Government of Western Australia
Department of Water and Environmental Regulation

Decision Report

Application for Works Approval

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

Works Approval Number	W3064/2025/1
Applicant	Northern Star (Bundarra) Pty Ltd
ACN	151 605 417
Application number	APP-0029419
Premises	Bundarra Gold Mine Legal description - Mining tenements M37/350 and M37/513 LEINSTER WA 6437 As defined by the premises map attached to the issued works approval
Date of report	14 November 2025
Decision	Works approval granted

Table of Contents

1. Decision summary

This 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 W3064/2025/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary and overview of premises

On 17 June 2025, Northern Star (Bundarra) Pty Ltd (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 for the construction and operation of infrastructure at the Bundarra Gold mine located on mining tenements M37/350 and M37/513 (the premises). The premises is located approximately 60 km north of Leonora and 60km southeast of Leinster in the northeastern Goldfields region of Western Australia. Northern Star's Thunderbox Operations is located approximately 20 km northwest, with the Bundarra Gold Mine forming a satellite operation to the Thunderbox Operations (which is operated under licence L7815/2001/12).

Mining operations in the Bundarra area commenced in 2000 and continued until 2003, when the project was placed into care and maintenance for two decades. In 2023, the Applicant resumed underground mining at the Wonder North Pit. All ore extracted from the Bundarra Gold Mine is transported by road trains along the Goldfields Highway to the Thunderbox Operations for processing. The Bundarra Gold Mine is projected to have a mine life of approximately 10 years.

The application is seeking approval to construct and operate the following:

- Category 5: Paste plant and associated tailings stockpiles;
- Category 6: Dewatering infrastructure
- Category 12: Mobile crushing and screening plant to generate construction material from inert waste rock
- Category 89: Putrescible landfill within Wonder waste rock landform (WRL)

The premises relates to the categories and assessed production / design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W3064/2025/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W3064/2025/1.

2.2.1 Category 5: Paste plant and associated tailings stockpiles

The applicant is proposing to construct and operate a paste plant to produce paste fill for underground stope backfilling within the Wonder North Pit underground mine. The paste plant will be of a prefabricated modular design installed on a concrete pad. Dry tailings will be excavated from the tailings storage facility (TSF) at the Thunderbox operations (regulated under licence L7815/2001/12) and transported by covered road trains 20km northeast to the premises.

The tailings are expected to retain approximately 15% moisture, which is expected to reduce dust generation during handling. Transport will occur along existing haulage routes along the Goldfields Highway.

At the premises, tailings will be stockpiled adjacent to the paste plant in a designated tailings stockpile area surrounded by earthen bunds and internally graded to manage surface water runoff. The stockpile area base will consist of compacted clay or compacted tailings over crushed aggregate. Tailings will be stored in windows up to 5 meters high.

The applicant has stated in their response to the draft package that the Bundarra area is constrained by heritage approvals as most permitted activities are restricted to existing disturbance areas. Following a review of land access, there is currently no appropriate site to construct a borrow pit to source clay material for the stockpile base within proximity to the tailings stockpile area. To account for this the applicant is requesting that an alternative base is permitted – compacted tailings over crushed aggregate.

Recent leachate testing of the Thunderbox tailings indicates that contaminants of concern are under the Leachable Concentration ASLP1 (mg/L) for disposal in Class 1 Landfills (CL1) as per the Landfill Waste Classification and Waste Definitions 1996 (as amended 2019) as summarized below in Table 1. It is expected that compacted tailings will have a similar low permeability to compacted clay and will be installed over crushed aggregate.

Table 1: Results from leachate testing of the Thunderbox tailings.

Parameter	Unit	CL1	TBO 1	TBO 2	TBO 3	TBO 4
Mercury Dissolved	mg/L	0.01	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic Dissolved	mg/L	0.5	0.2	0.2	0.3	0.3
Chromium Dissolved	mg/L	0.5	<0.1	<0.1	<0.1	<0.1
Lead Dissolved	mg/L	0.1	<0.1	<0.1	<0.1	<0.1
Nickel Dissolved	mg/L	0.2	<0.1	<0.1	<0.1	<0.1
Silver Dissolved	mg/L	1	<0.1	<0.1	<0.1	<0.1
Molybdenum Dissolved	mg/L	0.5	<0.1	<0.1	<0.1	<0.1
Cadmium Dissolved	mg/L	0.1	<0.001	<0.001	<0.001	<0.001
Selenium Dissolved	mg/L	0.5	<0.01	<0.01	<0.01	<0.01
Total Cyanide Total	mg/L	0.8	<0.004	<0.004	<0.004	<0.004
Weak Acid Dissociable Cyanide	mg/L	0.35	<0.004	<0.004	<0.004	<0.004

2.2.2 Category 6: Mine dewatering infrastructure

The underground mine working at the premises is required to be dewatered below the active mining elevation to allow dry mining conditions with an expected average annual dewatering requirement of approximately 289,000 kL per year. Groundwater is currently being pumped from the Wonder North Pit to a series of existing surface holding tanks where water is being accessed for dust suppression activities (watercart) via a pump and standpipe located adjacent to the surface water tanks. New pipelines to the paste plant for water use in paste mixing are proposed to be constructed along with new pipelines to Wonder West Pit and Celtic Pit for the discharge of excess water in surplus of site needs. Wonder West Pit is located approximately 350m from Wonder North Pit. A pipeline will also be constructed between Wonder North Pit and Celtic Pit located approximately 2.8km away for any additional discharge exceeding the capacity of Wonder West Pit over the life of the operations.

The applicant has confirmed that the pipeline between Wonder North Pit to Wonder West pit, the holding tanks and standpipe have already been constructed. This works approval will therefore approve construction of the pipeline between Wonder North Pit and Celtic Pit.

A diagram of the dewatering infrastructure design concept was provided as part of the application, and this is shown in Figure 1 below.

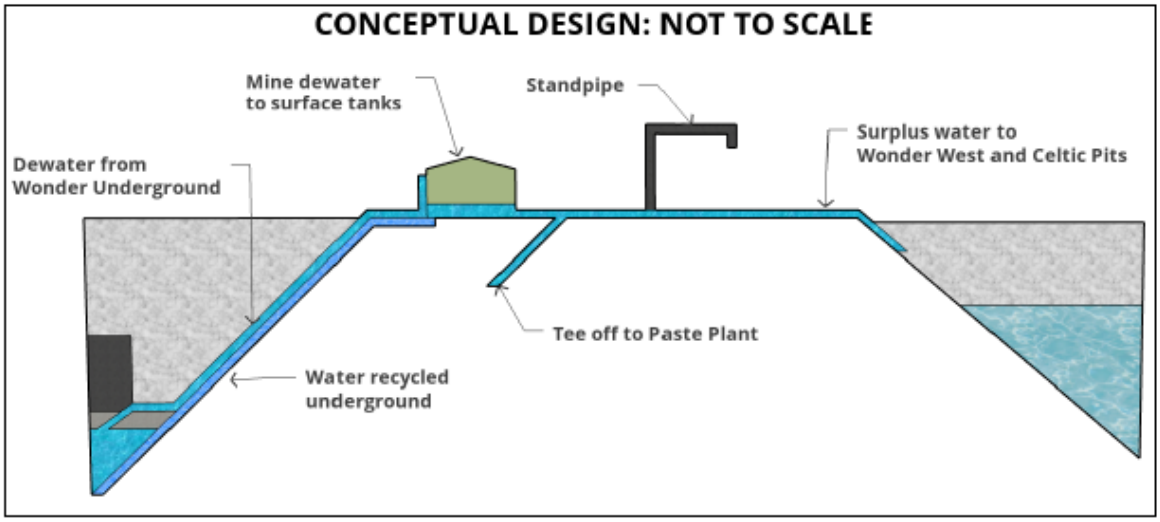

Figure 1: Indicative dewatering process at the premises.

Pit storage capacity

The applicant provided a dewatering water balance as part of the application. This is presented below in Table 2. The data shows that the two receiving pits have sufficient capacity to store the expected excess volume of dewatering effluent over the life of mine.

Table 2: Water balance

Parameter	Celtic Pit	Wonder West Pit
Total pit volume (m^3)	4113761	1248961
Total pit volume with 5 m freeboard (m^3)	3670721	1103129
Current remaining volume with 5 m freeboard (m^3)	3601187	942193
% Fill capacity remaining	98.1	85.4
Estimated annual water loss (m^3)*	85200	34000
Estimated net inflows (m^3)	203800	255000
Capacity (years)	18	3.7

*Estimated based on maximum pit lake areas, 0.7 pan factor for open water body, 0.69 salinity factor.

Water quality

The applicant also provided data regarding the quality of the pit lakes and groundwater within nearby monitoring bores. This data is presented below in Table 3 and has also been compared to the ANZECC livestock guidelines (premises is within a pastoral lease). The data indicates that groundwater is alkaline and has elevated sulphate concentrations in exceedance of the ANZECC livestock guideline. Groundwater is brackish within Wonder West Pit and Wonder North Pit which is understood to be hydraulically connected due to their close proximity to each other. Celtic Pit Lake located further away is saline with a higher total dissolved solids concentration than Wonder West and Wonder North Pits. Total metal concentrations for appear to be similar in concentrations across all three pits and well below the ANZECC livestock guidelines.

Table 3: Water quality across the premises

Analyte	Units	Wonder West Pit	Wonder North Pit	Celtic Pit	Wonder B1 (WMB1)	Wonder B2 (WMB2)	ANZECC Livestock Value
pH	-	7.84	7.77	8.39	10.7	10.3	6.5 - 8.5
EC	µS / cm	11500	12600	26600	5520	6540	-
Total dissolved solids	mg / L	7360	8230	20100	3470	3670	4000
Sulphate	mg / L	1050	1030	4400	611	385	1000
Nitrite	mg / L	3.6	3.19	0.01	4.73	0.74	30
Nitrate	mg / L	72.5	106	0.18	1.18	8.99	400
Calcium	mg / L	426	329	947	230	22	1000
Magnesium	mg / L	215	210	866	<1	7	2000
Aluminium	mg / L	0.39	1.89	0.03	2.62	1.01	5
Arsenic	mg / L	0.002	0.001	0.004	0.003	0.006	0.5
Cadmium	mg / L	<0.0001	0.0001	<0.0002	<0.0001	<0.0001	0.01
Chromium	mg / L	0.002	0.004	0.004	0.032	0.368	1
Copper	mg / L	0.007	0.006	0.009	0.152	0.009	1
Colbalt	mg / L	0.001	0.003	<0.002	0.004	0.004	1
Nickel	mg / L	0.01	0.01	0.002	0.016	0.013	1
Lead	mg / L	<0.001	0.01	<0.002	0.018	0.019	0.1
Zinc	mg / L	0.023	0.575	<0.010	0.166	0.079	20
Manganese	mg / L	0.114	0.35	0.049	0.034	0.028	-
Selenium	mg / L	<0.01	0.01	<0.02	<0.01	<0.01	0.02
Iron	mg / L	0.41	3.52	<0.10	2.79	1.46	-

2.2.3 Category 12: Mobile Crushing and Screening plant

The applicant is proposing to install a mobile crushing and screening plant to be used on a campaign basis to produce construction material (road base, stemming, hardstand and cemented aggregate fill) to support the development of the Bundarra Gold Mine. The mobile plant will process stockpiled inert waste rock material at an expected maximum throughput of 100,000 tonnes per year. The mobile plant will be moved throughout a designated crushing and screening area depending on the location of stockpiled materials. Supporting the crushing and screening plant will be site-based watercarts which will be used at an on required basis to wet down stockpiles and supress dust.

2.2.4 Category 89: Putrescible landfill

A landfill is proposed to be constructed within the Wonder waste rock landform within mining tenement M37/513. The landfill will consist of a series of cells up to approximately 3 meters deep by 3 meters wide and up to 20 meters in length. Waste types expected to be disposed of include:

- Inert waste type 1 – non-organic waste primarily leftover materials and demolition waste.
- Inert waste type 2 – used tyres which are not able to be refurbished or economically recycled.
- Putrescible waste – non-hazardous organic waste generated from offices, crib areas, workshops etc.

- Contaminated solid waste meeting acceptance criteria for Class II landfills – contaminated soils from spills onsite which have been tested and are confirmed to be within the threshold for Class II landfill disposal.

It is expected that approximately 240 tonnes of waste (2 cells) will be disposed of per year.

2.2.5 Premises boundary

The Premise boundary has been amended to accommodate the culvert where the pipeline passes under the Goldfields highway. The figures in the licence have been updated.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk Assessments* (DWER 2020).

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 4 below. Table 4 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 4: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Construction / installation of infrastructure: vehicle movements, earthworks	Air / windborne pathway	Watercarts will be used for dust suppression Construction will be limited during periods of excessive winds
Noise	Construction / installation of infrastructure: vehicle movements, earthworks	Air / windborne pathway	No controls proposed *Environmental Protection (Noise) Regulation 1997* apply.
Operation			
Dust	<u>Category 5:</u> ▪ Stockpiling and unloading of dry tailings at paste plant ▪ Handling of dry tailings ▪ Movement of machinery /vehicles	Air / windborne pathway	<u>Category 5:</u> ▪ Tailings contain residual moisture of approximately 15% which should reduce dust during unloading / stockpiling. ▪ Trucks will be covered. ▪ Tailings will be stockpiled to a maximum of 5 m in height in

Emission	Sources	Potential pathways	Proposed controls
	Category 12: ▪ Crushing and screening of material ▪ Stockpiling of feed and processed material ▪ Movement of machinery /vehicles Category 89: ▪ Covering of waste ▪ Movement of machinery /vehicles		windrows (from side tipper unloading). ▪ Visual monitoring of dust liftoff from tailings stockpiles and wetting down if required. Category 12: ▪ Water carts will be used to proactively wet down stockpiles and to suppress dust ▪ Visual dust monitoring and cessation during excessive winds if required Category 89: Water carts available for dust suppression when required
Noise [screened out due to no pathway to receptors]	Category 12: ▪ Crushing and screening of material ▪ Movement of machinery /vehicles Category 5: ▪ Stockpiling and unloading of dry tailings at paste plant ▪ Handling of dry tailings ▪ Movement of machinery /vehicles Category 89: ▪ Movement of machinery /vehicles	Air / windborne pathway	No controls proposed *Environmental Protection (Noise) Regulation 1997* apply.
Hydrocarbons	Spills and leaks of hydrocarbons from mobile machinery, pump and plant equipment.	Direct discharge to land	▪ Spill kits available ▪ No dangerous goods will be stored at the paste plant or mobile crushing and screening plant
Tailings / paste	Category 5 Tailings spill during unloading and transfer to paste plant. Paste spills	Direct discharge to land	▪ Paste borehole located within concrete sump. ▪ Site located within existing cleared area. ▪ The stockpile area will be constructed of a compacted clay or tailings layer over crushed aggregate

Emission	Sources	Potential pathways	Proposed controls
Saline dewatering effluent	Category 6: ▪ Discharge of dewater into pits. ▪ Pipeline / tank leaks or spills. ▪ Water used for dust suppression	Direct discharge to land and seepage	▪ Water tanks are fully enclosed ▪ Shutdown valves will be installed at intervals along pipeline routes to allow for isolation of sections for maintenance and in response to leaks or spills ▪ Pipelines will be installed in v-drains with scout pits (at low points) to capture spills ▪ Flow meters will be fitted on pipelines ▪ A minimum 5-meter freeboard to be maintained within receiving pits ▪ Monthly survey monitoring of pit water volume.
Contaminated stormwater runoff	Category 5: Stormwater coming into contact with tailings stockpiles Category 12: Stormwater coming into contact with material stockpiles / hydrocarbons Category 89: Stormwater coming into contact with landfilled waste	Overland runoff	Category 5: ▪ Paste plant and tailings stockpile area surrounded by earthen bunds on external perimeter (excluding road train egress points) and graded internally to contain surface water runoff ▪ The stockpile area will be constructed of a compacted clay / tailings layer over crushed aggregate Category 12: ▪ No controls proposed Category 89: ▪ Landfill will be operated in accordance with the Environmental Protection (Rural Landfill) Regulations 2002 which includes requirements for stormwater to be diverted away from waste.
Landfill leachate	Category 89: Leachate generated by putrescible waste	Seepage through base of landfill	▪ Landfill will be operated in accordance with the *Environmental Protection (Rural Landfill) Regulations 2002* which includes requirements for the covering of waste on a monthly bases – this will reduce the generation

Emission	Sources	Potential pathways	Proposed controls
			of leachate. ▪ Landfill located within waste rock landform ensuring base of landfill is located greater than 3 meters from groundwater level.
Windblown waste	Category 89: Waste from landfill	Direct discharge to land	Landfill will be operated in accordance with the *Environmental Protection (Rural Landfill) Regulations 2002* which includes requirements for the covering of waste on a monthly basis and for the collection of windblown waste to also occur monthly

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 5 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental Siting* (DWER 2020)).

Table 5: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Goldfields Highway	Approximately 1-2km from the crushing and screening plant and paste plant areas **[screened out due to distance]**
Closest residential receptor: Jaguar Minesite accommodation village	4 km southwest of the premises boundary **[screened out due to distance]**
Premises is located on both Tarmoola (N049945) and Weebo (N049440) pastoral station homesteads.	Tarmoola Station homestead is approximately 41 km south of the premises Weebo Station homestead is located approximately 38 km north of the premises. Stock route (R 17398) interacts with the eastern side of M 37/513 with consent to mine granted for activities not restricting the use of the reserve. **[screened out due to distance]**
Environmental receptors	**Distance from prescribed activity**
Native vegetation	Surrounding premises boundary. Adjacent to Celtic Pit and Wonder North Pit and

	alongside pipeline route.
Ephemeral surface water drainage lines	Ephemeral watercourses reporting to Sullivan Creek traverse the proposed prescribed premises boundary (crossing pipeline route and to the east of the paste plant area).
Groundwater	Bundarra is located within the Raeside subarea (fractured rock) of the Goldfields Groundwater Area. Groundwater in the area is brackish to saline. Groundwater is used for mining and stock watering purposes as premises is located within a pastoral lease.
Heritage sites	Registered site – place id – 1741 – Creation / Dreaming Narrative – Lake Raeside/Sullivan Creek – Public boundary located approximately 480 m east of the proposed prescribed premises boundary 20 other lodged Aboriginal Sites interacting with mining tenements M 37/350 and M 37/513 have been identified. Section 18 approval (under the *Aboriginal Heritage Act 1972)* was utilised by previous operators of the premises in the early 2000's to impact most of these registered sites. The Applicant has stated in their application that they have undertaken heritage surveys with relevant traditional owner groups which was completed in April 2025 with the survey report sill pending, however no new disturbances will occur prior to heritage clearance.

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) 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 5.

Works approval W3064/2025/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 5 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. 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 5: Risk assessment of potential emissions and discharges from the premises during construction and operation

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Construction								
Construction / installation of infrastructure: vehicle movements, earthworks	Dust	Air / windborne pathway causing impacts to vegetation health / amenity of road users	Native vegetation	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	N/A
Operation (including time-limited-operations operations)								
Category 5 – Paste plant and tailing stockpiles								
Operation of the paste plant including the stockpiling of reclaimed tailings	Dust	Air / windborne pathway causing impacts to vegetation health	Native vegetation	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 6	Applicants' proposed controls are acceptable to manage this risk event and have been conditioned in the works approval in accordance with *Guideline: Risk Assessments* (DWER 2020).
	Contaminated stormwater	Overland runoff potentially causing ecosystem disturbance or impacting surface water quality	Native vegetation Surface water	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 1 Condition 6	
	Tailings	Direct discharge to land – spills /stockpiles causing contamination of soils/ groundwater	Soils Groundwater	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 1 Condition 6	
Category 6: Dewatering								
Transport of mine dewater from Wonder North Pit to paste plant, Wonder West Pit and	Saline mine dewatering effluent	Direct discharge to land via pipeline / tank leaks or spills causing impact to	Native vegetation Surface	Refer to Section 3.1	C = Minor L = Unlikely	N	Condition 1 **Condition 6 -**	The delegated officer has determined it to be necessary that daily inspections of the dewatering pipelines occur to ensure leaks /

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Celtic Pit (via surface water holding tanks and pipelines)		health of vegetation and surface water	water drainage lines		**Medium Risk**		**inspections**	spills are detected early.
Discharge of mine dewater into Wonder West Pit and Celtic pits		Direct discharge resulting in seepage from base and walls of pits causing mounding of the groundwater table / changes in groundwater quality.	Native vegetation Groundwater	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	N	Condition 1 Condition 6 **Condition 9 (monitoring)**	The delegated officer has determined that monitoring of water quality within the receiving discharge pits is required during time limited operations. This data will help inform the risk assessment for the operating licence.
		Direct discharge to land via overtopping of pits causing impacts to the health of vegetation (salts and waterlogging)	Native vegetation Heritage sites	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 1 Condition 6 Condition 8 (freeboard) Condition 9 (monitoring)	Applicant's proposed controls are acceptable to manage this risk event and have been conditioned in the works approval in accordance with *Guideline: Risk Assessments* (DWER 2020).
Use of mine dewater for dust suppression activities within the premises (via a water cart).		Runoff from operational areas and roads causing impacts to health of vegetation / soils from salts.	Native vegetation	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A General provisions of the EP Act apply	N/A
Category 12: Crushing and Screening of material								
Crushing and screening of material, including stockpiling of feed and product.	Dust	Air / windborne pathway causing impacts to vegetation health	Native vegetation	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 6	Applicant's proposed controls are acceptable to manage this risk event and have been conditioned in the works approval in accordance with *Guideline: Risk Assessments* (DWER 2020).

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
	Contaminated stormwater	Overland runoff potentially causing ecosystem disturbance or impacting surface water quality	Native vegetation Surface water	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 6	Applicant's proposed controls are acceptable to manage this risk event and have been conditioned in the works approval in accordance with *Guideline: Risk Assessments* (DWER 2020).
	Hydrocarbons	Direct discharge to land causing contamination of soils	Soils	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	N/A *Environmental Protection (unauthorised discharges) Regulations 2004* apply
Category 89: Putrescible landfill								
Discharge of waste into landfill cells	Leachate	Seepage through base of landfill causing changes in groundwater quality	Groundwater	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 6	Applicant's proposed controls are acceptable to manage this risk event and have been conditioned in the works approval in accordance with *Guideline: Risk Assessments* (DWER 2020).
	Windblown waste	Air / windborne pathway causing impacts to ecological health	Native vegetation	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 6	
	Contaminated stormwater (runoff coming into contact with waste)	Overland runoff potentially causing ecosystem disturbance	Native vegetation	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 1 Condition 6	

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

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

4. Consultation

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

Table 6: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 11/09/2025	No comments received.	N/A.
Local Government Authority advised of proposal on 10/09/2025	No comments received.	N/A.
Watarra Aboriginal Corporation advised of proposal on 10/09/2025	No comments received.	N/A.
Applicant was provided with draft documents on 20/10/2025	Applicant comments summarised in Appendix 1.	See Appendix 1.

5. Conclusion

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

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, 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
Duration	The proposed pipeline between Wonder North Pit to Celtic Pit will be constructed once Wonder West Pit approaches freeboard capacity. As per the supporting document this was estimated to be 3.7 years from April 2025 (January 2029), however may be required sooner or later depending on actual groundwater flows intercepted during mining of Wonder Underground. To ensure that the works approval is flexible for a delayed requirement of this pipeline and to prevent a potential extension amendment, Northern Star requests a duration to 2030 (five years from issue).	Request accepted. Expiry date now occurs in 2030.
Front page	The works approval application and calculation of paste throughput were based upon preliminary modelling and assumptions which have been optimised following further feasibility work over the past six months. This has resulted in changes to the following parameters: • Maximum hourly throughput of plant revised up to 120 m3/hr based on advice of manufacturer (20% increase). • Proposed throughput revised from 42% of maximum capacity to 50% of maximum capacity to provide greater utilisation contingency (20% increase). • Bulk density of paste assumed value of 1.6 revised up to 1.9 based on further tailings characterisation of Thunderbox tailings (19%) increase. The changes to these parameters result in an increase of the proposed throughput from 584,000 tpa to 998,640 tpa (44% increase in volume / 71% increase in tonnage). Whilst the throughput has increased there are no associated increases in emissions or changes to the risk profile of the paste plant operations. Request to update approved throughput on from page for Category 5 to 998,000 tonne per year.	Request accepted. The Delegated Officer has determined that the risk events associated with this activity and their risk ratings will not change as a result of this request and that the risk assessment remains accurate.
Condition1, Table 1	Based upon further optimisation the paste plant has been designed with one pump rather than two, with the option for paste to be gravity fed by bypassing the pump when not required (i.e. when paste does not need to travel significant lateral distances). There are no associated changes to the emissions or risk profile of the plant from this requested change Request to change wording for paste plant construction requirements: Paste plant to be of a prefabricated modular **or mobile plant configuration** design consisting of: - Hopper;	Request accepted. Delegated officer has determined that this change does not alter the risk assessment.

Condition	Summary of applicant's comment	Department's response
	- Conveyor with discharge chute directly into mixer; - Single shaft continuous mixer; - **Up to** 240 tonne cement silo fitted with dust filter and overfill protection; - **Up to** 25,000 litre water storage tank; - bore hole located over concrete sump driven by a centrifugal pump **or gravity feed bypass**; - control system. (new text shown in bold)	
Condition1, Table 1	Bundarra is highly heritage constrained with most permitted activities restricted to existing disturbance areas. Following a review of land access, no appropriate site to construct a borrow pit has been identified within proximity to the tailings stockpile area. To account for this, it requested that a liner of compacted tailings over crushed aggregate is permitted as an alternative base for the tailings stockpile area. Recent leachate testing of Thunderbox tailings has confirmed that all potential contaminants are under the Leachable Concentration ASLP1 (mg/L) for disposal in Class 1 Landfills (CL1) as per the Landfill Waste Classification and Waste Definitions 1996 (as amended 2019) (data provided). Compacted tailings have a similarly low permeability as compacted clay and given the lack of any mobile contaminants in tailings there is very low risk of any seepage impacts to groundwater and therefore no notable changes to the risk profile. The laboratory analysis report is provided as Attachment 4. Requested wording change for tailings stockpile area construction requirements: (e) Tailings stockpile area to have a liner of compacted clay **or compacted tailings** over crushed aggregate.	Request has been accepted. The Delegated Officer has determined that the use of compacted thunderbox tailings in place of a clay is acceptable based on the leachate testing results provided. Taking into account the applicants proposed controls for managing stormwater runoff (bunding and grading of the area to drain inwards) and the low moisture content of the tailings (leachate is not expected to be generated) and the depth to groundwater in the area: it is not expected that the risk events associated with this activity (and their risk ratings) will change with this modification.
Condition 6, Table 2	Due to operational timing considerations of extraction of tailings from Thunderbox TSF (i.e. between deposition, consolidation and then before subsequent lifts), it is requested that this is increased to provide greater contingency / volume of storage. This change has been considered following six months of further feasibility work on how tailings would be extracted, hauled and then utilised. Based upon proposed dust management controls it is not expected this will change the risk profile or contribute to further dust liftoff. Requested change: 2.(a) Height of tailings stockpiles to be no more than **5** meters, constructed in windrows	This condition originally required the tailings stockpile heights to be no more than 3 meters in height as originally proposed by the applicant. The request to increase this heigh to 5 meters (additional 2 meters) is accepted. The Delegated officer has taken into account the other conditioned dust management controls and has determined that this change will not change the risk rating for this risk event.
Table 4	Given the previous advice that DWER are unable to condition infrastructure already constructed in a works approval, it is unclear if the monitoring of Wonder West Pit is triggered by time limited operations.	Noted. The intent of this condition is for monitoring to occur when discharging to Wonder West Pit. It is recommended that

Condition	Summary of applicant's comment	Department's response
	Notwithstanding, Northern Star will monitor Wonder West Pit immediately in accordance with the stated monitoring conditions (until a licence is issued – following that in accordance with licence conditions), and Celtic following construction of pipeline from Wonder North Pit.	monitoring begins as soon as the works approval is granted for Wonder West Pit.
Schedule 1, Figure 1	To be replaced with new figure	Accepted. Figure updated
Schedule 2	As outlined in the request for further information response, the proposed prescribed premises has undergone minor revision (change to location of point 12) since the original submission. This changes it to ensure the existing pipeline culvert under Goldfields Highway was included within the boundary. Change point 12 to reflect the below change in coordinates. Easting: 320500 Northing: 6862770	Request accepted. Does not alter risk assessment.