Application for Works Approval

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

Works Approval Number	W6468/2020/1
Applicant	Newcrest Operations Limited
ACN	009 221 505
File Number	DER2020/000499
Premises	Havieron Project East Pilbara, WA Legal description Mining lease M45/1287 As defined by the coordinates in Schedule 2 of the issued Works Approval
Date of Report	25 March 2021
Decision	Works approval granted

Carmen Standring

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Date: 2021.03.25 10:38:16 +08'00'

A/MANAGER, RESOURCE INDUSTRIES REGULATORY SERVICES

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Table of Contents

1. Decision summary

This Decision Report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the Premises. As a result of this assessment, Works Approval W6468/2020/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

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

2.2 Application summary and overview of Premises

On 19 October 2020, Newcrest Operations Limited (the applicant) submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction works relating to Category 6 - Mine dewatering: premises on which water is extracted and discharged into the environment to allow mining of ore at the Havieron Project (the Premises). The Premises is located on mining lease M45/1287 within the Shire of East Pilbara approximately 305 km south-east of Marble Bar and 45 km east of the Telfer mine site which is also owned by Newcrest Operations Limited.

Early stage evaluation has identified the Premises as suitable for an economically viable gold mining operation. The resource is yet be confirmed and therefore, the applicant is anticipating commencing underground mining operations in a staged approach. The orebody is located approximately 420 m below surface at the Permian cover. To determine the timeline for the first production, further definition of the orebody is required. As such, commencement of the decline and ventilation raise excavation is needed. Therefore, the applicant is seeking the approval for stage 1 of the project which includes construction of the boxcut and decline; and associated dewatering activities. This Works Approval application is seeking approval to construct an evaporation pond and associated pipelines to facilitate dewatering of the boxcut and decline.

The Premises relates to the category 6 activities at the assessed production/design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in Works Approval W6468/2020/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guidance Statement: Risk Assessments* (DER 2017) are outlined in Works Approval W6468/2020/1.

2.3 Summary of Proposed Activities

2.3.1 Evaporation ponds

The evaporation ponds at the Havieron Project will facilitate the temporary storage for excess mine dewater, Reverse Osmosis (RO) plant discharge, Oil Water Separator (OWS) discharge and runoff water at the site. The evaporation ponds will be located to the west of the box cut and the mining infrastructure area.

The pond design consists of two raw water cells and three hypersaline water cells (Figure 1). Stage cell development will be carried out depending on the inflow and outflow water balance at the time of operation, including a cascading design. Each cell will allow a 1m freeboard to accommodate a 1% Annual Exceedance Probability (AEP) 72-hour rainfall event (1 in 100 year) without overtopping, and an allowance for wave action potential of 0.7m. An overflow spillway will

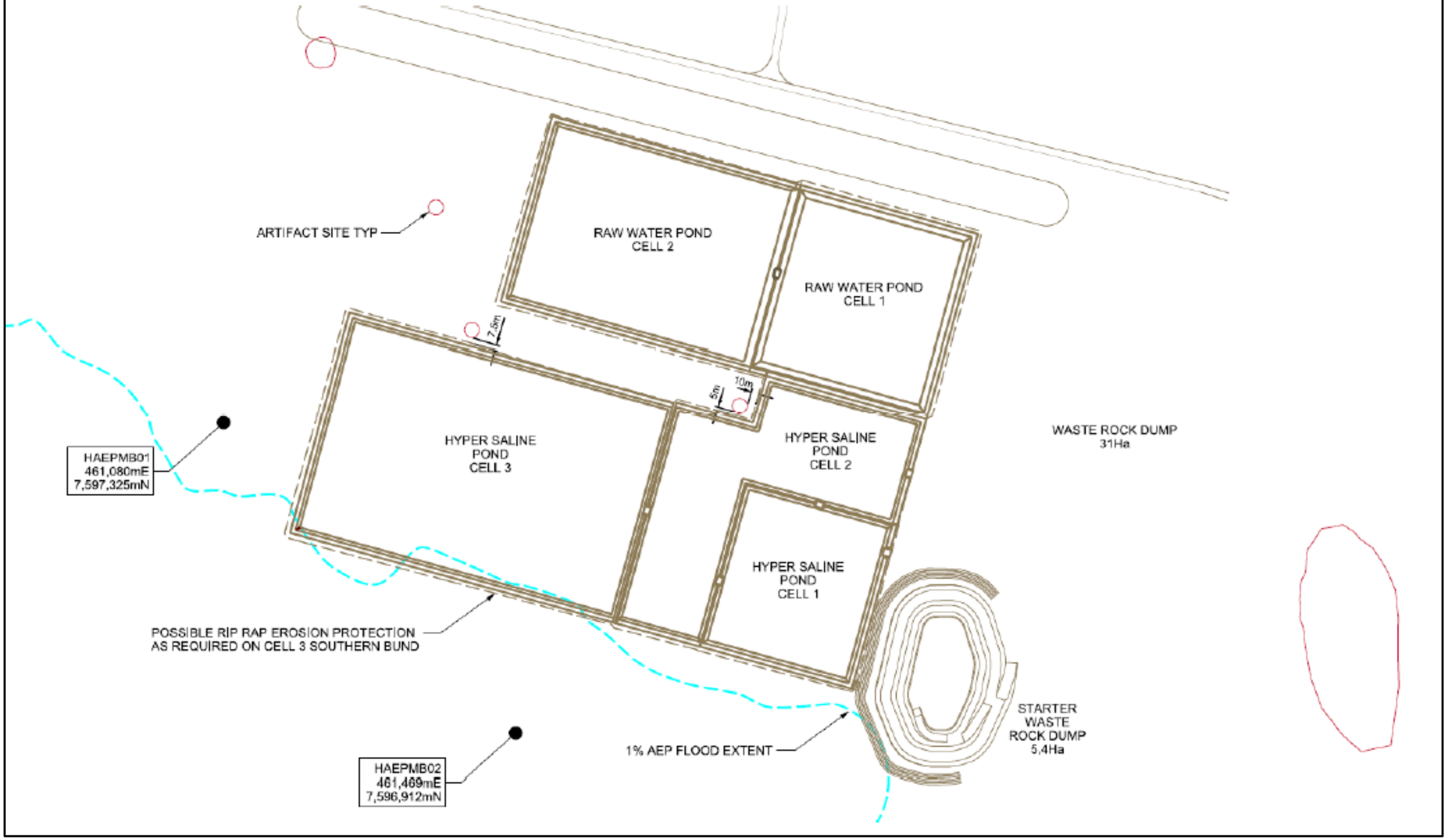

Figure 1: Layout of the proposed evaporation ponds and monitoring bores (bores labelled HAEPMB01 and HAEPMB02) *(Image provided by the Applicant)*

be constructed in each cell when the next cell is required.

The embankment of the ponds will have a 6m width on all walls. Side slope of the embarkment will be 1(V):3(H). The ponds will be lined with 1.5mm high density polyethylene (HDPE) liners.

2.3.2 Associated Infrastructure

Associated infrastructure for proposed mine dewatering activities includes dewatering pipelines and monitoring bores. Discharge reporting to the evaporation ponds will be carried out via HDPE pipelines. These pipelines will be constructed above ground and within a V drain where possible to contain any spills. Bunds will be constructed to prevent any vehicle interactions. Underground pipeline crossings will be covered or placed within a culvert to prevent damage.

Two monitoring bores will be constructed to monitor any potential seepage from the evaporation ponds. Proposed locations for the monitoring bores are shown in Figure 1 above.

2.4 Part IV of the EP Act

The applicant has referred this project to the Environmental Protection Authority (EPA) of Western Australia. However, based on the survey results, EPA has determined that the potential impacts from the project on key environmental factors are not so significant to warrant a formal assessment.

3. Risk assessment

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

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

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this Decision Report are detailed in Table 1 below. Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 1: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Earthworks, Mobile equipment movements (e.g. light vehicles and heavy equipment)	Air/windborne pathway	• Dust suppression (water cart) during construction activities • Speed limits for vehicles will be implemented • Avoid clearing during extremely windy conditions • Undertake surface disturbance permit process

Emission	Sources	Potential pathways	Proposed controls
			• Minimise disturbance of areas with >40% vegetation cover
Noise	Earthworks, Mobile equipment movements (e.g. light vehicles and heavy equipment)	Air/windborne pathway	• No applicant controls proposed.
Sediment and hydrocarbon laden stormwater	Hydrocarbon spills from mobile equipment contaminating stormwater migrating through construction areas	Overland runoff	• Hydrocarbon spill kits available in locations where hydrocarbons and/or chemicals are stored or used • Vehicle inspections upon arrival at site and pre-start inspections completed • Routine maintenance of all vehicles • Hydrocarbon contaminated soils to be taken to bioremediation facility for treatment • All hydrocarbons and dangerous goods on site will be stored and handled as per legislation • Incidents clean up and reporting
Mine Dewater	Mine dewater using for construction purposes and dust suppression	Direct discharge to environment Overspray or runoff from dust suppression	• Hypersaline water will not be used for dust suppression or construction activities • Any high traffic roads which require regular dust suppression will have windrows and V-drains constructed to contain any accumulated salinity • Sediment sumps will be constructed if required and any saline accumulation will be disposed into evaporation pond • Water cart will utilise dripper bars where possible to minimise over-spray into adjacent vegetation
Operation (including Time-limited Operation)			
Mine Dewater	Mine dewatering from boxcut	Direct discharge to the environment due to pipeline leak / rupture	• Saline water pipeline located in V drains to contain potential saline water spills • Pipeline to be hydrotested prior to operations • Regular inspections • Pipeline crossings (i.e. under roads) will have a cover of suitable material or be placed within a culvert to prevent damage • Windrows constructed to prevent vehicle interactions with pipeline

Emission	Sources	Potential pathways	Proposed controls
			• Signage indicating presence of pipelines
	Mine dewater stored in evaporation ponds	Seepage through evaporation ponds Overtopping of evaporation ponds or embarkment failure	• Ponds lined with 1.5 mm HDPE • Regular inspections • Two monitoring bores to capture any potential seepage • Site water balance completed, and evaporation pond sized appropriately • 1 m freeboard with wave capacity incorporated into freeboard requirements • Sufficient capacity in evaporation pond for Waste Rock Dump and boxcut runoff from 1 in 100 ARI rainfall events • Crest of embankment to be graded inwards to drain water into pond • Surrounding V Drain to minimise surface water ponding against base of embankment in rainfall events • Suitable construction material used
Sediment and hydrocarbon laden stormwater	Stormwater migrating through operation areas	Overland runoff	• Hydrocarbon spill kits available in locations where hydrocarbons and/or chemicals are stored or used • Hydrocarbon contaminated soils to be taken to bioremediation facility for treatment • All hydrocarbons and dangerous goods on site will be stored and handled as per legislation • Incidents clean up and reporting
Surface water flow leading to failure of evaporation pond (i.e. flood events)	Stormwater	Overland runoff	• Surface water flood modelling conducted to aid with planning / design • Placement of key infrastructure outside of flooding zone • Inspections following flood events to identify any failure of controls (bund breaches, blocked culverts) • Minimal fill material will be used on the service corridor, therefore minimal surface water obstructions • If required, culverts or floodways will be installed to maintain surface water flows

3.1.2 Receptors

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

Table 2 and Figure 2 below provide a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emissions and discharges from the prescribed premises *(Guidance Statement: Environmental Siting* (DER 2016)).

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

Human receptors	**Distance from prescribed activity**
Residential Premises	The prescribed premises is located in a remote area. No residences recorded within >10km from the prescribed premises boundary. Telfer mine owned by Newcrest Mining is located approximately 45km to the west of the premises
Environmental receptors	**Distance from prescribed activity**
The Karlamilyi National Park	Approximately 25km south east of the proposed prescribed premises
Rudall River National Park	Approximately 19km south to the proposed prescribed premises
Lake Dora	Approximately 30km south-east to the proposed prescribed premises
4 x Surface Water Bodies – Hydrography WA 250K	Intersect the proposed prescribe premises
Rights in Water and Irrigation Act 1914 (RIWI Act) Groundwater areas	Within the Canning-Kimberly Groundwater area Generally, >10mbgl where ~5mbgl to the west at the project area
Interim Biogeographic Regionalisation of Australia (IBRA) Regions	Within the Great Sandy Desert

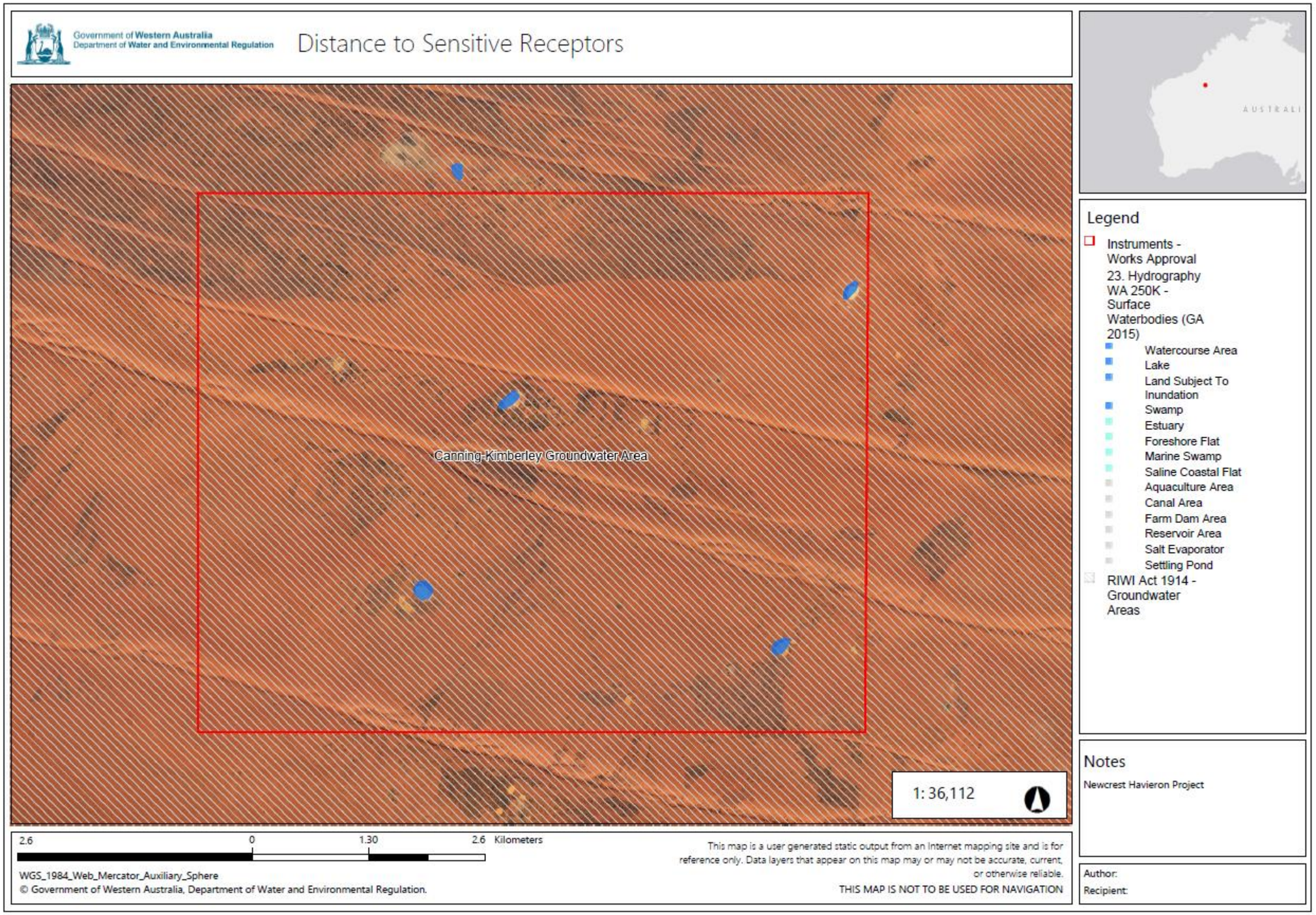

Figure 2: Distance to sensitive receptors - Newcrest Havieron Project

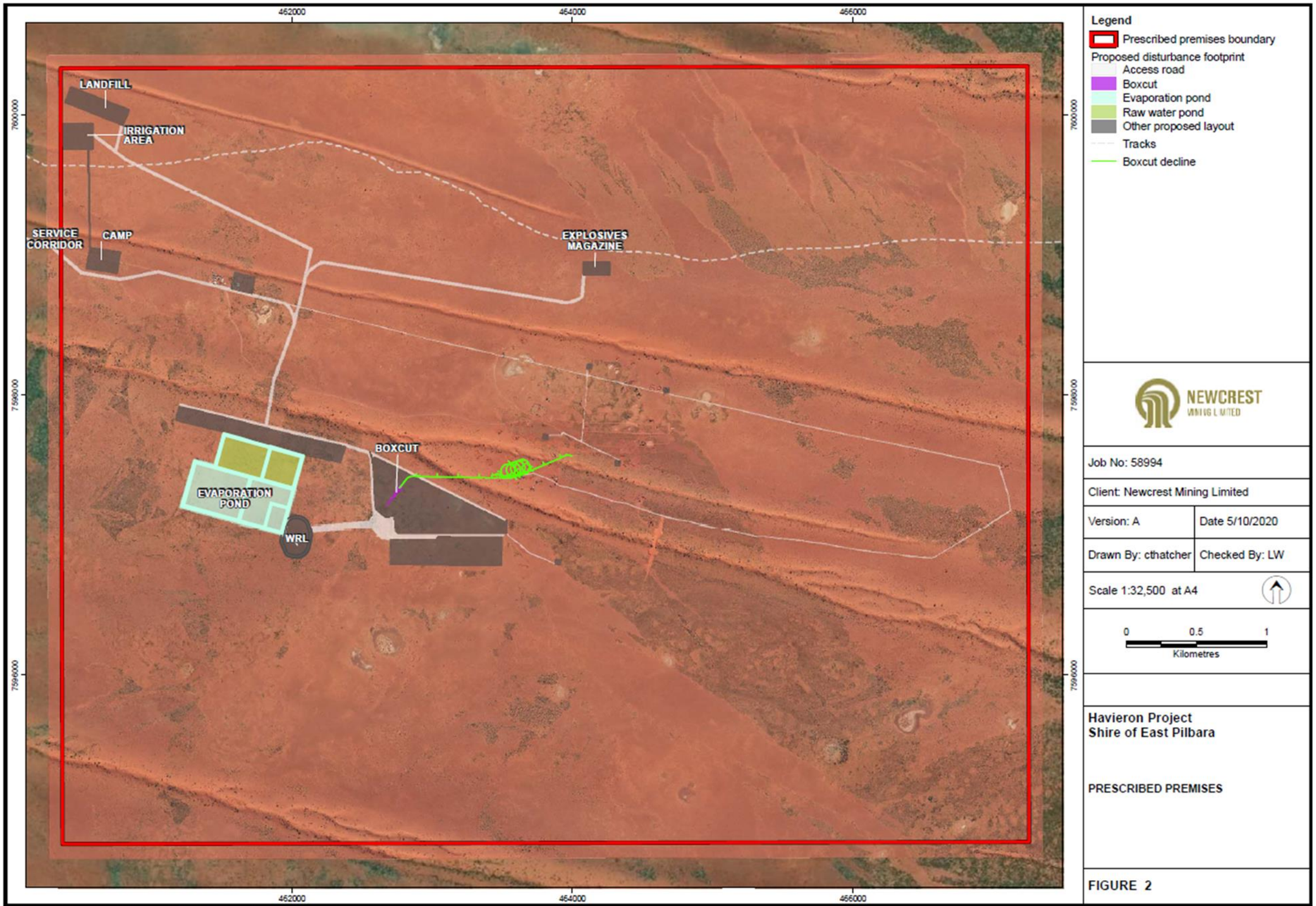

Figure 3: Proposed Prescribed Premised for Newcrest Mining - Havieron Project *(Image provided by the Applicant)*

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

Works Approval W6468/2020/1 that accompanies this Decision Report authorises construction and time-limited operations. The conditions in the issued Works Approval, as outlined in Table 3 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the Premises i.e. Category 6 activities. A risk assessment for the operational phase has been included in this Decision Report, however licence conditions will not be finalised until the department assesses the licence application.

Table 3: Risk assessment of potential emissions and discharges from the Premises during construction and operation (including time limited operation)

Risk Event					**Risk rating[1]** **C = consequence** **L = likelihood**	**Applicant controls sufficient?**	**Conditions[2] of works approval**	**Justification for additional regulatory controls**
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Construction								
Earthworks Mobile equipment movements (light vehicles and heavy equipment) Construction of HDPE lined evaporation Ponds Construction and installation of dewatering pipelines and associated infrastructure	Dust	Air/windborne pathway causing impacts to health and amenity	No human receptors within 10km area Native vegetation	Refer to Section 3.1	C = Slight L = Possible **Low Risk**	Y	Construction and infrastructure requirements Condition 1 Condition 3	Condition 1 and 3 outlines the infrastructure and controls authorised for construction under the works approval at the appropriate locations to ensure emissions and discharges during construction and installation of the evaporation ponds do not impact on nearby receptors.
	Noise				C = Slight L = Unlikely **Low Risk**	Y	General provisions of the *Environmental Protection (Noise) Regulations 1997* apply.	None specified in the works approval. The Delegated Officer considers that there is no pathway to human receptors due to substantial separation distance.
	Sediment and hydrocarbon laden stormwater	Seepage to groundwater contaminating groundwater	Soil Groundwater		C = Minor L = Rare **Low Risk**	Y	Construction and infrastructure requirements Condition 1 Condition 2 Condition 3 Condition 4	Additional regulatory controls are not required. The Delegated Officer considers that the applicant controls are sufficient to mitigate stormwater contamination at the premises from potential hydrocarbon spills / leaks and sediment discharges.
	Mine dewater using for construction purposes and dust suppression		Soil Groundwater		C = Minor L = Rare **Low Risk**	Y	General provisions of the *Environmental Protection (Unauthorised Discharges) 2004* will apply	Additional regulatory controls are not required. The Delegated Officer considers the applicants controls sufficient mitigate any potential groundwater contamination by hypersaline water during construction phase.

Risk Event					Risk rating[1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions[2] of works approval	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Operation (including time-limited-operations)								
Mine dewatering from box-cut	Saline to hypersaline mine dewater	Direct discharge to environment due to pipeline leak / rupture	Native vegetation Soil Groundwater	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Construction and infrastructure requirements Condition 3 Environmental commissioning requirements Condition 12 and 13 Time limited operation requirements Condition 19 and 20	Leaks and pipelines ruptures have the potential to have mid-level onsite impacts (soil, groundwater, and vegetation impacts). Generally, the groundwater depth in the project area is around >10mbgl and ~5mbgl to the west of the project area. Given that separation distance, impacts to the groundwater can be considered to have low level consequence. The applicant's proposed controls during construction, commissioning and operation phase will mean these events are unlikely to occur, and are therefore deemed adequate to manage any potential impacts. Additional regulatory controls are not required. General provisions of the *Environmental Protection (Unauthorised Discharges) 2004* will apply.
Storage of mine dewater in the evaporation ponds	Saline to hypersaline mine dewater	Seepage through evaporation ponds Overtopping of evaporation ponds or embarkment failure			C = Moderate L = Unlikely **Medium Risk**	Y	Construction and infrastructure requirements Condition 1 and 4 Baseline Groundwater monitoring Condition 5 Environmental commissioning requirements Condition 12 and 13 Time limited operation requirements Condition 19, 20, 21 and 23	Overtopping of the hypersaline water in the evaporation ponds has the potential to have mid-level onsite impacts (soil and vegetation impacts). However, due to the Applicant's proposed controls, such as construction design and monitoring, it is unlikely these types of events will occur. Thus, the Delegated Officer considers that the applicant controls are sufficient to mitigate any potential impact and further regulatory controls are not required.
Sediment and hydrocarbon laden stormwater	Stormwater migrating through operation areas	Overland runoff			C = Minor L = Rare **Low Risk**	Y	Condition 2 Construction and infrastructure requirements Condition 3 Time limited operation requirements Condition 19	Additional regulatory controls are not required. The Delegated Officer considers the applicants controls sufficient to control the sediment laden water runoff during the operation.

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

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

4. Consultation

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

Table 4: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website (02 December 2020)	None received.	N/A
Local Government Authority advised of proposal (Shire of East Pilbara) 02 December 2020	None received.	N/A
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal (02 December 2020)	Comments received on 16 December 2020. "A Mining Proposal (MP) and Mine Closure Plan (MCP) are currently being assessed by DMIRS (Registration ID 89453)." "The proposed evaporation pond design shown in the WAA is different from the layout shown in the latest Mining Proposal Revision (Rev 2)." "All ponds are proposed to be HDPE lined, and the mining proposal risk assessment has considered the fauna entrapment risks associated with HDPE lined ponds." "The closure/remediation aspects associated with the evaporation ponds is unlikely to be problematic from a mine closure perspective."	The Delegated Officer notes that a revised evaporation pond design has been received and is the same design as that submitted to DMIRS as part of the revised Mining Proposal.
Applicant was provided with draft documents on (17 March 2020)	Refer to Appendix 1	Refer to Appendix 1

5. Conclusion

Based on the assessment in this Decision Report, the Delegated Officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. Email titled “Application - New Works Approval - Newcrest Operations Limited - Havieron Project - Evaporation Ponds” dated 19/10/2020 authored by Louise Whitley, available at DWER records (DWERDT352273)
2. Email titled “Works Approval Application: Newcrest - Havieron Project” - revised dimensions and design drawing dated 01/12/2020 authored by Louise Whitley, available at DWER records (A1980882)
3. Email titled “W6468 - Newcrest Operations Limited - Havieron Project - Evaporation Ponds - Works Approval - Response to Request for Further Information RFI” dated 07/01/2021 authored by Louise Whitley, available at DWER records (DWERDT398920)
4. DWER, June 2019 Guideline: Decision Making. Department of Water and Environmental Regulation
5. Department of Environment Regulation (DER) 2016, *Guidance Statement: Environmental Siting*, Perth, Western Australia.
6. DER 2017, *Guidance Statement: Risk Assessments*, Perth, Western Australia.
7. DER 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.

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

Condition	Summary of applicant's comment	Department's response
1	1 and 1(a) should be combined into one sentence.	Condition was written according to the standard format issued by DWER. However, as the requested changes do not impact the content of the condition and the requirements by the condition, the Delegated Officer has decided to update the condition on the Works Approval as requested.
Table 1	Amend pond design dimensions to reflect maximum design criteria	Requested approach accepted by DWER and changes made to the wording of the conditions in the works approval to allow flexibility in the pond design to reflect the maximum design criteria
3	3 and 3(a) should be combined into one sentence.	Condition was written according to the standard format issued by DWER. However, as the requested changes do not impact the content of the condition and the requirements by the condition, DWER updated the condition on the Works Approval as requested.
Table 2 - 2	Where natural gradient exists, V drains may not be constructed, therefore amended condition is required.	Reviewed the request and updated the condition on the Works Approval accordingly
10(a)	Condition 10(a) requires certification by a geotechnical engineer or civil engineer for Condition 3 non-critical infrastructure (dewatering pipelines, stormwater management and water cart). Certification by a geotechnical engineer or civil engineer is not considered necessary for all Condition 3 items and it is suggested the condition is appropriately re-worded to reflect this.	To ensure the quality assurance / quality control of constructed items, DWER requires that the infrastructure be endorsed by a qualified professional. In reviewing the request by the applicant, DWER amended the condition to allow flexibility to obtain the authorisation by a suitably qualified engineer instead of a geotechnical engineer or civil engineer.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY					
Application type					
Works approval	☒				
Licence	☐	Relevant works approval number:		None	☐
		Has the works approval been complied with?		Yes ☐ No ☐	
		Has time limited operations under the works approval demonstrated acceptable operations?		Yes ☐ No ☐ N/A ☐	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?		Yes ☐ No ☐	
		Date Report received:			
Renewal	☐	Current licence number:			
Amendment to works approval	☐	Current works approval number:			
Amendment to licence	☐	Current licence number:			
		Relevant works approval number:		N/A	☐
Registration	☐	Current works approval number:		None	☐
Date application received		19/10/2020			
Applicant and Premises details					
Applicant name/s (full legal name/s)		Newcrest Operations Limited			
Premises name		Havieron Project			
Premises location		Mining tenement M 45/1287			
Local Government Authority		Shire of East Pilbara			
Application documents					
HPCM file reference number:		DER2020/000499			
Key application documents (additional to application form):		DWER Evaporation Pond WAA (Rev0)			
Scope of application/assessment					
Summary of proposed activities or changes to existing operations.		Construction of Evaporation Pond (two raw water cells and three hypersaline water cells) and associated infrastructure including pipeline and monitoring bores. Stage construction will be undertaken.			

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

Table 1: Prescribed premises categories

Prescribed premises category and description	Proposed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 6 - Mine dewatering: premises on which water is extracted and discharged into the environment to allow mining of ore	1,550,000 tonnes per year	

Legislative context and other approvals

Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes ☐ No ☒	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes ☐ No ☒	Ministerial statement No: EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes ☐ No ☒	Reference No:
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes ☒ No ☐	Certificate of title ☐ General lease ☐ Expiry: Mining lease / tenement ☒ Expiry: 21 years Other evidence ☐ Expiry:
Has the applicant obtained all relevant planning approvals?	Yes ☐ No ☐ N/A ☒	Approval: Expiry date: If N/A explain why?
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes ☒ No ☐	CPS No: CPS9035/1 In progress
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes ☐ No ☒	Application reference No: N/A Licence/permit No: N/A
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes ☐ No ☒	Application reference No: Licence/permit No: GWL 202749 (2) with an amendment submitted for Mine dewatering activities

Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ☒ No ☐	Name: Canning - Kimberley Groundwater Area Type: Proclaimed Groundwater Area Has Regulatory Services (Water) been consulted? Yes ☐ No ☒ N/A ☐ Regional office: North West
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes ☐ No ☒	Name: N/A Priority: P1 / P2 / P3 / N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to WQPN 25)? Yes ☐ No ☐ N/A ☒
Is the Premises subject to any other Acts or subsidiary regulations (e.g. *Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx*)	Yes ☐ No ☒	
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes ☐ No ☒	N/A
Is the Premises subject to any EPP requirements?	Yes ☐ No ☒	N/A
Is the Premises a known or suspected contaminated site under the *Contaminated Sites Act 2003*?	Yes ☐ No ☒	Classification: N/A Date of classification: N/A