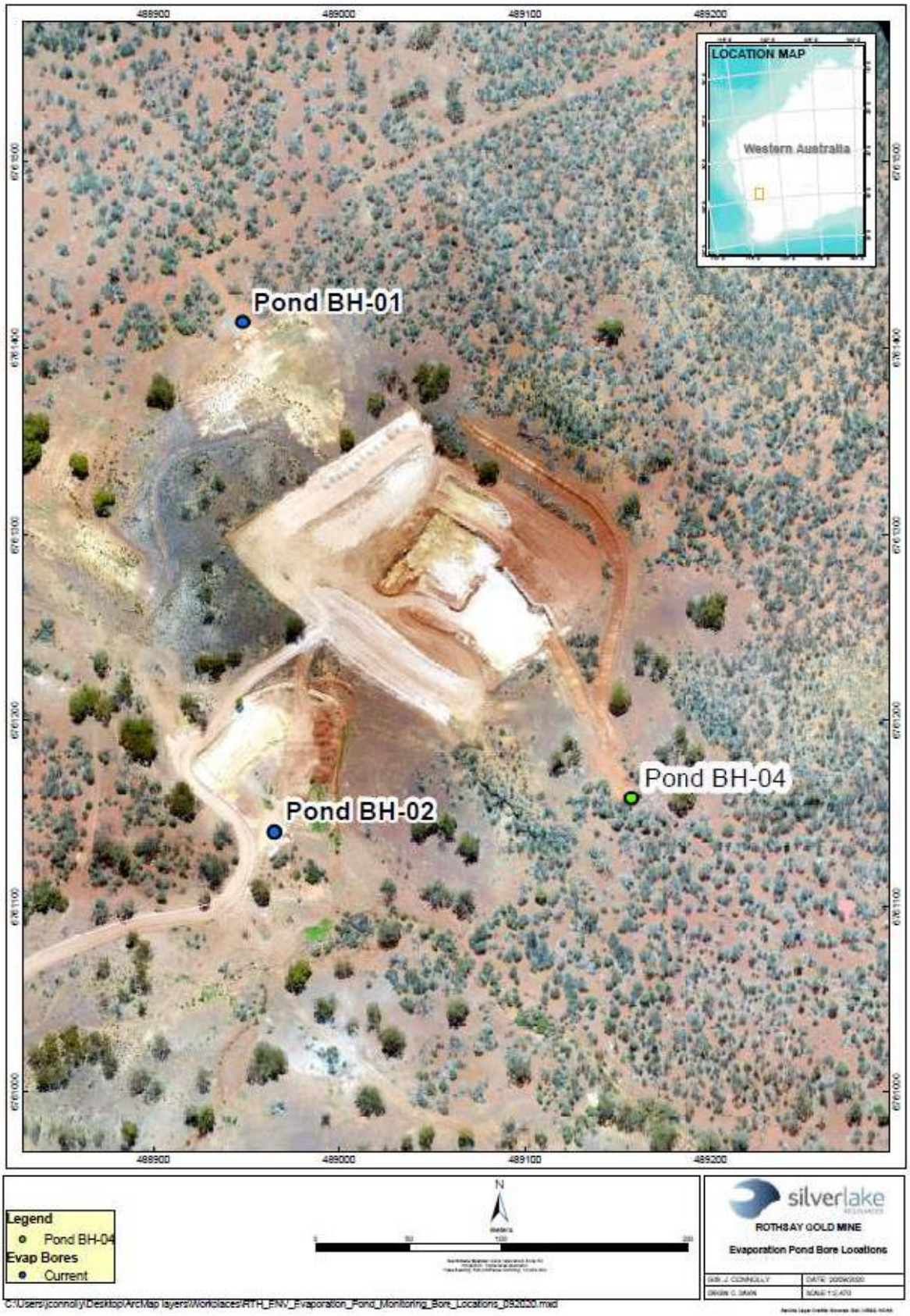

Figure 5: Evaporation / Infiltration Pond monitoring bore locations

Ephemeral drainage line

The Ephemeral drainage line has previously been used during the 1990s and also during the works approval phase (21 May to 23 September 2020) where 237,055m^3 of mine dewatering water was discharged. The Ephemeral drainage line was approved on the works approval as a temporary discharge point to be used for four months until the permanent disposal method of the Evaporation / Infiltration Pond method was implemented.

The applicant has stated that heavy winter rains in the Midwest region and lack of evaporation have created excessive inundation from surface water runoff to the GMF and aquifer recharge. Therefore, the applicant has requested to have the Ephemeral drainage line reinstated and authorized on the Licence as a mine dewatering discharge point to be used for interim periods as required.

The applicant commissioned Botanical Consulting to develop a Vegetation Monitoring Operating Procedure that included the establishment of thirteen vegetation monitoring quadrats along the drainage line downstream of the discharge point and two vegetation monitoring quadrats upstream of the discharge point.

The monitoring indicated that the discharge activities had little to no impact on vegetation condition along the ephemeral drainage line and no erosion or weed species were identified. Only a minor reduction in plant density observed at three of the downstream sites and not mitigation/management measures were required to be implemented (Botanica Consulting, March 2021).

2.2.2 Category 64: Putrescible landfill

The putrescible landfill was constructed under works approval W6195/2018/1 and Environmental Compliance Report received. It is established in the Woodleys open pits, Woodleys North and Woodleys South pits, for the disposal of up to 500 tonnes per annum of putrescible waste and up to 200 tyres.

Recycling options are investigated and implemented wherever practicable. Scrap metal will be stored at a site near the Run of Mine (ROM) and collected for recycling by a contractor.

Waste oils, oil filters and hydrocarbon contaminated rags are collected in approved receptables and stored onsite in the bulk fuel compound prior to removal from site to an appropriate facility.

Figure 6 shows the landfill as constructed.

Figure 6: Landfill as constructed

2.2.3 Category 85: Sewage facility

The WWTP and sprayfield was constructed under works approval W6195/2018/1 and Environmental Compliance Report received. A 25 m^3 per day WWTP has been installed that uses an active biological treatment process using a Submerged Aerated Filter (SAF). Biosolids from the sludge tank are pumped out as required by a licensed contractor and disposed of offsite to a licensed facility.

A 0.81ha irrigation spray field has been installed that consists of four sprinkler areas within a designated fenced compound. Treated effluent from the irrigation tank is transferred by a pipeline that runs adjacent to the access road.

Figure 7 shows the as constructed WWTP and sprayfield.

Figure 7: As constructed WWTP and sprayfield aerial view

3. Contaminated Sites Branch (CSB)

During the August 2020 works approval amendment to modify the use of the TSF for tailings storage to the use as a GMF for mine dewatering water, the following conditions were incorporated onto the amended works approval, as per internal technical advice:

Collect at least 5 samples of tailings material from different parts of the excavated Operational Pond walls and subject the samples to the following tests:

- *The Emerson dispersion test (Australian Standard 1289.3.8.1 – 1997);*
- *Pinhole tests for assessing the risk of tunnel erosion (Australian Standard 1289.3.8.3 – 1997); and*
- *Column tests for assessing the risk of tunnel erosion using the methodologies outlined in Vacher, V.A., Loch, R.J. and Raine, S.R., 2004. Identification and Management of Dispersive Mine Spoils. Australian Centre for Mining Environmental Research (ACMER).*

The TSF Material Report was provided on 27 November 2021 and reviewed by internal technical experts. In summary, testing indicated that tailings materials that line the decant pond are dispersive in nature and vulnerable to erosion so the use of the pond to store dewatering effluent needs to be managed to prevent damage to the pond. Management measures can be put in place to manage this and visual inspections of the pond with water balance should be conducted. Licence conditions have been incorporated to address this.

4. Risk assessment

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

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

4.1 Source-pathways and receptors

4.1.1 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 3 below. Table 3 also details the proposed control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 3: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Operation			
Category 6: Mine dewatering			
GMF			
Dewatering water	Overtopping of the embankments or pipelines breaches	Direct discharge	• The GMF has a minimum freeboard of 500 mm is maintained following a 100 year Average Return Interval (ARI) 72 hour rainfall event; • The freeboard is inspected daily to ensure integrity. A spillway has been included to manage any extreme events and reports to a minor drainage path near the GMF; • Daily inspections of the decant pond are undertaken to check the size and location; • Daily visual inspections monitor the dewatering flow rates/volumes are maintained to achieve the designed freeboard; • Results from water sampling (October 2019) indicate salinity levels in the dewatering effluent are not considered high at approximately 2,500 mg/L TDS and, therefore, are not expected to have any impacts on vegetation; • Mine dewatering pipelines are constructed with 110mm HDPE and are located within bunded pipeline routes (Existing Works Approval Decision Report, 15 November 2019); and • Daily visual inspections are undertaken to monitor the integrity of associated infrastructure.
	Seepage through the base and walls	Infiltration	• The GMF has been designed on the assumption that seepage is acceptable given that the water is from groundwater originally and far enough from underground

Emission	Sources	Potential pathways	Proposed controls
			mining to prevent recirculation back into dewatering activities; • Standing Water Levels with: ➢ Warning Trigger Limit – where the groundwater level comes within 6 m of the natural ground surface; and ➢ Action Trigger Limit – where the groundwater level comes within 4 m of the natural ground surface; and • Rothsay has installed a cut-off drain around the GMF so that any seepage that is captured by the drain is returned to the facility, if groundwater monitoring of the shallow monitoring bore indicates lateral mounding/seepage is occurring according to the trigger level.
	Spray drift from evaporator	Air/windborne pathway	• The evaporator is located on the decant causeway to limit spray drift outside of the GMF footprint; • The prevailing wind direction is from the south which will assist in directing spray drift over the pond; • The area outside of the GMF footprint where the decant causeway commences, is highly degraded, with limited to no native vegetation present. Daily inspections of the infrastructure will be undertaken to ensure the performance meets the design specifications; and • The evaporator will not be used during high wind events.
Evaporation / Infiltration Pond			
Dewatering water	Overtopping of the embankments or pipelines breaches	Direct discharge	• HDPE pipelines contained within an earthen bund; and • Maintain 500mm freeboard.
	Seepage through the base and walls	Infiltration	• Storage capacity 23,780m^3; • Maintain diversion bund to direct overland sheet flow from significant storm events away from the Evaporation / Infiltration Pond; and • Maintain spillway for the release of diluted pond water into a nearby drainage channel.
Ephemeral drainage line			
Dewatering water	Discharge from GMF	Direct discharge	• Maintain rock apron dissipater; • Maintain rock lined wire causeway; • Maintain HDPE polypipeline;

Emission	Sources	Potential pathways	Proposed controls
			• Cycle a maximum of 7 days discharge followed by a minimum of 7 days drying. This will reduce the saturation pressure on the root zone of any vegetation in the drainage line; • Fortnightly vegetation monitoring reviews will be conducted with an annual vegetation assessment to assess any long-term changes in vegetation health; • Prior to the recommencement of water discharge, a water sample will be field tested for pH and Electrical Conductivity; • The discharge will continue from the previous discharge location at flows averaging 20L/s for a period of no more than seven consecutive days; • A rest period of a minimum of seven days will occur between each seven day discharge event (existing holding capacity at the TSF and East Pond will be used if required during the rest period); • Prior to each discharge period, a visual inspection of the drainage line will be conducted, with the drainage line assessed on foot by environmental personnel to inspect the discharge area and identify potential impacts downstream of the discharge site (to be conducted in conjunction with vegetation monitoring); and • An annual botanical survey of the quadrats will be completed by botanical personnel to assess any long-term trends/impacts and will be reported in the Annual Environmental Report.
Category 64: Inert and Putrescible landfill trenches in Woodleys Pits			
Dust	Movement of vehicles, equipment and cover material for trenches	Air/windborne pathway	• The mine pits are 9-12 m below ground level therefore minimising exposure to the effects from wind; and • Applicant uses water carts to wet down roads and exposed surfaces.
Noise	Movement of vehicles and equipment	Air/windborne pathway	• Mining operations implemented in compliance with the noise regulations under the *Mines Safety and Inspection Act 1994*, the *Mines Safety and Inspection Regulations 1995* and the *Environmental Protection (Noise) Regulations 1997*.

Emission	Sources	Potential pathways	Proposed controls
			Noise emissions from the landfill screened out due to minimal noise emissions created and distance to nearest sensitive receptors.
Odour	Putrescible uncovered wastes disposed of into the trenches	Air/windborne pathway	• Weekly waste covering. Odour screened out due to distance to nearest sensitive receptors.
Windblown waste	Loose wastes that are uncovered and become windblown	Air/windborne pathway	• Waste is covered at least once per week with waste rock from the underground; • Weekly collection of windblown waste; and • The mined pits are 9-12 m below ground level therefore minimising exposure to the effects from wind.
Contaminated stormwater	Rainfall ingress into the landfill area becoming contaminated	Direct discharge	• Waste segregation, such as: ➢ Recycling options are investigated and implemented wherever practicable for packaging materials including, aluminium, glass, timber, cardboard/paper and plastic; ➢ Scrap metal stored at a site near the ROM and collected for recycling by a contractor; ➢ Waste oils, oil filters and hydrocarbon contaminated rags are collected in approved receptacles and stored on-site in the bulk fuel compound prior to removal from site to an appropriate facility; and • The landfill facilities are located within below ground old open pits surrounded by competent abandonment bunds. Only rain falling on the open pit area reports to the pits.
Category 85 Sewage facility			
Odour	Emanating from the WWTP in general and the sprayfield	Air/windborne pathway	• Enclosed tanks. Odour screened out due to distance to nearest sensitive receptors.
Raw sewage	Overtopping or pipeline breaches	Direct discharge	• Alarms installed to warn of malfunction before spills occur; • WWTP housed in a sea container on an appropriately bunded pad. These structures provide some containment in the unlikely event of a spill of raw sewage which is in a cleared, compacted earth area; • All sewage pipelines are located within earthen bunding to contain leaks and are inspected on a regular basis;

Emission	Sources	Potential pathways	Proposed controls
			• Sewage treatment tank located within a bunded sea container to capture any spills; and • Bio-solids from the sludge tank are pumped out as required by a licensed contractor and disposed of off-site to a licensed facility.
Treated effluent	Planned discharges to irrigation field	Direct discharge	• Four sprinkler areas to maximum dispersion and evaporation; • Treated effluent results compared to the design wastewater outputs: ➢ Total Nitrogen <36 mg/L; ➢ Total Phosphorus <9 mg/L; ➢ Total Suspended Solids (TSS) <30 mg/L; ➢ Chlorine Residual 0.2-2.0 mg/L; ➢ pH 6.5 – 8.5; and ➢ E.Coli <1,000 cfu/100ml; and • Visual inspections are undertaken of infrastructure to ensure there are no blockages to sprinkler heads and that all the mechanisms are functioning to specifications.
Contaminated stormwater	Rainfall ingress into the WWTP and irrigation area becoming contaminated	Direct discharge	• WWTP housed in a sea container on an appropriately bunded pad. These structures should divert stormwater around the area.

4.1.2 Receptors

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

Table 4 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guidance Statement: Environmental Siting* (DER 2016)).

Table 4: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	**Distance from prescribed activity**
The Delegated Officer considers it unlikely a risk event for dust or noise emissions will occur as a source pathway receptor linkage does not exist based on the distance from proposed activities. Therefore, the human receptors listed above are not further considered in the risk assessment below.	
Environmental receptors	**Distance from prescribed activity**
Environmentally Sensitive Areas	14 km to the southwest The Delegated Officer considers it unlikely a risk event will occur as a source pathway receptor linkage does not exist based on the distance from proposed activities. Therefore, this receptor is not further considered in the risk assessment below.
Threatened Ecological Communities	45 km to the west The Delegated Officer considers it unlikely a risk event will occur as a source pathway receptor linkage does not exist based on the distance from proposed activities. Therefore, this receptor is not further considered in the risk assessment below.
Threatened and/or priority fauna Rothsay is located in potential habitat for Threatened fauna species: Malleefowl, Western Spiny Tailed Skink, Slender Gilled Blue tongue lizards and the P3 Northern Shieldback Trapdoor Spider.	50 m east of TBS06 (extinct Malleefowl nest)
Threatened and/or priority flora No threatened species/DRF have been identified at Rothsay. Several priority species and one PEC is identified.	<50 m to the dewatering discharge location/spray field and landfills
Groundwater	Depth to groundwater encountered at approximately 11 – 55 m below ground level (mbgl) and quality is classed as brackish at approximately 6,000 mg/L Total Dissolved Solids. Depth to groundwater at the GMF approximately 50 mbgl. The recent sampling results indicate the water quality is suitable for stock watering, however, is slightly brackish. The closest neighboring bores (potential beneficial users) are: • Macs Bore, located approximately 6km north-east of the British Queen Shaft; and • Rothsay Well, located approximately 6km south-east of the British Queen Shaft.
Surface water	There is no permanent surface water in the project area. Ephemeral drainage line located approximately 100 m away from the new landfill.

4.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 4.1. 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 4.1), 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 5.

Licence L9293/2021/1 that accompanies this Decision Report authorises emissions associated with the operation of the Premises i.e. Categories 6, 64 and 85 activities.

The conditions in the issued Licence, as outlined in Table 5 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 5: Risk assessment of potential emissions and discharges from the Premises during operations

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Operation								
Category 6: Mine dewatering GMF	Dust	Air/windborne pathway impacting on photosynthesis	Several priority flora species and one PEC is identified <50 m to the dewatering discharge location/spray field and landfills	Refer to Section 4.1	C = Slight L = Rare **Low Risk**	Y	N/A	N/A
	Dewatering water with dispersive tailings	Overtopping of the GMF or pipelines breaches resulting in pooling of water around vegetation and impacting on photosynthesis	Priority flora	Refer to Section 4.1	C = Moderate L = Rare **Medium Risk**	Y	Condition 1, Table 1 Infrastructure and equipment requirements Requires spillway maintained to hold 100 yr ARI 72 hr duration and maintain 500mm freeboard. Condition 2, Table 2 Inspection of Infrastructure Requires daily inspections of the GMF. Condition 13, Table 10 Emissions and discharges monitoring Requires quarterly monitoring of the dewatering water.	N/A
		Seepage through the base and walls causing groundwater mounding and contaminating groundwater	Brackish groundwater suitable for stock quality 50 mbgl. Potential	Refer to Section 4.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 1, Table 1 Infrastructure and equipment requirements Requires spillway maintained to hold 100 yr ARI 72 hr duration and maintain 500mm freeboard.	N/A

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
		resource	beneficial users Macs Bore, located approximately 6km north-east of the British Queen Shaft and Rothsay Well, located approximately 6km south-east of the British Queen Shaft.				Condition 2, Table 2 Inspection of Infrastructure Requires daily inspections of the GMF. Condition 13, Table 10 Emissions and discharges monitoring Requires quarterly monitoring of the dewatering water. Condition 14, Table 11 Monitoring of ambient concentrations. Requires quarterly monitoring of ambient groundwater in the vicinity of the GMF with SWL trigger values and actions. Condition 23, Table 8 Notification requirements Requires notification of Action Trigger Level breaches within 5 days of recording.	
		Spray drift from evaporator impacting on photosynthesis	Priority flora	Refer to Section 4.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 1, Table 1 Infrastructure and equipment requirements Requires Evaporator to be situated in location so that prevailing wind direction is from the south which will assist in directing spray drift over the pond.	N/A
Category 6: Mine dewatering Evaporation / Infiltration Pond	Dewatering water	Seepage through the base and walls causing groundwater mounding and	Brackish groundwater suitable for stock quality 50 mbgl.	Refer to Section 4.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 1, Table 1 Infrastructure and equipment requirements Requires maximum storage capacity, maintenance of	N/A

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
		contaminating groundwater resource	Potential beneficial users Macs Bore, located approximately 6km north-east of the British Queen Shaft and Rothsay Well, located approximately 6km south-east of the British Queen Shaft.				diversion bunding and maintenance of spillway. Condition 9, Table 6 Emission and discharge limits Requires limits for TDS to the Evaporation / Infiltration Pond. Condition 13, Table 10 Emissions and discharges monitoring Requires quarterly monitoring of the dewatering water. Condition 14, Table 11 Monitoring of ambient concentrations Requires quarterly monitoring of ambient groundwater in the vicinity of the Evaporation / Infiltration Pond.	
Category 6: Mine dewatering Ephemeral drainage line	Dewatering water	Direct discharge impacting priority flora	Priority flora	Refer to Section 4.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 1, Table 1 Infrastructure and equipment requirements Requires Ephemeral drainage line to be used as least preferential option, limits usage frequency and erosion controls. Condition 9, Table 6 Emission and discharge limits Limit for TDS to ensure elevated salinity does not impact on vegetation. Condition 13, Table 10 Emissions and discharges monitoring	N/A

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
							Requires quarterly monitoring of the dewatering water. Condition 17, Table 12 Vegetation Health Monitoring Requires vegetation health monitoring. Condition 22, Table 7 Annual Environmental Report Requires vegetation monitoring to be submitted.	
Category 64: Class II or II putrescible landfill site	Dust	Air/windborne pathway from movement of vehicles, equipment and cover material for trenches impacting on photosynthesis	Priority flora	Refer to Section 4.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 5 requires minimum tipping face and dust suppression.	N/A
	Windblown waste	Air/windborne pathway from Loose wastes that are uncovered and become windblown littering and attracting fauna	Priority flora Threatened fauna species 50 m east of TBS06 (extinct Malleefowl nest)	Refer to Section 4.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 6 requires management of windblown waste. Condition 7 requires cover be applied.	N/A
	Contaminated stormwater	Ephemeral drainage line located approximately 100 m away from the new landfill.	Priority flora	Refer to Section 4.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 3 requires waste management practices, such as waste segregation. Condition 4 requires measures be taken to ensure stormwater does not become contaminated.	N/a
Category 85: Sewage facility	Raw sewage	Direct discharge from overtopping,	Priority flora	Refer to Section 4.1	C = Moderate	Y	N/A	N/A

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
		pipeline breaches causing contamination			L = Rare **Medium Risk**			
	Treated effluent	Direct discharge from planned discharges to irrigation field resulting in nutrient loading	Priority flora	Refer to Section 4.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 1, Table 1 Infrastructure and equipment requirements. Comparison of the WWTP treated effluent to the design criteria and maintenance of irrigation area. This also takes into consideration the Total Nitrogen and Total Phosphorus loading rates. Condition 13, Table 10 Emissions and discharges monitoring Quarterly monitoring is required of the WWTP treated effluent that is discharging to the irrigation area.	N/A
	Contaminated stormwater	Rainfall ingress into the WWTP and irrigation area becoming contaminated	Priority flora	Refer to Section 4.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 4 requires measures be taken to ensure stormwater does not become contaminated.	N/A

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

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

5. Consultation

Table 6 provides a summary of the consultation undertaken by the department.

Table 6: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website (07 June 2021)	None received	N/A
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal (02 July 2021)	DMIRS replied on 21 July 2021 stating/advising that confirming that the existing TSF should be able to be used as planned.	N/A
Applicant was provided with draft documents on (22 October 2021)	The Applicant replied on 29 October 2021. Refer to Appendix 1.	The Applicant replied on 29 October 2021. Refer to Appendix 1.

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

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
4. Botanica Consulting, March 2021, *Botanical Consulting Vegetation Condition Monitoring Rothsay Gold Mine*, Boulder WA

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

Condition	Summary of applicant's comment	Department's response
1, Table 1	Request to remove term 'Wire' to avoid confision	Updated as requested.
2, Table 2	Daily erosion check is acceptable. Weekly vegetation checks would be preferred as vegetation quadrat inspections take considerable time - this is proposed as there has been little impact from 4 months of continuous discharge and impacts to vegetation are considered unlikely.	Updated as requested.
9, Table 6	As the RO discharges directly to the evaporation pond with a 20,00 ppm limit, can the TDS limit (10,000ppm) be removed please?	Updated as requested.
Schedule 2: Monitoring, Table 10	Both these monitoring locations are no longer available (groundwater is below the level of the British Queen Shaft and RHDW001 is now decommissioned. Please can they be removed. Alternative bore provided as part of the consultation (2/11/2021).	Updated as requested, but included background bore RYME10, located approximately 2.5km to the north west of the British Queen shaft, for comparison bore to the GMF.
Schedule 2: Monitoring, Table 10, Table 11	Please confirm field test is ok for pH/EC as due to the remoteness of the site, lab holding times are unable to be met.	Updated as requested.
Schedule 2: Monitoring, Table 10	As there is no BOD limit, please can this metric be removed. SLR are currently unable to monitor this metric and there will be a significant cost to undertake this monitoring. There is no discharge to water where this metric is more important.	Not updated. This is a standard requirement for WWTP treated effluent quality monitoring.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY					
Application type					
Works approval	☐				
Licence	☒	Relevant works approval number:	W6195/2018/1	None	☐
		Has the works approval been complied with?		Yes ☐ No ☐ To be assessed during licence process	
		Has time limited operations under the works approval demonstrated acceptable operations?		Yes ☐ No ☐ N/A ☐ To be assessed during licence process	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?		Yes ☒ No ☐	
		Date Report received: Multiple reports received.			
Renewal	☐	Current licence number:			
Amendment to works approval	☐	Current works approval number:			
Amendment to licence	☐	Current licence number:			
		Relevant works approval number:		N/A	☐
Registration	☐	Current works approval number:		None	☐
Date application received		26 March 2021			
Applicant and Premises details					
Applicant name/s (full legal name/s)		Applied as Egan Street Resources, however, Works Approval Holder has requested modification to Silver Lake (Rothsay) Pty Ltd (no change to ACN)			
Premises name		Rothsay Gold Project			
Premises location		Mining Tenements M59/39, M59/40 and L59/24 PERENJORI WA 6620 L59/24 is not currently on the Works Approval and it appears that there are some bores here, which is why it's been included.			
Local Government Authority		Shire of Perenjori			
Application documents					
HPCM file reference number:		DWERDT431230			
Key application documents (additional to application form):		Prescibe Premise Licence Application DWER Letter Rothsay Name Change			
Scope of application/assessment					

Summary of proposed activities or changes to existing operations.	Licence Operation of mine dewatering infrastructure, landfill and sewage facility

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

Table 1: Prescribed premises categories

Prescribed premises category and description	Proposed Assessed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 6: Mine dewatering	495,000 tonnes/yr	*Is there a proposed change to the previously assessed production or design capacity?*
Category 64: Class II or III putrescible landfill site	500 tonnes per annum	
Category 85: Sewage facility	25 m^3 per day	

Legislative context and other approvals

Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes ☐ No ☒	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes ☐ No ☒	Ministerial statement No: EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes ☐ No ☒	Reference No:
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes ☒ No ☐	Certificate of title ☐ General lease ☐ Expiry: Mining lease / tenement ☒ Expiry: Other evidence ☐ Expiry:
Has the applicant obtained all relevant planning approvals?	Yes ☐ No ☐ N/A ☒	Approval: Expiry date: If N/A explain why?
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes ☐ No ☒	CPS No: N/A No clearing is proposed.
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes ☐ No ☒	Application reference No: N/A Licence/permit No: N/A No clearing is proposed.

Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes ☒ No ☐	Application reference No: Licence To Take Water 420,000kL Licence/permit No: GWL175273(3)
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ☐ No ☒	Name: N/A Type: N/A Has Regulatory Services (Water) been consulted? Yes ☐ No ☒ N/A ☐ Regional office: N/A
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes ☐ No ☒	Name: N/A Priority: N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to WQPN 25)? Yes ☐ No ☒ N/A ☐
Is the Premises subject to any other Acts or subsidiary regulations (e.g. *Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx*)	Yes ☒ No ☐	DMIRS
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes ☐ No ☒	N/A
Is the Premises subject to any EPP requirements?	Yes ☐ No ☒	N/A
Is the Premises a known or suspected contaminated site under the *Contaminated Sites Act 2003*?	Yes ☐ No ☒	Classification: N/A Date of classification: N/A Not relevant to this administrative amendment