Roe Project: Works Approval RFI - Supporting Information

Attachment 8

Category 6: Mine dewatering and discharge

Category 89: Landfill

[redacted]

Table of Contents

Revision	Description
1	Lodged with DWER 26 March 2026
2	Response to RFI dated 23 April 2026

Tables

Figures

Appendices

1. Introduction

The Roe Project (Project) is located in the eastern goldfields, approximately 150 km east of Kalgoorlie in the shire of Kalgoorlie Boulder (Figure 1).

Lake Roe Gold Mining Pty Ltd (ACN 659 699 626) is a wholly owned subsidiary of Ramelius Resources Ltd (Ramelius) (ACN 001 717 540). Lake Roe Gold Mining Pty Ltd is the holder of granted mining lease M28/388.

AC Minerals Pty Ltd (ACN 139 823 028) is a wholly owned subsidiary of Ramelius Resources Ltd (ACN 001 717 540). AC Minerals Pty Ltd is the holder of granted miscellaneous licence L28/103.

Ramelius will be the operator of the Project.

The Project is located on M28/388 and L28/103 and will comprise of an open pit mining phase in three open pits; Bombora (BOM) 1800 pit, Bombora 1100 pit and Bombora 700 pit, followed by an underground mining phase with declines located in the Bombora 1800 pit. The Project has a current project life of 9 years.

The Project is a satellite mining operation. Ore will be transported on a dedicated (non public) service corridor on miscellaneous licence L28/103 to the Rebecca mining and processing hub. The workforce will be housed at the Rebecca accommodation facility and use the Rebecca airstrip for FIFO schedules. This co-use of support infrastructure greatly reduces the disturbance footprint required at the Roe site.

This document provides supporting information for a Works Approval application pursuant to Part V of the *Environmental Protection Act 1986* for Prescribed Premises activities at the Project. The prescribed premises boundary includes tenements M28/388 and L28/103.

Figure 1: Project Location

1.1. Site Plans

Figure 2 shows the two tenements to be defined as the Prescribed Premises boundary

Figure 3 and Figure 4 show activity layout and detail within tenement M28/388.

1.2. Prescribed Premises Activities

Table 1 shows the Prescribed Premises Categories required to operate the Project.

Table 1: Prescribed Premises Categories

Category	Project description	Document reference
6	Mine dewatering and discharge to the environment. Mine dewatering water is required for dust suppression on active work areas at the mine and on the service corridor. Mine dewatering water that is surplus to dust suppression will be discharged to HDPE lined evaporation ponds.	Section 3.1
89	Landfill. Capacity between 20 – 5,000 tpa. The site landfill will be required for small amounts of putrescible waste, used tyres and general commercial waste.	Section 3.2

Local groundwater is hypersaline, with values recorded over 200,000mg/L Total Dissolved Solids (TDS). Hydrogeology baseline assessment determined the dewatering rate required to allow dry mining progressively increased as more open pits are established and the mine excavations get deeper. Mine dewatering will occur via sumps constructed in the pit floor that collect inflow water. In-pit pumps will transfer this water out of the pit to the surface. A similar process will occur for the underground mining phase. At the surface, pipelines will transfer water to the first sediment pond.

Mine dewatering discharge to the environment will occur to the following locations:

1. Sediment ponds — Designed to settle suspended solids. Supernatant water will be used for dust suppression on mine areas and the service corridor. Surplus water will be pumped to the evaporation ponds.
2. Evaporation ponds — Designed to evaporate surplus water above site dust suppression needs. Solid salt residue will be excavated and either placed in the base of a completed mine void or buried in the WRL.
3. Road and mine surfaces — Sprayed with water to suppress dust.

Measures used to manage mine water discharged to the environment, and any resultant salt migration, are detailed in the following sections.

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460000 470000 480000 490000

6640000 6630000 6620000 6610000 6600000

L 28/103

M 28/388

Data source: Roads - Landgate, 2025. Tenure - DMES, 2025. Imagery: Google Satellite, 2023

LEGEND

- Activity Envelope
- Mining Tenements

Western Australian Roads

- Minor Road
- Other

LOCALITY

PROJECT TENURE

Roe Gold Project

S38 Referral Supporting Document

Ramelius Resources

N

0 1 2 3 4 km

Scale @ A3: 1:150,000 Coordinate System: GDA2020 MGA Zone 51

Prepared:	E Jackson
Reviewed:	L Carlsson
Project:	TE24094
Revision:	A
Date:	11/02/2026

Figure 2-1

talis consultants

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458000
459000
6603000
6602000
6601000
6600000
TS
Evaporation Ponds
Sprayfield
Ancillary Infrastructure
Evaporation Ponds
Laydown
Magazine
Ancillary Infrastructure
TS
Haul Road
Evaporation Ponds
Settling Pond
MOP
MOP
WRL
Mine Pit
Abandonment Bund
Mine Pit
Road
MOP
Mine Pit
WRL
TS
Ancillary Infrastructure
Data source: Roads - Landgate, 2025. Imagery: Google Satellite, 2023

LEGEND

- Development Envelope

Site Layout

- Transport or Service Infrastructure Corridor
- Laydown or Hardstand Area
- Topsoil Stockpile
- Mine Operational Area
- Magazine
- Other Cleared Land
- Water Management Structures
- Waste Rock Landform
- Mining Void

LOCALITY

0 100 200 300 400 km

PROPOSED SITE LAYOUT

Roe Gold Project

S38 Referral Supporting Document

Ramelius Resources

N

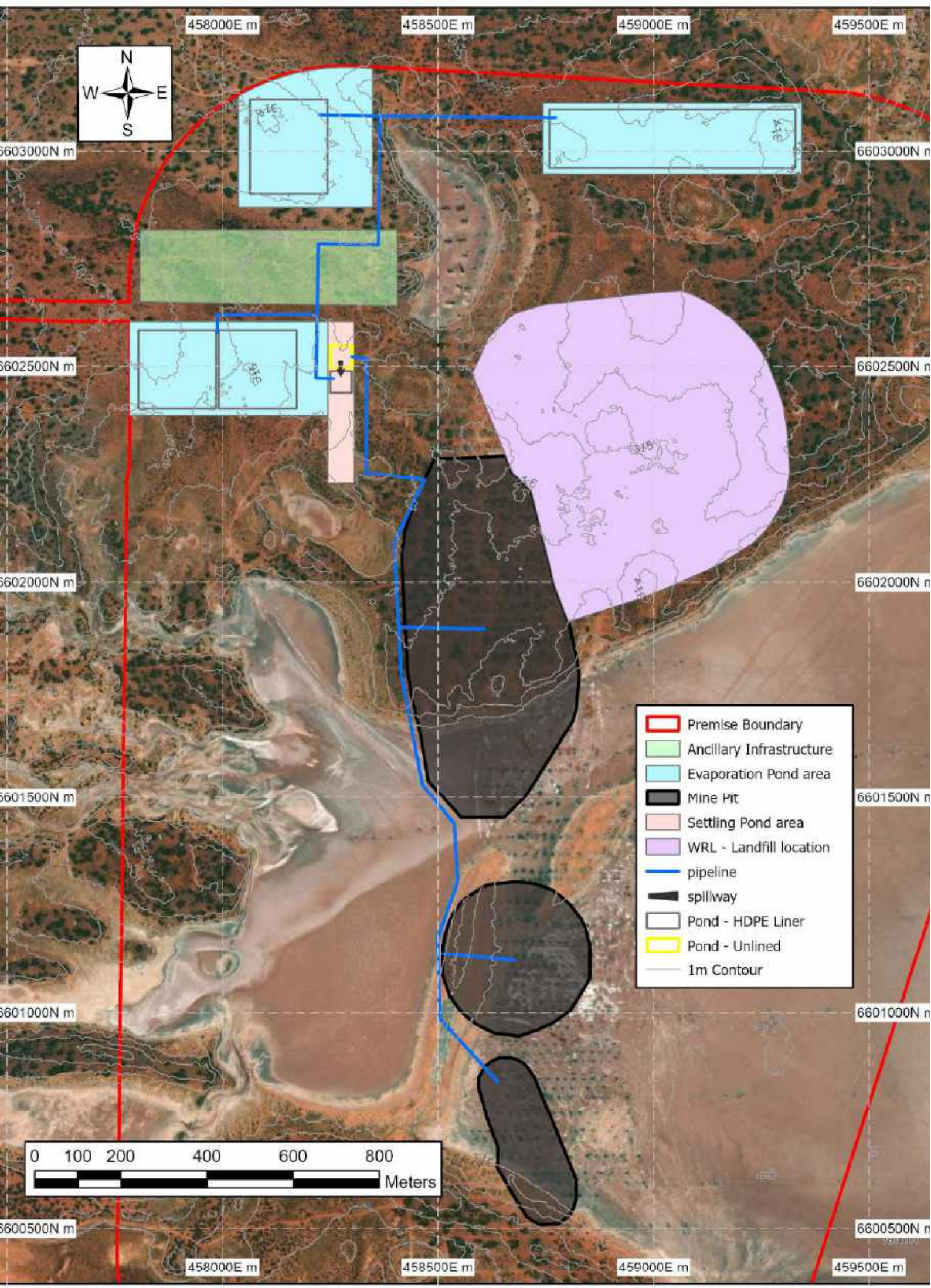
0 100 200 300 400 m

Scale @ A3: 1:11,000 Coordinate System: GDA2020 MGA Zone 51

Prepared:	E Jackson
Reviewed:	V Mugabe
Project:	TE24094
Revision:	B
Date:	30/01/2026

Figure 2-5

talis consultants



Author: Ramelius Resources | Drawn By: CD | Date: April 2026 | Projection: GDA 2020 Zone 51 | Drawing No: WorksApproval_Roe.ap

1.3. Request For Information

DWER sent a Request for Further Information (RFI) on 23/4/2026 (Appendix 1). Table 2 reproduces Schedule 1 of the RFI with an added column that cross references Ramelius response to each item.

This document reproduces the Supporting Information document (Rev 1) that was submitted with the application on 27/3/2026, with the addition of text and appendices in response to the RFI. This consolidates the information requested by DWER into the one document.

Table 2: Request for Information 23/4/2026

Relevant Application form part / section	Information requirements	Rationale	Ramelius Response
Part 3.4: **Attachment 2 – Premises map(s)**	1. Provide clear and current maps showing all key infrastructure, including evaporation ponds, settling ponds, pipelines, bunds and sumps. 2. All features are to be clearly labelled with unique identifiers. 3. Identify unlined ponds. 4. Show mine pits, WRLs, landfill trench location, ancillary infrastructure, sensitive receptors and distances to those receptors. 5. Maps must include a north arrow, scale, premises boundary, emission and discharge points, monitoring locations (with GPS coordinates where available), land uses and areas proposed for clearing.	The maps submitted identify the premises boundary and general activity areas but do not provide sufficient detail to support a full environmental risk assessment. Detailed mapping is required in accordance with IR-F09 to enable assessment of emissions, discharges, receptor proximity and environmental controls.	1. Section 1.1 2. Figure 3 shows north arrow, containment bund, numbered evaporation ponds, location of monitoring bores, location of unlined (yellow) sediment pond, location of lined (grey) sediment pond, distance of unlined sediment pond to nearest native vegetation receptor 3. Figure 4 shows the location of unlined sediment pond (yellow). This (alternating, two cell) pond is the only unlined pond on site. 4. Figure 3 and Figure 4 show location of unlined sediment pond, lined sediment pond, mine dewatering pipeline, discharge pipeline from second lined sediment pond to the three lined evaporation ponds, mine pits and WRLs. 5. See response No.2 above
Part 4.2: Detailed description of proposed activities	1. Provide detailed designs and supporting diagrams for the evaporation and sedimentation ponds, including embankments, lining systems, seepage and overflow controls. 2. Describe and diagram the transfer of mine dewater between settlement ponds, evaporation ponds and pond cells. 3. Specify expected permeability for each pond or cell. 4. Identify all proposed water quality and quantity monitoring points, including the number and location of monitoring bores and vegetation monitoring sites. 5. Clearly distinguish conceptual design elements from final design parameters.	The application includes a water balance and construction sequence; however, the design of the ponds and cells is not sufficiently detailed to assess environmental risk. Additional detail is required to clarify pond configuration, lining installation and sediment pond design.	1. Section 1.1 includes annotated site layout figures. Preliminary level design drawings are included in Appendix 6. Seepage and overflow control is detailed in Sectoin 3.1.5. 2. Section 7 provided a description of construction activities. Table 15 provides a summary of the key design features. Section 7.2.2 provides a description of the transfer of water between sediment pond cells and from the sediment pond to the evaporation ponds. 3. Section 7.2.3 is included to provide permeability information. 4. Monitoring bore locations are shown in Figure 3 and described in the monitoring program in Table 16. Section 7.2.4 provides a summary of monitoring associated with the evaporation ponds. 5. Pond locations are included on Figure 4 to provide scale and context in relation to the overall Project. .
	Confirm whether the initial landfill trench will be constructed at ground surface level or whether waste disposal will commence only after construction of the waste rock landform has started.	The management and control measures rely on trenches being located within an active waste rock landform. Confirmation is required to ensure the proposed controls are appropriate for the actual staging.	The initial landfill trench will be located at ground level, within the footprint of the BOM 1800 WRL. Once the landform has been constructed to provide sufficient space to safely separate earthmoving equipment from a portion where landfill trenches can be constructed, the facility will be relocated. The expanding WRL will then bury the initial trench under the landform.
	Provide the document(s) used to derive the evaporation pond water balance and capacity calculations, including any modelling reports referenced in the supporting document.	The application references external modelling for evaporation pond capacity; however, the supporting document has not been provided and is necessary to verify assumptions and results.	Appendix 3: AQ2 (2026: Hydrology report_Final Table 6.1
	Provide details of ancillary activities such as power generation, fuel storage and wastewater treatment facilities.	Ancillary activities may require a works approval if they trigger the throughput of the relevant prescribed premises categories. Your current application indicates the following activities may occur, but no details have been provided: • electricity generation (category 52), • fuel storage (category 73) • sewage treatment (category 54 or 85).	Section 3.3. The Project does not trigger thresholds for any of the nominated Categories.
	Provide hydrogeological and hydrological assessments for the premises, including the referenced AQ2 (2025) hydrogeology report and source report for surface water flow mapping. Include supporting data and discussion specific to the proposed infrastructure, including surface water diversion features and discharge locations.	Insufficient information has been provided on background aquifers and site hydrology to assess environmental risks. The existing discussion does not adequately describe surface water management measures relevant to this application, and supporting reports are required.	Appendix 2: AQ2 (2025) Hydrogeology report Appendix 3: AQ2 (2026: Hydrology report_Final Appendix 4: AQ2 (2025) Flood depth report_Rev 3 Appendix 5: Stantec Soils report

2. Other Approvals and Consultation

Table 3 lists other approvals and permits required to commence the project.

Table 3: Other Approvals and Permits

Legislation	Approval / Responsible Agency	Description
Environmental Protection Act 1986;	EPA – Referral of the Project submitted 10/3/2026. APP - 0034135	EPA to determine whether to assess under Part IV or not. If 'not assessed', approvals pathway is through DMPE and NVCP.
Mining Act 1978;	DMPE - MDCP to allow mining to occur	Mining activities; mine voids, WRL's
Environmental Protection Act 1986;	DMPE – NVCP to clear vegetation within the Activity Envelope for mining purposes	Clearing for mine activities
Rights in Water and Irrigation Act 1914;	DWER – GWL to abstract groundwater from mine pits	GWL 075080 submitted 8/10/2025 for 1GL/yr for mine dewatering
Health Act 1911	Local Government and DoH Permit to construct WWTP. Permit to operate WWTP	For ablutions etc at the site offices and workshops

Section 10.4 provdes a summary of consultation undertaken for the Project to date.

A telephone discussion with Fiona Westcott occurred on 10/10/2025 regarding the project and anticipated Prescribed Premises categories. This was followed up with a summary email. This email is also attached in section 10.4.

3. Proposed Activities

3.1. Category 6 – Mine Dewatering and Discharge

The Project will require dewatering of hypersaline groundwater to enable dry mining operations. Discharge of abstracted groundwater will occur to the following activities:

1. Discharge to sediment ponds to settle suspended solids;
2. Dust suppression around mine disturbed areas and on the service corridor (access road); and
3. Discharge of water surplus to dust suppression to evaporation ponds.

Bore WPB33 is located adjacent to the access ramp of Bombora 1100 pit. The constant rate pump test for this bore was 4.5L/s. While use of this bore is not anticipated to materially contribute to mine dewatering, it may be used for periods as a source of clean water for specific applications and as makeup water in the early stages of operation where Table 4 shows a mine dewatering deficit of the rate needed for dust suppression.

A groundwater abstraction licence (GWL) application for 1.0GL/yr was submitted to DWER on 18/11/2025 (ref: 075080) and is currently under assessment.

3.1.1. Sediment Ponds

Water abstracted from active open pits, and later from underground workings, contains high total suspended solids (TSS) content as a result of vehicle movement in active work areas. Figure 4 shows an

area allocated next to the BOM 1800 mine ore pad (MOP) for two sediment ponds. Ponds will be constructed by excavating 1 - 2 metres into in-situ ground and use the spoil to construct a perimeter containment wall up to 2 metres above ground level. The ponds will be designed to lower the velocity of water and provide sufficient residence time to allow suspended solids to settle. Reducing this sediment load is required prior to using water for dust suppression or evaporation.

The result is that the first pond will fill with deposited sediment that periodically needs to be removed. If this pond is lined to eliminate seepage the hazard is that the excavator tears the liner during the sediment removal process, negating the impermeable nature of the facility. The risk of not lining the pond is that saline seepage migrates to, and negatively affects, adjacent sensitive receptors.

Two unlined sediment ponds will be constructed to operate alternately. This will allow the 'full' pond to dry out and be excavated of settled solids while the second pond is in use. The process is then alternated. Ramelius will reduce/minimise risk of seepage by only having the first ponds unlined. Most sediment will settle in this pond. Only fine suspended solids and colloidal particles will progress into the second pond. The quantity of settled solids in the second pond is not anticipated to be significant. The second sediment pond will be HDPE lined to eliminate seepage from this source.

Figure 3 shows the sediment ponds are located within a larger cleared area, between the BOM 1800 pit MOP, access road and evaporation pond #1, eliminating most native vegetation in close proximity to the sediment ponds. The allocated area is approximately 60m wide x 370m long, however each sediment pond is approximately 50m x 50m. Figure 3 shows the closest native vegetation receptor to the unlined sediment pond is approximately 140m to the northeast and approximately 120m to the south-southwest. The available area is sufficient for the following management measures:

- Establish a minimum 20m cleared area buffer from the sediment ponds to the nearest native vegetation (sensitive receptor);
- Install a shallow monitoring bore in the buffer zone to detect seepage;
- If seepage is detected, construct cut off trench to intercept seepage and return it to the ponds.

This will achieve the outcome of *no saline seepage impacting surrounding native vegetation.*

3.1.2. Mine Area Dust Suppression

Dust suppression is required around active work areas where vehicle movement and earthmoving activities generate dust. During periods of high winds, disturbed areas that are not being trafficked can also generate dust liftoff.

Regular water application by water trucks is the industry standard management practice to reduce dust generation. Water trucks will fill from a standpipe at the second sediment pond and spray water around disturbed areas that are generating dust.

Methods to manage and reduce impacts from salt migration off the mine area into adjacent sensitive receptors include:

- Controlled discharge. Fan sprays are operated individually, so that water is not sprayed beyond the cleared area.
- Perimeter / abandonment bunds (section 3.1.4) describes measures to contain salt migration to disturbed areas that eliminate/ minimise risk of impact to surrounding receptors.

This will achieve the outcome of *no salt migration off sprayed areas impacting surrounding native vegetation.*

3.1.3. Evaporation Ponds

Mine dust suppression requirements and dust suppression on the service corridor is estimated to consume approximately 15L/s (~1,300kL/day). Therefore only dewatering rates above this will report to the evaporation ponds. Table 4 reproduces Table 6.5 of the AQ2 (2025) hydrogeology report, with the addition of a column showing rates above 15L/s. Table 4 shows the maximum predicted dewatering rate of approximately 30L/s is not achieved until year 5. Until then, dewatering rates steadily increase as open pits are dug and underground development starts in year 4. Based on this data, the first evaporation pond will not be required until year 2.

AQ2 (2026) *Bombora Project - Lake Roe Flood Depth Assessment* modelled the evaporation pond capacity required for a number of discharge rates, based on a lined (zero seepage) and an unlined (3mm/day) seepage rate option. Table 5 reproduces Table 6.1 of the AQ2 (2026) report and shows that the allocated pond capacity of 30 ha is sufficient to evaporate up to 20L/s surplus discharge in lined ponds but only 20 ha is required to contain the same discharge in unlined ponds.

The risk with unlined ponds is that saline seepage could migrate and impact adjacent native vegetation receptors. By adding additional area and cost (HDPE liner), Ramelius considers the better environmental outcome to eliminate salt migration from this source is achieved. All evaporation ponds will be HDPE lined to eliminate seepage.

Detailed design of the evaporation ponds has not yet been completed. Preliminary (not for construction) level designs are provided in Appendix 6. The general design principle is the same as for the sediment ponds, that is - excavate into insitu ground to provide a flat floor and use the spoil to construct a 2m high perimeter wall. The pond will be HDPE lined. Depending on natural ground levels at each pond location, to reduce earthworks cost a terrace series of smaller ponds may be required rather than one large pond.

Table 4 shows the first pond is not required until the start of Year 2, the second pond until the start of year 3 and the third pond until the start of year 5. The operational sequence from year 5 when 3 ponds are in operation (maximum steady state condition) is that water is pumped sequentially to fill each pond to approximately 300mm deep. At the modelled maximum rate of 15L/s (~1,300kL/day) it will take 23 days to fill a 10ha pond to 300mm. This means each 10 ha evaporation pond has 46 days of drying time before another fill sequence.

Table 4: Modelled Dewatering Rate

Mining Schedule	Mining Year	Mining Months	Bombora 1800 Pit	Bombora 1100 Pit	Bombora 700 Pit	Bombora UG	Total Inflows (All Pits & UG)	Surplus
			(L/s)					>15L/s
FY2028 Q1	1	0-3						
FY2028 Q2		4-6	2.9				3	
FY2028 Q3		7-9	11.2				11	
FY2028 Q4		10-12	15.1				15	
FY2029 Q1	2	13-15	17.5				17	2
FY2029 Q2		16-18	16.2				16	1
FY2029 Q3		19-21	18.6				19	4
FY2029 Q4		22-24	18.0				18	3
FY2030 Q1	3	25-27	17.1		3.9		21	6
FY2030 Q2		28-30	16.6	3.6			20	5
FY2030 Q3		31-33	16.2	7.3			24	9
FY2030 Q4		34-36	15.9	6.3			22	7
FY2031 Q1-Q4	4	37-48	14.3	3.9		5.1	23	8
FY2032 Q1-Q4	5	49-60	13.8	3.6		11.2	29	14
FY2033 Q1-Q4	6	61-72	13.3	3.4	3.2	12.1	32	17
FY2034 Q1-Q4	7	73-84	13.0	3.3	3.0	12.4	32	17
FY2035 Q1-Q4	8	85-96	12.7	3.2	2.8	10.8	30	15
FY2036 Q1-Q4	9	97-108	12.4	3.2	2.7	8.2	27	12

Source AQ2 (2025) Table 6.5

Table 5: Evaporation pond area

Discharge Rate Flow [L/s]	Pond Area at seepage Rate 0 mm/day (ha)	Pond Area at seepage Rate 3 mm/day (ha)
5	11.5	6.5
10	15	10
15	22	15
20	30	20

Source AQ2 (2026) Table 6.1

Ramelius will implement the following adaptive management measures to ensure maintenance of the site water balance. The process is summarised in Table 6.

This will achieve the outcome of *all discharge of surplus saline dewatering water contained within lined facilities.*

Table 6: Management Review

Event	Result	Mitigation Action	Outcome
Actual dust suppression usage exceeds estimation of 15L/s.	If net surplus requiring evaporation is less than predicted, current evaporation pond capacity is sufficient.	No change. Depending on actual net surplus, 3rd evaporation pond may not be required.	All surplus mine dewatering water discharged to evaporation ponds is contained. No impact to adjacent sensitive receptors.
Actual dust suppression usage less than estimation of 15L/s.	If net surplus requiring evaporation is more than predicted, current pond capacity is insufficient.	Change required. Options are to: Increase evaporation area (build 4th pond); Increase evaporation rate using mechanical devices; or Increase site usage so discharge rate to ponds decrease to the level where complete drying occurs..	
Actual dewatering rate exceeds model prediction.	If net surplus requiring evaporation is more than predicted, current pond capacity is insufficient.	Change required. Options are to: Increase evaporation area (build 4th pond); Increase evaporation rate using mechanical devices; or Increase site usage so discharge rate to ponds decrease to the level where complete drying occurs.	
Actual dewatering rate less than model prediction.	If net surplus requiring evaporation is less than predicted, current pond capacity is sufficient.	No change. Depending on actual net surplus, 3rd evaporation pond may not be required.	
Actual evaporation rate exceeds modelled prediction.	Ponds dry in shorter time than predicted, current pond capacity is sufficient.	No change. Depending on actual evaporation rate, 3rd evaporation pond may not be required.	

Event	Result	Mitigation Action	Outcome
Actual evaporation rate less than modelled prediction.	Ponds do not completely dry out between discharges (net water buildup). Pond capacity is insufficient.	Change required. Options are to: Increase evaporation area (build 4th pond); Increase evaporation rate using mechanical devices; or Increase site usage so discharge rate to ponds decrease to the level where complete drying occurs.	

3.1.4. Spillage containment

Figure 3 shows the mine landform perimeter bund that functions as both an abandonment bund as specified in DMPE requirements and also 1% AEP flood protection bund as specified in AQ2 (2025) (Appendix 4). Figure 5, Figure 6, and Figure 7 reproduce Figures 4.7, 4.8 and 4.9 respectively in Appendix 4. They show the lake playa represents the lowest topographical part of all three pits and this is approximately 312.25m RL. The modelled 1% AEP flood depth is 315.1m RL and with a 1 m freeboard results in a flood protection bund height of 316.1mRL. This is a 3.85m (rounded to 4.0m) bund encircling the open pits on the lake playa surface. The height of the flood protection bund can decrease as natural contours rise from the lake playa, however DMPE specifications for abandonment bunds require a minimum of 2m. Therfore the encircling bund around the open pits and WRLs will be between 2 – 4m in height and provide a complete internal drainage containment zone for any hypersaline water spills within this zone. No discharge out of this zone will occur to impact any sensitive receptor.

Outside this zone, pipelines will be located in V drains that contain spillage and direct it to containment sumps located in low points in the profile. In the case of a spillage, salt contaminated soil will be excavated from the base of the sump and taken to the WRL.

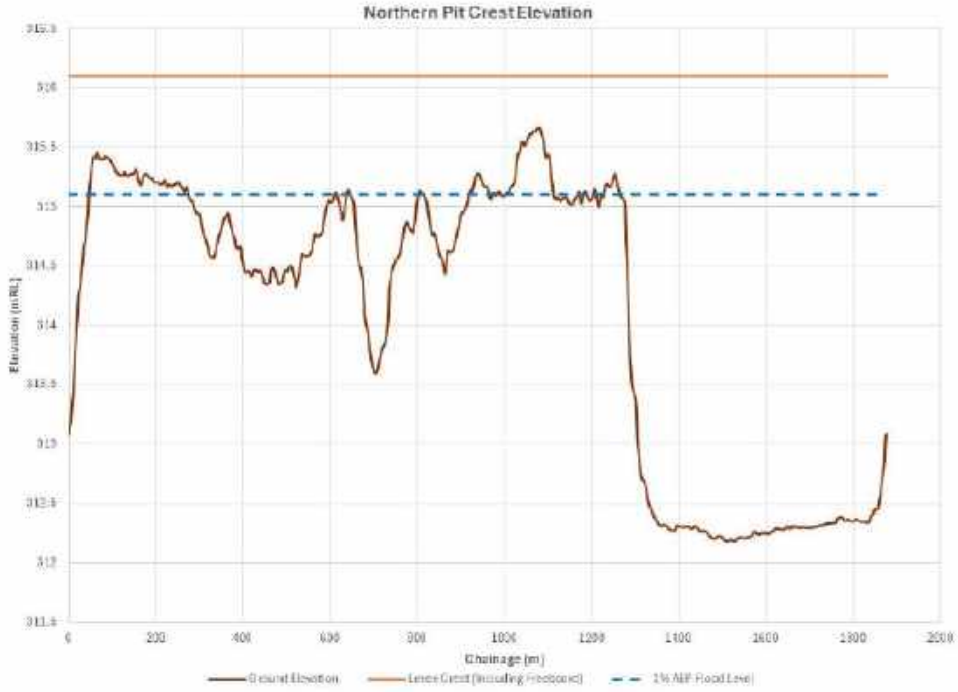


Figure 5: 1800 pit

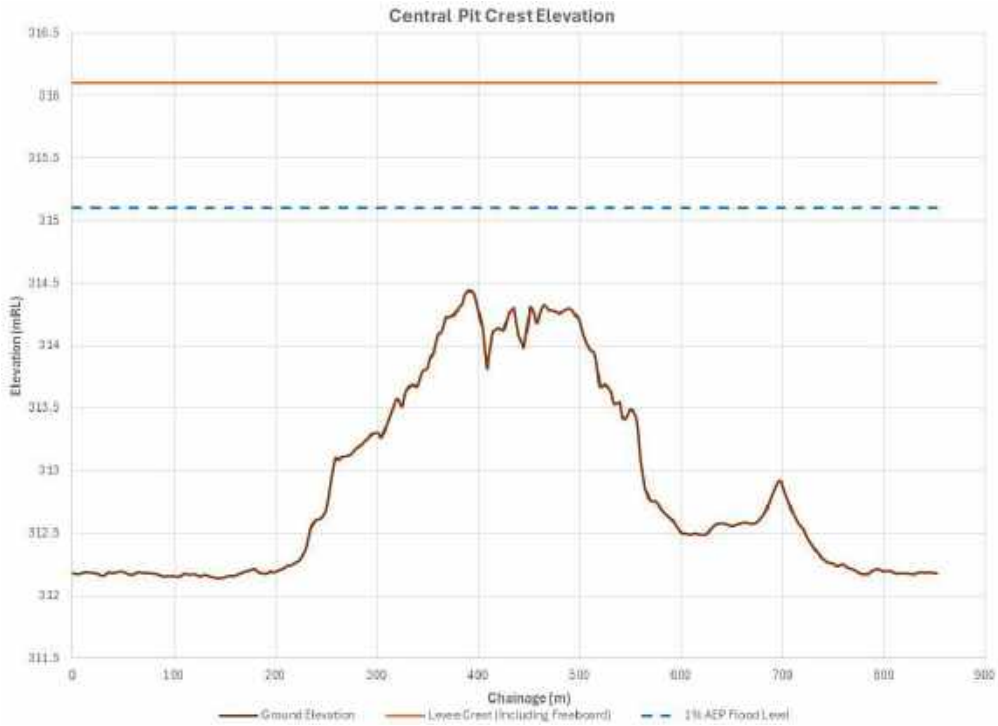


Figure 6: 1100 pit

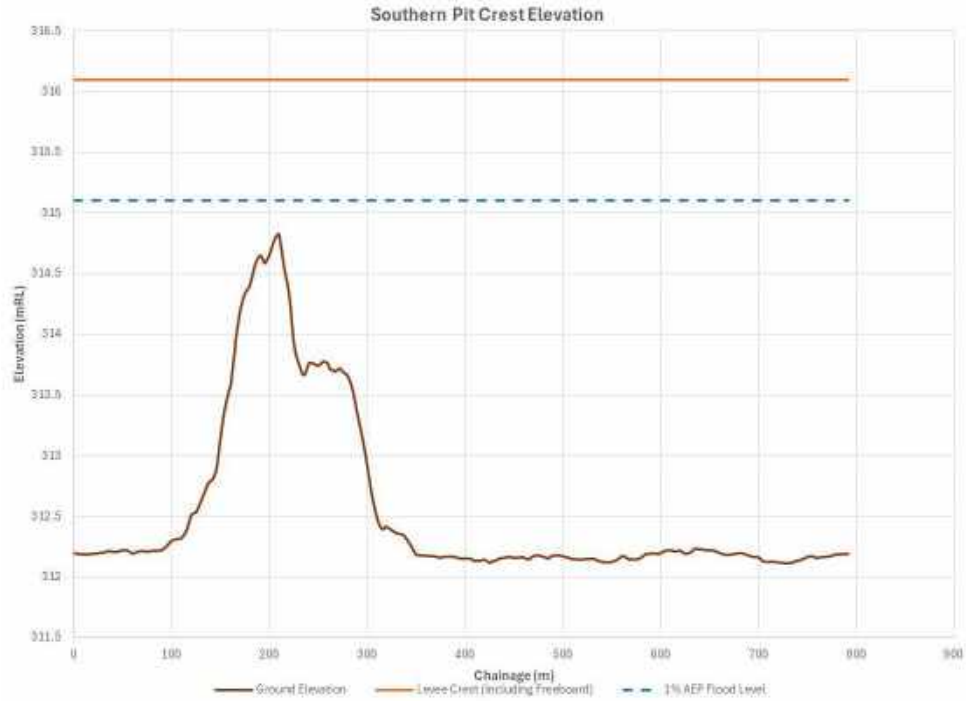


Figure 7: 700 pit

3.1.5. Seepage and overflow control

First sediment pond

Seepage will be reduced by compacting the floor of the pond.

Overflow will be avoided by the invert of the spillway from the unlined ponds into the second lined pond being set at pond crest minus 300mm (crest -0.3m RL).

Second sediment pond

Seepage will be avoided by installation of HDPE liner.

Overflow will be avoided by visual inspection and level control. Discharge from the second sediment pond to the active lined evaporation pond controlled by float valves controlling a pump operation. A pump will discharge water from the second sediment pond to the active lined evaporation pond, with pond water level maintained between two low and high levels. A low level switch will cut out the pump to prevent complete draining of the sediment pond. A high level alarm will be set with sufficient freeboard for personel to investigate the cause and rectify. Possible causes are:

- Pump failure — In this event, delivery water from the dewatering pumps in the mine pits to the sediment pumps will be temporarily shut down to allow the pump to be fixed or replaced.
- Inflow exceeds outflow — This is unlikely as should mine dewatering rates increase, this will be a known event. Pump capacity throughout the system (from mine pits to evaporation ponds) will be adjusted accordingly.

Evaporation ponds

Seepage will be avoided by installation of HDPE liner.

Overflow will be avoided by visual inspection. Section 3.1.3 details that it will take 23 days to fill a 10ha pond and 11-12 days to fill a 5ha pond to 300mm depth. These time periods enable daily inspection and manual operation of values to adequately manage this discharge with no risk of overtopping any evaporation basin.

3.1.6. Service Corridor dust suppression

Water trucks will fill from a standpipe at the second sediment pond and travel up the service corridor spreading water on the road surface.

Detailed design of the service corridor and any dust suppression water infrastructure has not yet been undertaken, however the total length of the corridor is approximately 60 km. It is likely that at least one refilling point will need to be constructed along the corridor to enable continued operation of the water trucks.

Exploration drilling to identify groundwater resources within or close to the service corridor have as yet failed to identify sources of groundwater with sufficient capacity to provide a local bore to fill water tanks at a refilling station. In the absence of a local water supply, a pipeline up the corridor from Roe is the only other option. This Works Approval application includes the option to construct a pipeline adjacent to the service corridor road to supply a water refilling point.

Methods to manage and reduce impacts from salt migration off the service corridor into adjacent sensitive receptors include:

- Controlled discharge. Water trucks can be fitted with dribble bars that confine water distribution to the road lane width. Fan sprays are operated individually, so that only the fan to the opposite lane of the road is used.
- Roadside V drains. Side drains are constructed so that surface flow in a rain event does not run directly off the road into adjacent vegetation. Side drains flow to sumps at low points. Regular sump maintence will be scheduled to excavate sediment and salt so that salt load does not accumulate in the base of the sump.
- Pipeline containing hypersaline water is to either be buried or located inside a V drain that will contain minor leaks and spills. If on-ground, regular inspections of the pipeline will occur.

- Road sumps. Detailed design of the service corridor will include storage capacity of each roadside sump to incorporate its road catchment length and a 50%AEP (1:2yr) rain duration event. It is acknowledged that there may be rain events that exceed the designed storage capacity of sumps and some overflow will occur. The dilution factor in these larger events will reduce salt concentration but some impact to vegetation in the immediate vicinity may result from these infrequent events.

This will achieve the outcome of *salt migration off sprayed areas limited to the confines of the tenement boundary.*

3.2. Category 89 - landfill

The BOM 1800 WRL will be used to locate the landfill. As WRL's change over time with active tipping areas and height, it is not possible to define a single location within the landform that will remain as the landfill deposition point for the duration of mine life. Also some 'waste' components, specifically used tyres, are often used as delineators to define the final 'dump-to' line around the WRL. Final battering of the WRL outer face during the rehabilitation phase buries these tyres under a minimum of 5m of mine waste.

For this reason, the entire WRL footprint is proposed to be designated as 'landfill'. The initial landfill trench will be located at ground level, in the 'outer extremity' of the WRL beyond the initial tipping face near the pit ramp. Once the landform has been constructed to provide sufficient space to safely separate earthmoving equipment from a portion where landfill trenches can be constructed, the facility will be relocated. The expanding WRL will then bury the initial trench under the landform.

At a nominated location, a trench approximately 3 metres deep by 5 metres wide by 30 metres long will be dug into the mine waste. When full, another trench will be dug parallel to the first and spoil from the new trench used to cover the full trench. When the mine waste tipping sequence approaches this site, a new location is defined on the landform and a new trench excavated.

An unlined Class II landfill is proposed to be constructed within the 1800 WRL. In accordance with the DWER *Landfill Waste Classification and Waste Definitions 1996* (as amended 2019) the following waste types that require disposal at the site landfill include:

- Putrescible waste from lunch containers
- Office waste
- Packaging and pallets from deliveries
- Non recyclable steel waste separated from underground mining
- General solid waste from workshop and mining.
- Inert Waste Type 2 - used tyres

Waste types not disposed to the site landfill include:

- Waste oil. This will be stored in a tank and collected by a licenced waste oil recycler.
- Batteries. These will be stored on pallets and backloaded to a recycling facility in Kalgoorlie.
- Solid oily waste. Workshop waste such as rags, hydraulic hoses etc are stored in lidded bulk bins and removed to a licenced recycling facility or appropriate class of landfill.
- Other Controlled Waste. This includes used engine coolant and other liquid wastes. These are collected by a licenced liquid waste contractor and removed from site.

Once onstructed, Ramelius intends to **Register** the landfill. Management will be consistent with the *Environmental Protection (Rural Landfill) Regulations 2002*. Table 7 details management actions consistent with the Rural Landfill Regulation requirements.

Table 7: Landfill Management

<table>
<tr><th>Section number compliance check against the Environmental Protection (Rural Landfill) Regulations 2002</th><th>Assessment</th><th>Compliance</th></tr>
<tr><td>4. Application
Apply to premises specified in Schedule 1 Part 2 of the Environmental Protection Regulations 1987 as category 89 premises and registered under regulation 5B of those regulations.</td><td>The landfill at the site will be Registered as a Category 89 premises</td><td>Yes</td></tr>
<tr><td>5. Tipping area
The occupier of the landfill site must ensure that the tipping area of the site is not greater than —
(a) 30 metres in length; and
(b) 2 metres above ground level in height.</td><td>The landfill will be a trench approximately 30m in length, 3m in depth and 5m in width located in the WRL.</td><td>Yes</td></tr>
<tr><td>6. Covering of waste
(1) The occupier of a landfill site must ensure that waste in the tipping area of the site is covered —
(a) at least as often as is specified in the Table to this regulation; and
(b) in accordance with subregulation (2).
(2) Waste is to be —
(a) covered with a dense, inert and incombustible material, or such other material as is approved in respect of a particular landfill site;
(b) totally covered, so that no waste is left exposed.
(3) The occupier must ensure that there is enough cover material readily available on site for the tipping area to be covered, at least twice.
<table>
<tr><th>Tonnes of waste received per year</th><th>Frequency waste is to be covered</th></tr>
<tr><td>Less than 500 tonnes</td><td>Monthly</td></tr>
<tr><td>Between 500 and 2000 tonnes</td><td>Fortnightly</td></tr>
<tr><td>Between 2000 and 5000 tonnes</td><td>Weekly</td></tr>
</table></td><td>(1) It is anticipated the landfill will receive less than 1,000t/year. However, at a maximum, fortnightly covering of waste will occur. Usually, covering will be weekly.
(2) Waste will be covered with mine waste.</td><td>Yes</td></tr>
<tr><td>7. Fencing of landfill site
The occupier of a landfill site must ensure that there is a fence around the boundary of the site which is an effective barrier to cattle, horses and other stock.</td><td>The landfill site is on a mine WRL. As it will be periodically relocated in other parts of the WRL a temporary fence will be used to prevent stock from entering the tipping area</td><td>Yes</td></tr>
</table>

Section number compliance check against the *Environmental Protection (Rural Landfill) Regulations 2002*	Assessment	Compliance
8. Waste to be contained on landfill site The occupier of a landfill site must ensure that — (a) waste does not get washed, or blown, outside the site; and (b) waste that has been washed, or blown, away from the tipping area of the site is returned to the tipping area at least once in each month.	(a) The landfill is located in a mine waste landform and in trenches. (b) Any fugitive rubbish will be collected monthly.	Yes
9. Separation of waste from water and site boundary Unless otherwise approved in writing, the occupier of a landfill site must ensure that there is no waste within — (a) 35 metres from the fence surrounding the site; (b) 100 metres of any surface water body at the site; or (c) 3 metres of the highest level of the water table aquifer at the site.	(a) The fence will be 35 metres from the waste trench. (b) There are no surface water bodies in the locality. (c) Waste will be greater than 3 metres from groundwater.	Yes
10. Stormwater management The occupier of a landfill site must ensure that stormwater on the site is adequately managed so that — (a) it is diverted from areas of the site where there is waste; and (b) water that has come into contact with waste is to be diverted into a sump on the site, or otherwise retained on the site.	A 0.5m safety bund will be installed around the crown of the trench to prevent vehicles access. This will also prevent any localised surface flow into the trench.	Yes
11. Dust suppression The occupier of a landfill site must ensure that no visible dust escapes from the landfill site.	In context to the surrounding mining operation, the small size of the landfill and the minimal vehicle movements is considered unlikely to generate any significant dust emission. Dust suppression using water trucks will be a routine control measure applied to the WRL.	Yes
12. Firebreaks The occupier of a landfill site must ensure that there is a firebreak of at least 3 metres around the boundary of the site.	The WRL provides a functional firebreak around the landfill.	Yes
13. Burning of greenwaste only (1) The occupier of a landfill site must ensure that waste is not burnt at the site, other than greenwaste burnt in accordance with this regulation. (2) Greenwaste may be burnt if— (a) it is dry and seasoned for at least 2 months before it is burnt;	Waste will not be burnt at the landfill.	Yes

Section number compliance check against the *Environmental Protection (Rural Landfill) Regulations 2002*	Assessment	Compliance
(b) it is burnt in a designated burning area of the landfill site; (c) it is burnt in trenches or windrows; (d) it is burnt quickly and in such a way that the generation of smoke is minimised; (e) burning does not commence before 8 a.m. and the Fire Control Officer for the landfill site declares the area safe by 12 noon on the same day; and (f) there is present in the area from the time burning commences until the Fire Control Officer for the landfill site declares the area safe — (i) a fire fighting vehicle carrying at least 500 litres of water, fitted with at least 30 metres of 19 mm diameter rubber hose and with a pump capacity capable of delivering a minimum of 250 litres of water per minute at a minimum of 700 kPA through a nozzle capable of projecting water by spray or by jet; and (ii) 2 persons, who have such qualifications in fire fighting as are approved. (3) In this regulation — **designated burning area** means an area of a landfill site that has been designated by the occupier of the site as a designated burning area and which — (a) is at least 50 metres from the boundary of the site; (b) has no inflammable material on it, other than the greenwaste and live trees, for a radius of 50 metres; (c) is positioned on an area of the site where waste (other than the greenwaste to be burnt) has not been deposited; and (d) is at least 500 metres from any person's residence or place of employment (other than the landfill site) or an educational institution, hospital or other public place;		
14. Outbreak of fire (1) The occupier of a landfill site must ensure that there are appropriate procedures in force at the site so that — (a) any unauthorised fire on the site is promptly extinguished; and (b) appropriate alarm and evacuation procedures are in place. (2) The occupier of a landfill site must ensure that an unauthorised fire on the site is extinguished as soon as possible.	(1) Fire fighting equipment and procedures including alarm and evacuation procedures are maintained as part of the mine operation. (2) An unauthorised fire will be extinguished as soon as possible. The mine water carts are equipped with water cannons for use in fire fighting. The volume of water produced by the water cart	Yes

Section number compliance check against the *Environmental Protection (Rural Landfill) Regulations 2002*	Assessment	Compliance
(3) Within 14 days of an unauthorised fire at a landfill site, the occupier of the site must give to the Chief Executive Officer a report on the fire containing- (a) details of the date, time and location of the fire; (b) the time the location of the fire was declared safe by the Fire Control Officer for the site; and (c) the cause, or suspected cause, of the fire.	cannon is considered more than sufficient to quickly extinguish any landfill fire. (3) An unauthorised fire at the landfill will be reported to the CEO in accordance with Regulation 14 (3).	
15. Approval for disposal at landfill site of clinical waste or material containing asbestos (1) The occupier must ensure that clinical waste or material containing asbestos is not disposed of at the site unless the site is approved for disposal of that waste or material. (2) The occupier must ensure that clinical waste and material containing asbestos is disposed of in accordance with the relevant approval. (3) Where there is a conflict between a requirement of regulation 16 and a requirement of an approval, the requirement of regulation 16 prevails.	(1) No clinical or asbestos waste will be disposed at the site landfill. (2) Any clinical or asbestos waste will be disposed at an approved landfill.	Yes
16. Disposal of clinical waste and material containing asbestos (1) The occupier of a landfill site is to ensure that clinical waste and material containing asbestos disposed of at the site is disposed of under the occupier's personal supervision or the personal supervision of a person nominated by the occupier. (2) The person supervising the disposal of clinical waste or material containing asbestos at a landfill site is to ensure that it is covered as soon as is practicable after its disposal — (a) with a dense, inert and incombustible material; and (b) to a depth of at least one metre. (3) The occupier of a landfill site is to ensure that there is kept at the landfill site an accurate and up to date — (a) register of clinical waste and material containing asbestos disposed of at the landfill site; and (b) a plan of the landfill site showing the position of clinical waste and material containing asbestos disposed of at the landfill site. (4) The person supervising the disposal of clinical waste or material containing asbestos at a landfill site is to make an entry in the register	No clinical or asbestos waste will be disposed in the landfill.	Not applicable

Section number compliance check against the *Environmental Protection (Rural Landfill) Regulations 2002*	Assessment	Compliance
within 2 hours of supervising the covering of waste under subregulation (2), stating — (a) the date; (b) the person's name; (c) that the waste has been covered in accordance with that subregulation; and (d) where more than one square metre of waste was covered, grid coordinates with reference to the plan of the landfill site so that the position of the waste can be easily and accurately ascertained. (5) The occupier of a landfill site is to ensure that the grid references entered in the register are marked on the plan of the landfill site.		
17. Post-closure plan (1) The occupier of a landfill site must prepare and submit to the Chief Executive Officer for approval a post-closure rehabilitation plan, in accordance with subregulation (2), for the site within 18 months of the site being registered under regulation 5B of the *Environmental Protection Regulations 1987*. (2) A post-closure rehabilitation plan is to set out a plan for the rehabilitation of the site after it has ceased to be a landfill site and, in particular, is to specify - (a) options for the use of the site after it has ceased to be a landfill site, and is to specify the preferred option; (b) a conceptual design of the infrastructure needed for the preferred option for the use of the site after it has ceased to be a landfill site; (c) the estimated final contours of the site, after allowing for settlement, and specifying to what extent settlement has been allowed for; (d) the capping materials proposed to be used on the site; (e) a proposed system of drainage of the site; (f) measures proposed for the protection of the environment and the monitoring of the site; and (g) the estimated period for which the site will require protection and monitoring	A rehabilitation plan and a mine closure plan will be prepared as part on other mine approvals. These plans include the rehabilitation and closure of the mine waste landform – which contains the landfill site.	Not yet applicable

3.3. Ancillary Activities

Electricity generation (category 52)

Figure 8 reproduces Figure 9-16 of the Rebecca Roe Definitive Feasibility Study (DFS). It depicts estimated power usage throughout the life of mine for the Roe Project. The highest power demand is related to underground mining operations, which do not commence until after the initial open pit phase. Peak installed capacity is expected to ramp up to be over 5MW with normal usage around 4MW, taking into account duty and efficiency factors.

The WA Supporting information document Table 13 states "Site power demand is estimated at maximum 5MW. This is below the Prescribed Premises Category 52 threshold of 10MW using diesel fuel. No Works Approval or Licence is required".

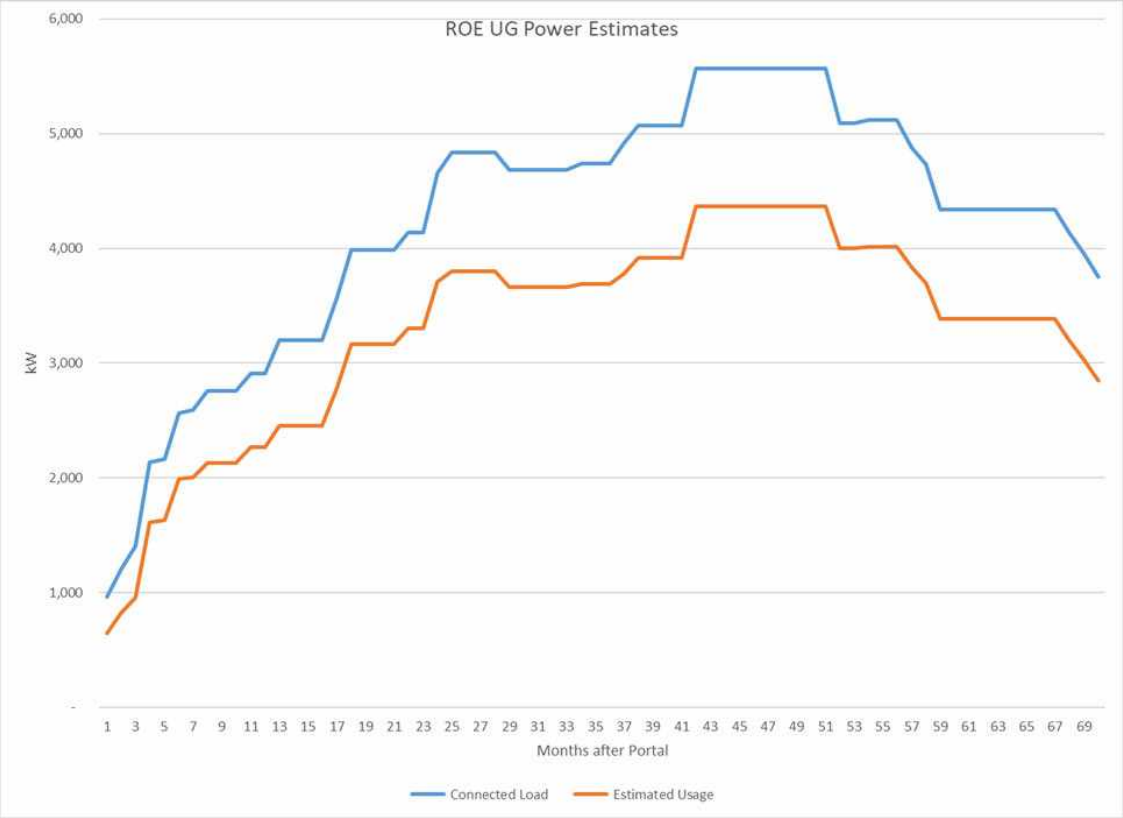


Figure 8: Roe power estimate

Fuel storage (category 73)

Category 73 is Bulk storage of chemicals, etc: premises on which acids, alkalis or chemicals that -

(a) contain at least one carbon to carbon bond; and

(b) are liquid at STP (standard temperature and pressure), are stored.

1,000 cubic metres (m^3) in aggregate.

The specific gravity of diesel is quoted as generally in the range 0.82 – 0.95. This means 1,000m^3 is between 1,052kL - 1,219kL. For the purposes of this report a direct 1:1 ratio is used, ie 1,000m^3 = 1,000kL (1ML).

Using similar sized existing Ramelius operations as a surrogate for Roe, diesel storage capacity is estimated at 2 or 3 x 100,000L (100kL) self bunded tanks. This is 0.2 – 0.3 of the threshold capacity for Category 73. Ramelius confirms the Roe Project will not trigger the Category 73 threshold. A Dangerous Goods (DG)

licence will be applied for from Department of Local Government, Industry Regulation and Safety (DLGIS) for diesel storage and the explosives magazine.

Sewage treatment (category 54 or 85).

There is no accommodation village included in the Roe Project. The workforce will commute from a combined Rebecca-Roe facility. W3013/2025/1 includes the WWTP for this facility. This means only a modest WWTP facility is required at Roe to handle ablutions and site office facilities. The estimated water balance is as follows.

5 flushes per day x 8L x 100 persons	= 4,000L/day
Site offices	=1,000L/day
Total	= 5,000L (5kL / 5m^3)/day

Category 85 is Sewage facility: premises -

(a) on which sewage is treated (excluding septic tanks); or

(b) from which treated sewage is discharged onto land or into waters.

More than 20 but less than 100 cubic metres per day

Site wastewater production is therefore estimated at 0.25 of the threshold capacity of Category 85. No Works Approval or Licence is required.

In summary, the only Prescribed Premises categories required at the Roe Project is Category 6 – mine dewatering and Category 89 – landfill.

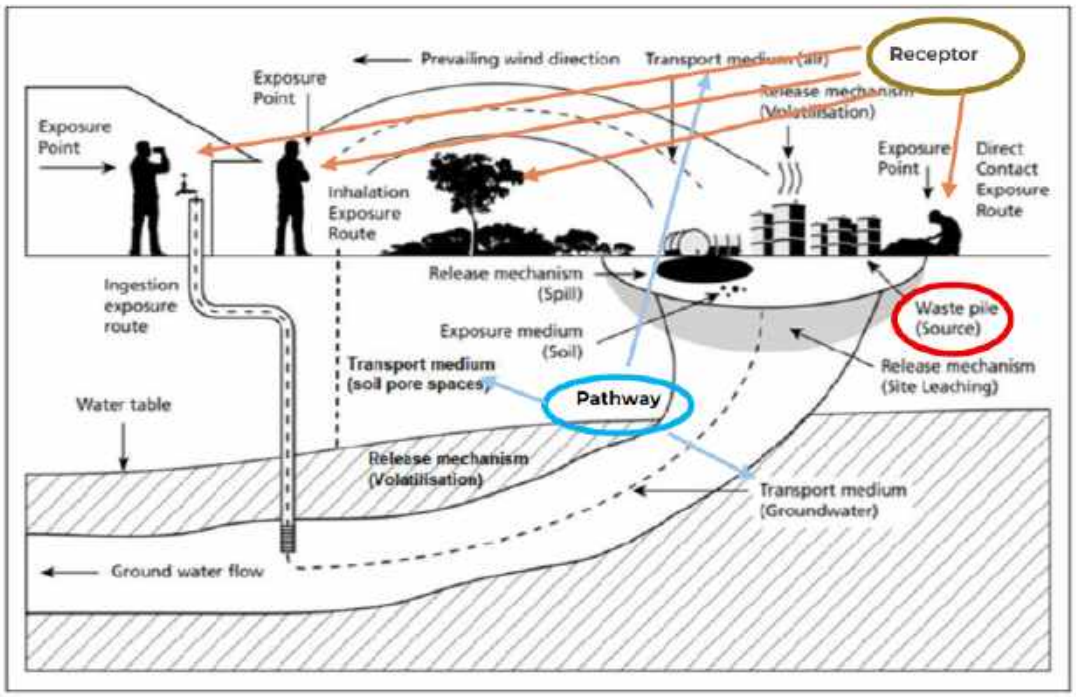
4. Risk Assessment

The Source-Pathway Receptor Model is generally accepted as the evaluation tool to assess potential impact of a contaminant. It is based on the premise that for a contaminant to create a hazard, it must be present at a source, have a transmission pathway, to a receptor that is sensitive to that contaminant.

Figure 9 shows a diagrammatical example of the model. It shows;

(i) a contaminant source,
(ii) various pathways (transport mediums) in which a contaminant moves; and
(iii) a number of possible sensitive receptors.

An extension to this model is that the level of impact to a receptor from a contaminant is often proportional to the distance between the source and the receptor. That is, usually, the closer the receptor is to a contaminant source, the greater the likelihood of that receptor receiving a higher **dose** of the contaminant. As distance increases between the source and receptor, contaminant concentration usually attenuate, dissipate or is diluted in the transport medium (soil, air, water) such that the dose received at a more distant receptor is reduced.



Source: DER (2014) Assessment and management of contaminated sites - Contaminated sites guidelines

Figure 9: Source pathway receptor model

For consistency with other approvals, the risk assessment tables for likelihood, consequence and ranking are taken from the MDCP 2025 guidelines. These are reproduced in Table 8, Table 9 and Table 10. Table 11 presents the environmental risk assessment undertaken for the Project

Table 8: DMPE Likelihood Descriptors

Descriptor	Operations		Closure	
	Frequency	Description	Probabilty	Description
Rare	Once in 50 years	Highly unlikely, but the risk event may occur in exceptional circumstances, as may have occurred at comparable sites. Very few or no known occurrences across industry.	<5%	Unlikely but possible to occur/commence within a 100 year period from closure commencement. AND/OR Occurs 1 to 5 times in 300 years.
Unlikely	Once in 20 years	The risk event could occur in some uncommon circumstances, as this is known to occur at comparable sites. Some occurrences known across industry.	5–30%	Likely to occur/commence within a 20–50 year period from closure commencement. AND/OR Occurs 5 to 10 times in 50 years.
Possible	Once in 10 years	The risk event might occur in some circumstances. Incidents known across industry	30–70%	Likely to occur/commence within a 5–20 year period from closure commencement. AND/OR Occurs 5 to 10 times in 20 years.
Likely	Once in 5 years	The risk event is expected to occur in some common circumstances. Regular incidents known across industry.	70–90%	Likely to occur/commence within a 1–5 year period from closure commencement. AND/OR Occurs 5 to 10 times in 10 years.
Almost Certain	Once or more per year	The risk event is expected to occur in most circumstances. High number of known incidents across industry.	>90%	Likely to occur/commence within a 1 year period from closure commencement. AND/OR Occurs 5 to 10 times in 2 years.

Table 9: DMPE Consequence Descriptors

Environmental Factor	Objective	Environmental indicator	Insignificant	Minor	Moderate	Major	Severe
Flora, vegetation and fauna	To protect flora and vegetation, subterranean fauna and terrestrial fauna so that biological diversity and ecological integrity are maintained.	Ecosystem function	Negligible impact/change to ecological processes and/or function.	Localised impact/change to ecological processes and/ or function resulting in a recoverable impact within 1 year.	Alteration to ecological processes and/or function resulting in a recoverable impact within 5 years.	Alteration to ecological processes and/or function resulting in a recoverable impact within 10 years.	Alteration to ecological processes and/or function resulting in a potentially non-recoverable impact.
		Flora and vegetation	No direct loss of native vegetation although increased stress may be incurred through indirect or induced pressures. And/or No direct loss of conservation significant vegetation.	Localised and short-term (<1 years) loss of native vegetation which is widely distributed outside of the activity envelope.	Medium-term (1–5 years) loss of native vegetation which is widely distributed outside of the activity envelope. Project places minimal pressure on continued survival of conservation significant vegetation on a local scale.	Long-term (5–10 years) loss of native vegetation which is not widely disturbed outside the activity envelope. Project places significant pressure on continued survival of conservation significant vegetation on a regional scale.	Permanent loss of native vegetation causing significant pressure or potential extinction of conservation significant vegetation on a regional scale.
		Fauna	No decrease in fauna habitat and/or fauna abundance And/or No direct loss of conservation significant fauna.	Localised and short term (< 1 year) decrease in fauna habitat and/or fauna abundance.	Medium term (1–5 years) decrease in fauna habitat and/or fauna abundance.	Significant, widespread, and/or persistent regional decrease in fauna habitat and/or fauna abundance. Long term (5–10 years) decrease in fauna habitat and/or abundance.	Permanent regional loss of fauna habitat and/or loss of conservation significant fauna habitat and/or conservation significant fauna population.
		Environmental threats (weeds, pathogens and introduced fauna)	Manageable, localised infestation/spread within the activity envelope that does not result in competition/impact with native species.	Manageable, localised infestation/spread that results in minor competition/impact with native species.	Localised infestation/spread that results in competition/impact with native species requiring considerable management/control measures	Regional infestation/spread that results in competition /impact with native species requiring extensive management/control measures.	Uncontrollable regional infestation/ spread that results in competition/ impact with native species and regional loss of vegetation communities or flora.
Inland water	To maintain the hydrological regimes, quality and quantity of groundwater and surface water so that environmental values are protected	Surface water quality	Negligible changes to local surface water quality that negatively impacts environmental values.	Minor and or short term (< 1 year) change to surface water quality that negatively impacts environmental values.	Moderate and or medium term (1–5 years) change to surface water quality that negatively impacts environmental values.	Long term decline (5–10 years) in surface water quality that negatively impacts environmental values.	Decline in surface water quality that negatively impacts environmental values on a regional scale. Nonrecoverable impact.
		Surface water quantity	Incidental, short-term changes to local surface water volumes. Negligible impact to environmental values or water users.	Minor, short term changes to local surface water volumes. Recoverable within 1 year and/or localised impact to environmental values or water users.	Medium-term changes to surface water volumes. Recoverable within 1–5 years and/or negative impact to environmental values or water users.	Long-term changes to surface water volumes. Recoverable within 10 years and/ or negative impact to environmental values or water users.	Project causes permanent modifications to surface water volumes. Non-recoverable impact/ permanent impact to environmental values or water users.
		Ground water quality	Incidental, short-term changes to local groundwater quality. Negligible impact to environmental values.	Short-term (<1 year) localised decline in groundwater quality that negatively impacts environmental values.	Medium-term (1–5 years) localised decline in groundwater quality that negatively impacts environmental values.	Long-term (5–10 years) regional decline in groundwater quality that negatively impacts environmental values.	Permanent decline in groundwater quality that negatively impacts environmental values. Non-recoverable impact.
		Ground water quantity	Incidental changes to local groundwater levels/ availability. and/or negligible impact to environmental values or water users	Local changes to groundwater levels/availability. Recoverable within 1 year and/or localised impact to environmental values or water users.	Changes to groundwater levels/ availability in the medium-term. Recoverable within 5 years and/or negative impact to environmental values or water users.	Regional changes to groundwater levels/availability in the long-term. Recoverable within 10 years and/ or negative impact to environmental values or water users.	Regional changes to groundwater levels/availability in the long-term. Non-recoverable impact permanent impact to environmental values or.water users.

Environmental Factor	Objective	Environmental indicator	Insignificant	Minor	Moderate	Major	Severe
Terrestrial environmental quality	To maintain the quality of land and soils so that environmental values are protected.	Soil resources	Incidental loss of soil resources has short-term impact on associated environmental values within activity envelope.	Loss of soil resources has medium-term impact on associated environmental values on a local scale.	Loss of soil resources has long-term impact on associated environmental values on a local scale.	Loss of soil resources resulting in a short to medium-term impact on associated environmental values on a regional scale.	Loss of soil resources that has a permanent impact on associated environmental values on a regional scale.
		Land contamination	Incidental land contamination within activity envelope, easily treatable in short-term (<1 week) and does not result in adverse impacts on associated environmental values.	Land contamination localised and treatable in medium-term (<1 year) and does not result in adverse impacts on associated environmental values.	Localised land contamination. Rectifiable within 5 years and results in minor adverse impacts on associated environmental values in the short to medium-term.	Land contamination on a regional scale (beyond activity envelope) resulting in adverse impacts on associated environmental values. Results in clean-up requiring specialist remediation within 10 years and/or medium to long term management.	Land contamination on a regional scale (beyond activity envelope) resulting in permanent damage with severe environmental and socioeconomic disruption. Results in clean-up requiring specialist remediation >10 years, and/or permanent residual impact.
Rehabilitation and mine closure	Mining activities are rehabilitated and closed in a manner to make them physically safe to humans and animals, geotechnically stable, geochemically non-polluting/noncontaminating, and capable of sustaining an agreed post-mining land use, with consideration for cultural values and without unacceptable liability to the State.	Landscape .	Closed/rehabilitated site is virtually indistinguishable from surrounding landscape and topography	Closed/rehabilitated site integrates seamlessly with surrounding landscape and topography whereby it is not easily noticeable from a distance.	Closed/rehabilitated site integrates with surrounding landscape and topography, however mining produced landforms or disturbances are distinguishable from a distance.	Closed/rehabilitated site has some features/landforms that do not integrate readily with the surrounding landscape and topography, however, only compromises local landscape values.	Closed/rehabilitated site has features/landforms that do not integrate readily with the surrounding landscape and topography, which compromises regional landscape values.
		Physical safety (to humans and animals)	Rehabilitated areas are physically safe to humans and animals.	Site is safe and any safety issues are contained and require no residual management.	Site is safe and any safety issues require minor, ongoing maintenance by the operator.	Site is unsafe and requires long-term management or intervention (i.e. <25 years).	Site is unsafe and will cause an ongoing residual effect (i.e. 25+ years) / perpetual management.
		Post mining land use	Post-mining land use can be easily achieved and sustained without any liability to the State. Post-mining land use is acceptable to key stakeholders.	Post-mining land use can be achieved with minimal management required.	Post-mining land use cannot be sustained without some management.	Post-mining land use cannot be sustained without ongoing management.	Post-mining land use cannot be sustained. Post-mining land use is not acceptable to key stakeholders.
		Physical and geotechnical Stability	Site is stable. Post-mining landforms are demonstrated to be physically stable with only incidental erosion.	Post-mining landforms are stable, but may experience minor erosion, such as minor rilling.	Post-mining landforms are generally stable, but may experience moderate erosion, such as limited gullying.	Post-mining landforms are unstable, with significant erosion, such as tunnelling and gullying, and/or subsidence.	Post-mining landforms are likely to fail (e.g. TSF embankment failure), with extensive ongoing management issues.
		Land contamination	Post-mining landforms are geochemically stable and are proven to be non-polluting/noncontaminating.	Post-mining landforms are geochemically stable but may discharge minor amounts of pollutants to groundwater and surface water on a seasonal basis that does not result in contamination.	Post-mining landforms are generally stable but may discharge moderate levels of pollutants to groundwater and surface water that does not result in contamination	Post-mining landforms dischargepollutants to groundwater and surface water causing short to medium-term (< 10 years) contamination.	Post-mining landforms discharge pollutants to groundwater and surface water causing longterm (> 10 years) to permanent contamination.

Table 10: DMPE Risk Assessment Matrix

Likelihood	Consequences				
	5. Insignificant	4. Minor	3. Moderate	2. Major	1. Severe
A. Almost Certain	Medium 13	High 19	High 20	Extreme 24	Extreme 25
B. Likely	Medium 10	Medium 12	High 18	Extreme 22	Extreme 23
C. Possible	Low 5	Medium 9	Medium 11	High 17	Extreme 21
D. Unlikely	Low 3	Low 4	Medium 8	High 14	High 16
E. Rare	Low 1	Low 2	Medium 6	Medium 7	High 15

Extreme risk: immediate attention required to actively manage risk and limit exposure.
High risk; attention required to ensure risk exposure is managed effectively, disruptions minimised, and outcomes monitored.
Medium risk; cost benefit analysis to assess extent to which risk should be mitigated. Monitor to ensure risk does not increase over time.
Low risk; effectively manage through routine procedures and appropriate internal controls.

Table 11: Risk Assessment

No.	Key environmental factor	Category aspect	Domain	Risk pathway	Project Phase	Inherent Likelihood	Inherent Consequence	Inherent rating	Risk treatment	Residual Likelihood	Residual Consequence	Residual Risk	Outcome See Table 12
1	Flora, vegetation and fauna	Flora, vegetation and fauna	All	Over clearing for mine activities resulting in vegetation loss / Loss of fauna habitat	Construction operation	possible	minor	Medium 9	Control Implement clearing procedure	unlikely	minor	Low 4	F1.0 F2.0 F3.0 F4.0
2	Flora, vegetation and fauna	Flora, vegetation	Service corridor; Mine	Indirect death of vegetation caused by salt migration off watered areas	Operation	likely	minor	Medium 12	Control Sumps to contain water in events other than significant rainfall events. Sump maintenance. Excavate sediment and salt load in dry periods. Flood levee/ abandonment bund will prevent all drainage off surfaces inside the bunded area from escaping. Drainage off mine surfaces outside the abandonment bund directed to drains that channel water to the salt lake.	possible	minor	Medium 9	F2.0
3	Flora, vegetation and fauna	Flora, vegetation	Mine	Indirect death of vegetation caused by salt seepage from containment structures	Operation	likely	minor	Medium 12	Control Evaporation ponds and most sediment ponds are HDPE lined to prevent seepage. Monitoring bores installed to detect any seepage that may occur. Recovery systems installed to prevent any seepage from migrating beyond the immediate confines of the detention structures	unlikely	minor	Low 4	F2.0
4	Flora, vegetation and fauna	Flora, vegetation	Mine	Dust emissions due to movement of vehicles causes reduced health in adjacent vegetation	Operation	likely	insignificant	Medium 10	Water cart providing dust suppression of roads and active areas During high winds, topsoil stripping activities will be stopped.	possible	insignificant	Low 5	F2.0
5	Flora, vegetation and fauna	Environmental threats; weeds	All	Weed infestation caused by vehicle activity and earthworks result in negative effect on surrounding vegetation.	Construction operation	Likely	minor	Medium 12	Control/rectify Managed in accordance with Vehicle Hygiene and Weed Inspection Procedure Managed in accordance with Native Vegetation Clearing Permit conditions.	possible	minor	Medium 9	F5.0
6	Flora, vegetation and fauna	Environmental threats; fauna	Mine	Food waste produces a change in native fauna and introduced fauna populations.	Operation	possible	minor	Medium 9	Control/rectify Food wastes in lidded bins with regular removal of waste from working areas. Regular covering of landfill trenches. Undertake pest animal control as required.	unlikely	minor	Low 4	F6.0
7	Inland Waters	Surface water	All	Hydrocarbon spills from mobile equipment breakdowns cause contamination to surface water resources	Construction operation; closure	possible	insignificant	Low 5	Control/rectify Incident report system for reporting and action on spills and leaks. Spill kits located at strategic locations in the project area and employees trained in their use. All minor spills contained and remediated in-situ where possible or removed to bioremediation facility. Major spills reported and actioned accordance with Contaminated Sites Act 2003.	unlikely	insignificant	Low 3	W1.0
8	Inland Waters	Surface water; soil resources	All	Increased sediment load and contained salt in water runoff from mine features impact surrounding environment	Construction operation; closure	likely	insignificant	Medium 10	Reduce/control Mine - Surface water management infrastructure (detention ponds and bunds) constructed to contain sediment and drainage from active work areas inside the abandonment bund area. Mine - Surface water management infrastructure (detention ponds and bunds) constructed to detain sediment and drainage from active work areas outside the abandonment bund area and direct overflow into drains that report to the salt lake	possible	insignificant	Low 5	W2.0 T4.0
9	Rehabilitation and closure	Land contamination	All	Land contamination caused by use of saline water for dust suppression	Operation	unlikely	insignificant	Low 5	Rectify Accumulated salt in surface soils during the life of mine may inhibit successful vegetation establishment. Treatments may include scalping of high salt scald areas or ripping/tining to incorporate the salt through a deeper layer	Rare	insignificant	Low 1	C5.0
10	Rehabilitation and closure	Surface water	Mine	Change in surface water flow paths impact adjacent vegetation and environmental values	Construction	possible	insignificant	Low 5	Control Water diversion structures designed to redirect pre-mining flow paths around mine features and return them to natural drainage channels downstream. Some mine landforms in the path of pre-mining flowpaths are permanent and make reinstatement to pre-mining condition impossible. The diversion structures are designed to replace the pre-mining condition in perpetuity without negative effect on environmental values.	unlikely	insignificant	Low 3	C6.0

Table 12: DMPE Outcomes

Environmental Factor	Objective	Category /Aspect	ID #	Standard Outcomes
Flora, vegetation and fauna	To protect flora and vegetation,subterranean fauna, and terrestrial fauna so that biological diversity and ecological integrity are maintained.	Flora and vegetation	F1.0	Mining activities undertaken in a manner that avoids detrimental impacts to native vegetation outside of the Activity Envelope.
			F2.0	Mining activities undertaken in a manner that minimises detrimental impacts to native vegetation within the Activity Envelope.
		Fauna	F3.0	Mining activities undertaken in a manner that avoids detrimental impacts to native fauna outside the Activity Envelope.
			F4.0	Prevention of avoidable death or injury to native fauna from mining related activities within the Activity Envelope.
		Environmental threats (weeds and pathogens)	F5.0	No increase in the diversity, distribution, and population of weed species and pathogens within the tenement(s) or surrounding land, as a result of mining activities.
		Environmental threats (introduced Animals)	F6.0	No increase in the diversity or population of introduced fauna species within the tenement(s) or surrounding land, as a result of mining activities.
Inland waters	To maintain the hydrological regimes, quality and quantity of groundwater and surface water so that environmental values are protected.	Surface water	W1.0	No contamination of surface water as a result of mining activities.
			W2.0	Surface water managed in a manner that prevents detrimental impacts to hydrological and ecological function and uses of surrounding surface water features and land.
			W4.0	Groundwater levels are managed to prevent detrimental impact upon the surrounding environment and/or water users.
Terrestrial environmen tal quality	To maintain the quality of land and soils so that environmental values are protected.	Soil resources	T4.0	Mining activities are managed to prevent erosion and sedimentation leading to detrimental impacts to the surrounding environment.
Rehabilitation and mine closure	Mining activities are rehabilitated and closed in a manner to make them physically safe to humans and animals, geo-technically stable, geo-chemically non-polluting/non-contaminating, and capable of sustaining an agreed post-mining land use, with consideration for cultural values and without unacceptable liability to the State.	Geochemical stability Land contamination	C5.0	All environmentally hazardous chemicals, rubbish and contaminating materials have been removed, treated, managed and disposed in a manner consistent with the post mining land use.
			C6.0	Surface drainage patterns, flows and characteristics are reinstated in a manner consistent with the regional drainage function and/or post mining land use.

Table 13: Environmental Outcomes

No	DMPE objective	Risk pathway	Environmental Outcome	Monitoring	Frequency
1	To protect flora and vegetation, subterranean fauna and terrestrial fauna so that biological diversity and ecological integrity are maintained.	Over clearing for mine activities resulting in vegetation loss / Loss of fauna habitat	F1.0 Mining activities undertaken in a manner that avoids detrimental impacts to native vegetation outside of the Activity Envelope. F2.0 Mining activities undertaken in a manner that minimises detrimental impacts to native vegetation within the Activity Envelope. F3.0 Mining activities undertaken in a manner that avoids detrimental impacts to native fauna outside the Activity Envelope. F4.0 Prevention of avoidable death or injury to native fauna from mining related activities within the Activity Envelope.	Survey reconciliation of areas cleared under internal clearing procedure. Review site incident reports on fauna death or injury	Quarterly Quarterly During construction
2		Indirect death of vegetation caused by salt migration off watered roads and mine areas	F2.0 Mining activities undertaken in a manner that minimises detrimental impacts to native vegetation within the Activity Envelope.	Complete environmental inspection checklist of site areas. Action on identified issues as required.	Quarterly
3		Indirect death of vegetation caused by salt seepage from containment structures	F2.0 Mining activities undertaken in a manner that minimises detrimental impacts to native vegetation within the Activity Envelope.	SWL and EC reading from bores adjacent to saline water containment ponds	Quarterly
4		Dust emissions due to movement of vehicles causes reduced health in adjacent vegetation	F2.0 Mining activities undertaken in a manner that minimises detrimental impacts to native vegetation within the Activity Envelope.	Complete environmental inspection checklist of site areas. Action on identified issues as required.	Quarterly
5		Weed infestation caused by vehicle activity and earthworks result in negative effect on surrounding vegetation.	F5.0 No increase in the diversity, distribution, and population of weed species and pathogens within the tenement(s) or surrounding land, as a result of mining activities.	Complete weed inspection checklist. Action on identified issues as required.	Quarterly
6		Food waste produces a change in native fauna and introduced fauna populations.	F6.0 No increase in the diversity or population of introduced fauna species	Record of landfill management (pit burial etc) completed.	Monthly

No	DMPE objective	Risk pathway	Environmental Outcome	Monitoring	Frequency
			within the tenement(s) or surrounding land, as a result of mining activities.	Complete environmental inspection checklist of site areas. Action on identified issues as required.	Quarterly
7	To maintain the hydrological regimes, quality and quantity of groundwater and surface water so that environmental values are protected. To maintain the quality of land and soils so that environmental values are protected.	Hydrocarbon spills from mobile equipment breakdowns cause contamination to surface water resources	W1.0 No contamination of surface water as a result of mining activities.	Review site incident reports on spills and leaks Complete environmental inspection checklist of site areas. Action on identified issues as required.	Quarterly Quarterly
8		Increased sediment load in run-off from mine features impact surrounding environment	W2.0 Surface water managed in a manner that prevents detrimental impacts to hydrological and ecological function and uses of surrounding surface water features and land. T4.0 Mining activities are managed to prevent erosion and sedimentation leading to detrimental impacts to the surrounding environment.	Complete environmental inspection checklist of site areas. Action on identified issues as required.	Quarterly
9	Mining activities are rehabilitated and closed in a manner to make them physically safe to humans and animals, geo-technically stable, geo-chemically non-polluting /non-contaminating, and capable of sustaining an agreed post-mining land use, with consideration for cultural values and without unacceptable liability to the State.	Land contamination caused by use of saline water for dust suppression	C5.0 All environmentally hazardous chemicals, rubbish and contaminating materials have been removed, treated, managed and disposed in a manner consistent with the post mining land use.	Audit report confirms areas impacted by salt contamination have been remediated and rehabilitated	1 year after closure
10		Change in surface water flow paths impact adjacent vegetation and environmental values	C6.0 Surface drainage patterns, flows and characteristics are reinstated in a manner consistent with the regional drainage function and/or post mining land use.	Monitoring report on vegetation health attributed to water diversion structures within 100m from redirected flow path 3 years after closure	3 years after closure

5. Baseline Environment

5.1. Biodiversity

Botanica Consulting (2025) completed a flora and vegetation survey of the Project area. A summary of the survey results is provided below.

- No Threatened Flora or Threatened Ecological Communities were identified.
- Eight vegetation types were identified. These vegetation types were identified within three landform types and comprised of six major vegetation groups.
- Ninety-six flora taxa, representing 45 genera. Nine annual species were present. No introduced flora was observed in the survey area.
- The vegetation condition was rated from 'completely degraded' to 'very good'. Disturbance in the area were mostly a result of previous and current exploration and grazing by large herbivores (pastoral cattle).
- One Priority 1 flora species (*Calandrinia quartzitica*) was identified in quadrat 4 and opportunistically near the western edge of the survey area. A total of approximately 54 plants were observed from three locations.
- Two species of Tecticornia that were collected and sent to the WA Herbarium could not be identified and will need further survey.
- No Priority Ecological Communities.
- No Reserves, no wetlands of international importance (Ramsar Wetlands) or national importance (Australian Nature Conservation Agency Wetlands).

5.2. Hydrology

Section 3.1.2 summarises the assessment undertaken to reduce the risk of flooding to the pits.

The flood study also provided surface water flow details through the mine area (Figure 10). Detailed design prior to construction will use a combination of mine waste to fill low points and diversion drains to realign local surface flow patterns around mine features. The outcome is that surface flow will be directed around mine features and discharged back into natural flow paths downgradient of the mine.

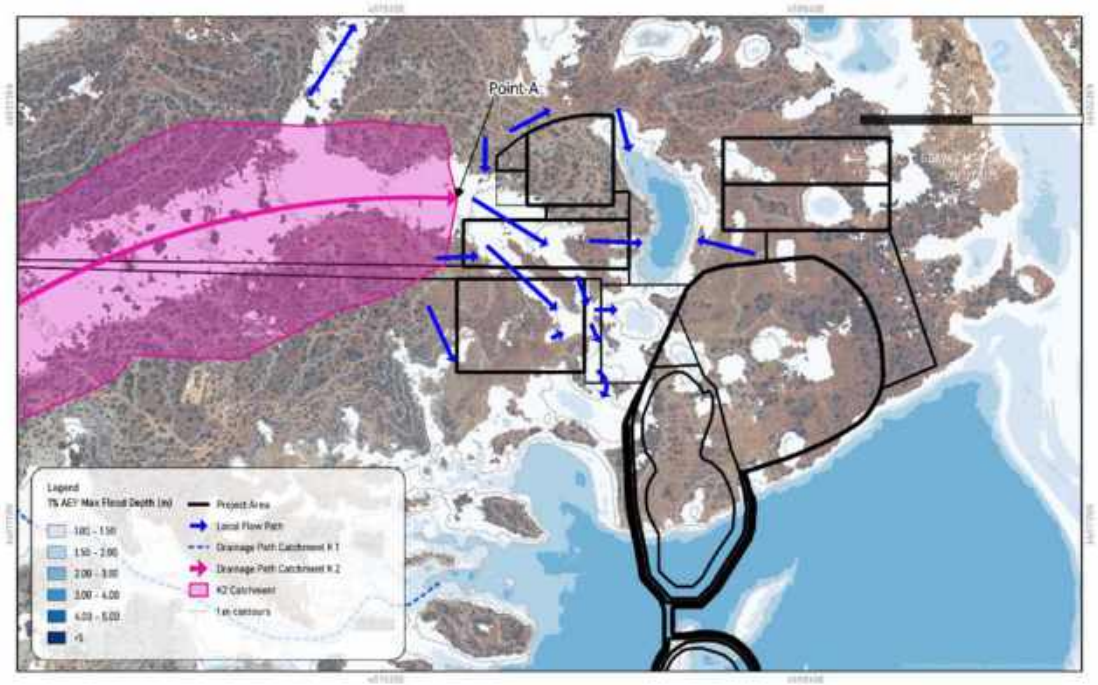


Figure 10: Surface water flow

Source: AQ2 (2025) Figure 5.6

Surface water catchment areas that cross the service corridor are shown in Figure 11. The main impact from construction of linear infrastructure across drainage paths is the concentration of runoff at culvert discharge locations, particularly where the runoff is characterised as sheet flow (AQ2,2025c). This can potentially lead to:

- Creation of runoff shadow areas downstream of the infrastructure where the widespread sheet flow zone is concentrated by the culvert installations;
- Concentration of runoff from sheet flow environments at discharge points from culverts, causing higher stream velocities and the potential for erosion downstream of the culvert discharge point.

These impacts can be managed to reduce the overall environmental impact as follows:

- Installation of multiple smaller culverts at frequent intervals along the alignment;
- Appropriately designed floodway's which minimise the concentration of sheet flow; and
- Mechanisms to spread flow downstream of culverts to return culvert discharge back to sheet flow behaviour (AQ2,2025).

Ramelius will incorporate the outcomes of this assessment in the service corridor design in order to minimise impacts to the environment.

Figure 11: Service corridor surface catchments

6. Discharges and Waste

Table 14 shows Project activities with potential for emissions or discharges and proposed controls.

Table 14: Emissions and Discharges

Discharge type	Source	Quantity (where applicable)	Controls
Saline mine dewatering water	Pipeline leaks /breaks	NA	Pipelines are either: • Located in internally draining areas (pits and UG); • Located within flood bunds / abandonment bunds that contain water and prevent pathway to a sensitive receptor. • Buried or contained in a V drain that drains to containment sumps.
	Discharge to sediment dams	Up to 1GL/yr	Only first sediment pond is unlined. Remaining pond(s) will be HDPE lined to eliminate seepage. Sediment ponds located in cleared mine area with separation (buffer) distance to sensitive vegetation receptor. Monitoring bores installed in the buffer zone to detect migrating seepage.
	Discharge to Evaporation basins	Variable. See Table 4	All evaporation ponds will be HDPE lined. Monitoring bores installed to detect seepage.
	Dust suppression on disturbed areas (mine and service corridor)	Approximately 15L/sec (1,300 kL/day)	Water truck discharge system controlled to prevent overspray. Drains and sumps installed to collect and contain surface flow off watered areas
Hydrocarbons	Fuel storage facilities; Spills and leaks	NA	Self bunded fuel storage tanks Refuelling facility on hard stand area Spill kits located in relevant areas
Dust	Vehicle movement; open mine areas	NA	Water truck used to supress dust off disturbed areas.
Waste	Domestic and inert commercial/ industrial waste	<5,000 tpa	Disposed to site landfill Other waste types taken offsite
Tyres	Site vehicles	NA	Disposed to site landfill
GHG	Mining equipment and onsite power generation	NA	Site power demand estimated at maximum 5MW. This is below the Prescribed Premises Category 52 threshold of 10MW using diesel fuel. No Works Approval or Licence is required. Mobile equipment fitted with industry best practice emission systems

7. Construction Activities

The following construction activities are proposed.

7.1. Site Preparation

Construction activities will commence with clearing of project footprints, grubbing of roots and stumps and stockpiling vegetation in designated areas. A maximum 557.7 ha of native vegetation will be cleared to undertake the Project.

Site preparation earthworks will include the following:

- Strip topsoil (approximately 0.15 m depth) from cleared areas and stockpile separately from vegetation. Baseline surveys have identified that some of the soil management units (SMUs) have deleterious properties (saline, dispersive). These units are to be stripped and stockpiles sepately to other SMU's.
- Use mine waste or borrow material to construct hardstand areas for ancillary infrastructure, laydowns, mine ore pads (MOPs) etc.
- Grade, compact and form internal access roads and service corridors.
- Construct sediment control structures (drains and sumps) as per site drainage design.

7.2. Category 6 – Mine Dewatering and Discharge

7.2.1. Containment ponds

It is proposed that up to six ponds will be constructed at the Project. These will comprise:

- three sediment settling ponds; and
- up to three evaporation ponds.

The overall dewatering management approach is that mine dewatering will first report to the sediment ponds to capture suspended solids. Water will be abstracted from the final pond and used for dust suppression. Water surplus to dust suppression will be discharged to the active evaporation pond. Preliminary (not for construction) design drawings are provided in Appendix 6. They show indicative measurements of each pond.

Construction Method

The natural ground level will be excavated to create an even pond floor with spoil used to build 2m high perimeter embankments.

The first two unlined sediment ponds are designed to operate alternately. This will allow the 'full' pond to dry out and be excavated of settled solids while the second pond is in use. The process is then alternated. The invert of the spillway from the two unlined sediment ponds to the lined cell will be constructed at a height of the pond crest minus 300mm (crest -0.3m RL).

The floor of all ponds to be lined will be compacted to create an even floor for the HDPE liner with no protruding rocks or roots. Welded HDPE liner will be installed by qualified contractors over the pond floor and walls and secured into the top of the pond embankment.

All weld records to be submitted to client for construction record purposes.

Pipework from the last sediment pond to the evaporation ponds to be buried or contained in V drain that drains down to containment sumps.

Key design features are described below.

Key Features

Table 15: Pond design elements

ID	Description	Area
Sediment Ponds	• two unlined cells. • One lined cell. • spillway between cells in dividing cell wall • pump installed in lined sediment pond to direct water to evaporation ponds or standpipe. • discharge from the lined sediment pond to the active lined evaporation basin will be controlled by float valves to prevent complete draining of the sediment pond (low inflow) and a high level alarm in the event inflow exceeds capacity of the pump (high inflow). • water meter installed to measure outflow from lined sediment pond. • water to standpipe to fill water trucks will be by manual valve operated by truck operator. • water meter installed to measure delivery to standpipe. • valves to direct water to the active evaporation pond will be manually operated by open pit dewatering team	0.5ha
Evaporation Pond 1	• single cell 10 hectare HDPE lined • pond floor compacted to provide a smooth even finish • pond walls smoothed to provide a base for HDPE liner • HDPE liner installed on the floor and walls • pond liner anchored into the embankment crest • discharge pipeline located on the pond crest. A spigot system used to run the water down to the floor to avoid differential pressure on the wall liner.	10ha
Evaporation Pond 2	• likely two 5ha cells HDPE lined pond floor compacted to provide a smooth even finish • pond walls smoothed to provide a base for HDPE liner • HDPE liner installed on the floor and walls • pond liner anchored into the embankment crest • discharge pipeline located on the pond crest. A spigot system used to run the water down to the floor to avoid differential pressure on the wall liner.	10ha
Evaporation Pond 3	• single cell 10 hectare HDPE lined • pond floor compacted to provide a smooth even finish • pond walls smoothed to provide a base for HDPE liner • HDPE liner installed on the floor and walls • pond liner anchored into the embankment crest • discharge pipeline located on the pond crest. A spigot system used to run the water down to the floor to avoid differential pressure on the wall liner.	10ha

7.2.2. *Transfer of mine water*

Figure 4 shows the pipeline network for transfer of mine dewatering water from the open pits to the sediment ponds. Water meters will be installed in the pipeline network to record the volume of water abstracted from open pits and underground, the volume used in dust suppression and the volume sent for evaporation.

Pipelines outside the pit bunded area described in section 3.1.4 will be either buried or placed in V drains that direct water to containment sumps.

The two alternating unlined sediment ponds will both report to the second lined sediment pond via a spillway. A pump will transfer water from the second sediment pump to the standpipe filling water trucks for dust suppression. This will be used on disturbed areas around the mine and along the haul road. Valves to fill the water truck will be operated manually by the truck operator.

Water from the second sediment pond will also be pumped to the active evaporation pond. The pipeline from the second sediment pond to the evaporation basins will be fitted with a series of valves so that only one pond is 'active' (being filled) at any one time. Section 3.1.2 details that it will take 23 days to fill a 10ha pond and 11-12 days to fill a 5ha pond to 300mm depth. These time periods enable daily inspection and manual operation of values to adequately manage this discharge with no risk of overtopping any evaporation basin.

7.2.3. *Permeability*

A HDPE liner will be installed in the three evaporation ponds and the final sediment pond. The permeability of lined ponds is 1×10^{-9} m/s.

Significant soil testing work was undertaken by Knight Piesold as part of the tailings storage facility design for the nearby Rebecca project. They found that near surface material variably comprise gravel, sand and clay of a fines content averaging approximately 35% and plasticity index averaging 24%. Laboratory permeability test results indicate an average permeability of approximately 5×10^{-7} m/s for material with greater than 25% fines. The soils report for Roe (Appendix 5)- Figure 4-1 shows average particle size distribution makup of sand 75% and fines (clay and silt) 25%. Therefore Ramelius would expect a similar result for the compacted floor of the unlined sediment pond.

7.2.4. *Water quality and monitoring*

Groundwater quality is hypersaline, exceeding 200,000mg/L TDS. Figure 3 shows the proposed location of groundwater monitoring bores. These are located in low topographical points near each respective mine feature.

Shallow monitoring bores will be installed around the evaporation ponds and sediment pond to detect seepage, either as elevated electrical conductivity and/or rising standing water level (SWL)

Implementation of a monitoring program to meet compliance obligations will include the following:

- Areas of native vegetation proximal to the ponds will be visually inspected for health and condition.
- A site wide vegetation and progressive rehabilitation monitoring program will be implemented during operation. At other sites, Ramelius conducts this using remote sensing technology and it is expected this will be the same principle applied at the Roe Project.
- Environmental audits and inspections will be conducted

By implementing the measures outlined above Ramelius considers there will be no residual impacts on the Flora and Vegetation Factor. Table 16 summarises the monitoring schedule.

Table 16: Monitoring Schedule

Description	Frequency
Visual inspection of pit discharge pipelines to evaporation pond for leaks.	Daily
Meter readings for water balance – mine discharge; dust suppression; discharge to evaporation ponds.	Monthly
Monitoring bores sampled for SWL, (field) pH, EC	Monthly
Inspection of sumps for sediment or salt buildup	Quarterly or after significant rain event
Monitoring bores sampled for SWL, (laboratory) pH, EC, TDS	Quarterly
Visual inspection of vegetation health around evaporation ponds	Quarterly
Site wide vegetation health (remote sensing)	2 yearly

7.3. Category 89 - Landfill

Construction activities will consist of fencing an area to prevent stock access on part of the Bombora 1800 WRL not immediately within the active tipping face.

An initial trench will be excavated, approximately 30m long x 5m wide x 3m deep, ramped at one end to allow a front end loader (FEL) to enter and push up waste. The trench will have a 0.5m safely bund around the crest. Figure 12 shows a general trench layout with a central accessway and a parallel trench design. Trenches are dug sequentially, starting at trench 1. Earth removed from the trench is placed in a windrow over the location of future trench 7, A ramp (arrow) is constructed on the inside end of the trench to allow FEL access.

The operational stage will consist of vehicles reversing up to the safety bund to tip waste into the trench. As required, a FEL will enter via the ramp and push/compact waste into the back of the trench to fill the trench to approximately 0.5m from natural ground level. (ie; 2.5m deep). Soil excavated from the trench will be used to regularly cover deposited waste and place 0.5m of final cover over the pushed rubbish to fill the trench back to surrounding ground level. This process is repeated filling the trench back towards the ramp. Once trench 1 is full trench 2 is dug and the excavated earth is placed in a windrow over the backfilled trench 1 and the filling process repeated for trench 2.

As the deposited rubbish displaces the volume of earth originally excavated from the trench, there will be a surplus of excavated soil as successive trenches are dug. This will provide 'final cover' to add over completed trenches so that filled trenches are elevated between 0.5m to 1.0m above surrounding ground level. This will allow for some compaction/subsidence in the buried waste and ensure surface water flow is directed around completed trenches.

A visual inspection of the landfill will be conducted weekly, and any windblown waste removed and disposed. A Waste Management Plan will be developed as part of the Ramelius Environmental Management System (EMS) and will include details for the disposal of all waste streams on-site and will be used to educate employees and contractors on waste disposal requirements.

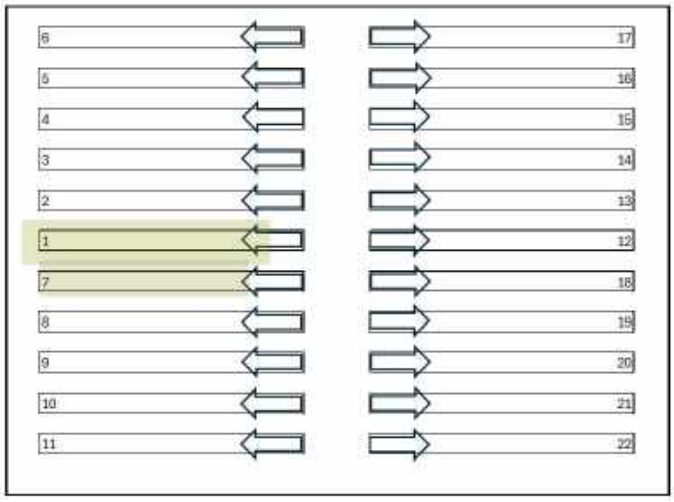


Figure 12: Conceptual landfill design

8. Critical Containment Infrastructure

DWER (June 2019) *Industry Regulation Guide to Licensing* defines Critical Containment Infrastructure as infrastructure constructed for the purpose of containment of waste. The relevant example provided in the

document that fits the **evaporation ponds** is *medium risk ponds for the storage of leachate, wastewater and liquid waste.*

The risk assessment (Table 11 – item 3) and the hydrology assessment (Table 5), show that the management measure of HDPE lining the evaporation ponds and all but the first sediment pond greatly reduces the risk pathway of saline seepage migrating to and impacting sensitive vegetation receptors. The risk assessment shows while the inherent risk (unlined ponds) is medium, the residual risk (lined ponds) is low.

Once construction of each evaporation pond is completed a Critical Containment Infrastructure Report (CCIR) will be prepared that includes:

- Photographs of varius stages in the construction process that confirm base compaction and wall smoothing;
- As constructed report by a qualified person confirming the ponds have been constructed to design;
- HDPE specifications; and
- Weld records.

Table 17 reproduces Table 1 from DWER June 2019 (Updated Nov 2024) *Guideline: Industry Regulation Guide to Licensing* that describes typical assessment periods for different levels of CCI. Ramelius considers the lined sediment and evaporation ponds meet the description of *medium risk ponds for the storage of leachate, wastewater, and liquid waste.*

Table 17: Typical CCIR assessment periods

Typical CCIR assessment period	Examples of infrastructure types
10 days	• medium risk ponds for the storage of leachate, wastewater, and liquid waste • medium risk tailings storage facilities
45 days	• high risk ponds for the storage of leachate, wastewater and liquid waste • high risk tailings storage facilities • high risk vat or heap leach containment structures
Operation halted until licence assessment complete and decision to grant or refuse is made.	• medium and high risk engineered, lined landfill cells

9. Staged Commissioning and Time Limited Operation

9.1. Category 6 – Mine Dewatering and Discharge

Ramelius requests an environmental commissioning period of 20 days and a Time Limited Operation (TLO) period of 180 days to test the integrity of pump and pipelines systems and that barrier systems (V drains) contain leaks and drain water to collection ponds.

Commissioning works consist of the following stages:

Stage 1 – Year 1

Table 4 shows the first evaporation pond is not required until the **start of year 2**. This means that initial construction works, commissioning, time limited operation and Licencing of other elements in the Category 6 Prescribed Premises need to be operational well before the first evaporation pond is constructed.

Ramelius will submit an Environmental Compliance Report (ECR) and (CCIR for sediment pond #2) for the following Category 6 items once construction has been completed:

- In pit pumps installed and commissioned;
- Pipeline systems from the pits to the sediment ponds installed and commissioned;
- Sediment pond 1 (unlined) installed and commissioned;

- Sediment pond 2 (lined) installed (not commissioned); and
- Dust suppression systems (pump and standpipe) installed and commissioned.

DWER (June 2019) Guideline states "*Once the CCIR has been submitted, the Department will assess the report. The works approval will include a condition that specifies the length of time that the works approval holder must wait while the Department is assessing the CCIR. No environmental commissioning, or operation of the containment infrastructure, can occur during this time*."

Commissioning will commence after construction of the items above, with the exception of lined sediment pond #2. Mine dewatering and dust suppression will occur sourcing water from unlined sediment pond #1 for the short period the CCIR assessment for the lined sediment pond #2 is occurring. Once DWER complete the CCIR assessment, commissioning and TLO of sediment pond #2 will commence. Pump suction will be moved from sediment pond #1 to sediment pond #2 for delivery to the standpipe.

DWER to issue Licence to operate the above infrastructure within the TLO period.

Stage 2 – Year 1

Consistent with AQ2 modelling results of mine dewatering (Table 4), Ramelius has scheduled construction works to commence for evaporation pond #1 in the second half of year 1. Ramelius will submit an Environmental Compliance Report (ECR) and CCIR for evaporation pond #1 once construction has been completed. Once DWER approve the CCIR, commissioning and testing will occur followed by TLO thereafter depending on dewatering volumes and site usage.

DWER to issue Licence amendment to operate evaporation pond #1 within the TLO period.

Stage 3 – Subsequent evaporation ponds

Table 4 shows the second evaporation pond is not required until the start of year 3 and the third pond until the start of year 5. Scheduling construction of subsequent ponds will depend on the duration of the Works Approval, actual mine dewatering and site usage.

9.2. Category 89 - Landfill

Once construction of the first landfill trench and perimeter fencing is completed, TLO will commence. Ramelius will submit an ECR and application for site **Registration**.

10. Application form additional information

[redacted]

Previously provided with initial application

[redacted]

Previously provided with initial application

Previously provided with initial application

10.4. Consultation

Previously provided with initial application

10.6. Commissioning Plan

Sequence of commissioning

Groundwater level at the project site is generally within 5 mbgl. The requirement for mine dewatering will therefore occur very soon after commencement of mining.

This will require the following sequence of commissioning activities after construction of the Prescribed Premises items are completed:

1. Test pit dewatering system for leakes and spills. This comprises:
   a) Start inpit pump and check for connection leaks.
   b) Inspect pipeline from the inpit pump to the sediment pond for leaks, with attention to welded joints, compression fittings, flanges and valves.
   c) For on ground pipes outside the open pit or flood bunded areas, confirm that V drain or confinement bunds are in place.
   d) Inspect discharge point at the sediment pond, with attention to scour potential of the pond wall. That is: is conveyor liner or similar installed and anchored correctly to eliminate scouring of the pond embankment.
2. If installed, check low flow cutout switch at pit pump if sump water level drops below safe working level.
3. Check high level alarm in sediment pond #1. Note design has invert of spillway into (lined) pond #2 at minus 300mm from pond #1 crest. Until pond #2 is commissioned, temporary high level alarm is to be set at minus 500mm from pond #1 crest.
4. Start delivery pump from sediment pond to truck filling standpipe and check for leaks from inlet and outlet connection joints.
5. Check values operate correctly and fitting joints have no leaks.

Timeframes

Separate timframe of commissioning activities will depend on site requirement to dewater the mine pit and whether CCIR assessment for sediment pond #2 has been completed at the same time as commissioning for the above works is needed.

Inputs and outputs

No additional inputs are required for the commissioning process.

Output will be saline water transferred from the open pit to the sediment pond system and from there transferred to site water trucks

Emissions and/or discharges

The discharge expected to occur is hypersaline groundwater.

Monitoring

Monitoring will record the location of any spills and leaks from the system.

Controls

The control will be that the system will be shut down if leaks are detected. Leak points fixed / rewelded etc. The system restarted and rechecked.

Contingency

Contingency plan may be the construction of temporary bunding to contain leaks and spills in areas where final earthworks may not yet have been completed.

Difference.

The only difference between the commissioning period to standard operations is the frequency of inspections and monitoring. With new equipment and pipe welds, an initial period to 'settle in' equipment and confirm all workmanship has been completed to specifications needs a greater frequency of inspections and monitoring

Commissioning Plan for HDPE lined evaporation ponds

Commissioning activities for the lined ponds are limited. The ECR will document checks and inspections undertaken through the construction phase to ensure;

- Pond floor and walls are smooth and free of protruding material; and
- HDPE liner is installed as specified in the design.

Commissioning will involve regular inspection of the discharge pipeline from the last sediment pond to the evaporation basin to check for leaks. At the evaporation basin the pipeline will discharge water into the floor of the pond using a 'spigot system', similar to that used in tailings storage facilities. This will eliminate any preferential pressure placed on the liner wall from discharging water at the top of the embankment.