Decision Report

Application for Works Approval

Division 3, Part V *Environmental Protection Act 1986*

Works Approval Number	W6211/2019/1
Applicant	Boral Resources (WA) Pty Ltd
ACN	008 686 904
File Number	DER2018/001697
Premises	Boral Newman Quarry Legal description - Mining Lease M52/1076 NEWMAN WA 6753
Date of Report	20 February 2020
Status of Report	Final

1. Definitions

In this Decision Report, the terms in the Table below have the meanings defined.

Term	Definition
ACN	Australian Company Number
AEP	Annual Exceedance Probability
Category/ Categories/ Cat.	Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
Decision Report	refers to this document.
Delegated Officer	an officer under section 20 of the EP Act.
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DMIRS	Department of Mines, Industry Regulation and Safety
DWER	Department of Water and Environmental Regulation
Emission	has the same meaning given to that term under the EP Act.
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
mbgl	metres below ground level
Mtpa	million tonnes per annum
MW	mega watts
Noise Regulations	*Environmental Protection (Noise) Regulations 1997* (WA)
Occupier	has the same meaning given to that term under the EP Act.
Pollution control equipment	means any device that controls, limits, measures, records or indicates a form of pollution
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report
Risk Event	As described in *Guidance Statement: Risk Assessment*
RIWI Act	*Rights in Water and Irrigation Act 1914* (WA)
Works Approval Holder	Boral Resources (WA) Pty Ltd

2. Purpose and Scope of Assessment

An Application for a Works Approval was submitted by Boral Resources (WA) Pty Ltd (the Applicant) on 18 December 2018 for a Prescribed Premises category 6 mine dewatering and category 12 screening operation at a new, greenfields hard rock quarry site (pending Mining Lease 52/1076 located on Exploration Licence E52/3390). The Premises is located within the Sylvania and Ethel Creek pastoral stations in the Shire of Meekatharra, approximately 30km south of the township of Newman.

The proposed Boral Newman Quarry Premises will consist of a quarry, a crushing and screening plant and supporting infrastructure. The quarry dewatering activities are regulated under the Applicant's licence to take water and therefore category 6 mine dewatering is not a relevant prescribed premises category for the works approval or future licence.

The Applicant has applied for a works approval to install mobile crushing and screening plant and construct associated infrastructure, including construction of a sediment pond and bund to manage sediment runoff from the screening and aggregates stockpiling and handling areas.

The Decision Report assesses emissions and discharges associated with the construction and operation of the crushing and screening equipment.

3. Overview of premises

3.1 Classification of premises

Classification of Premises	**Description**	***Approved Premises production or design capacity or throughput***
Category 12	Screening etc. of material: premises (other than premises within category 5 or 8) on which material extracted from the ground is screened, washed, crushed, ground, milled, sized or separated.	1.2 Mtpa

3.2 Description of proposed activity

The Applicant plans to establish a new hard rock (granite) quarry within Mining Lease M52/1076, where they propose to crush and screen up to a maximum of 1.2 million tonnes of extracted material annually.

Blasting using explosives, followed by conventional recovery and stockpiling of excavated materials using shovel and haul truck methods, will be carried out on an intermittent, campaign style basis. The quarry void is expected to require some minimal dewatering, and any water recovered along with extracted bore water is planned to be used for dust suppression. The quarry will be developed as a conventional open pit with 10m benches. Quarrying activity will initially be restricted to the upper two benches (up to 20m depth) to avoid intersection with the water table, assessed as being at approximately 20mbgl.

Excavated material will be stockpiled prior to processing through the screening plant. Raw feed material for crushing and screening will be pre-conditioned (sprayed with water) to increase moisture content prior to processing. Dust emissions during crushing and screening will be minimised using the in-built dust suppression systems including water sprays and dust covers. Screened aggregates will be stockpiled in a dedicated area located to the east and south east of the quarry pending their loading and transport off-site.

Water for dust suppression and processing will be sourced from the licenced bore and/or water temporarily stored from dewatering of the quarry. A water cart will be used on haul and access roads and product stockpiles as required to minimise dust emissions during operations.

Onsite power will be supplied by a small diesel generator (<10MW) with diesel fuel to be stored in a self bunded tank.

The main emissions related to both the initial site construction and equipment installation, and subsequent rock crushing and screening operations, are fugitive dust, noise and movement of sediment.

3.3 Infrastructure

The infrastructure and equipment relevant to the prescribed premises activities are outlined in Table 1 below and the site layout is shown in Figures 1 and 2.

Table 1: Crushing and screening facility infrastructure

	Proposed Infrastructure	**Site Layout Plan Reference**
Ref	**Prescribed Activity Category 12**	
Crushing and screening of excavated rock (granite), conducted on an intermittent/campaign basis. Associated recovery and stockpiling of pre-crushed and post-crushed and screened material prior to offsite transport.		
1	1180 Premiertrack Jaw Crusher; Maxtrack 1300 Cone Crusher; H6203 Powerscreen Screener; and McCloskey R155 Screener (or equivalent combination of crushing and screening equipment)	Crushing and Screening Commissioning Area in Figure 2
2	Front end loaders / excavator	N/A – mobile equipment
3	Wheel loader	
4	Haul / dump truck/s	
5	Water truck fitted with spray bars and water cannons	
6	3 x 30kL polyethylene water storage tanks, connected via 40 - 60mm diameter polyethylene above ground pipe to the extraction (production) bore	3 x 30kL water tanks in Figure 1
7	Weighbridge	Weighbridge in Figures 1 and 2
8	Sump pump and associated pipelines to transfer water from the quarry pit/void to sediment ponds or water storage tanks for direct use in dust suppression	Not specified
9	3 x water storage/sedimentation ponds (1 x 3,000m^3 and 2 x 1,200m^3)	Sediment Pond 1; Sediment Pond 2; and Sediment Pond 3 in Figure 1
10	Earthen bund extending the full length of the eastern boundary of screening plant operational and aggregate stockpile areas	Earth Bund in Figures 1 and 2

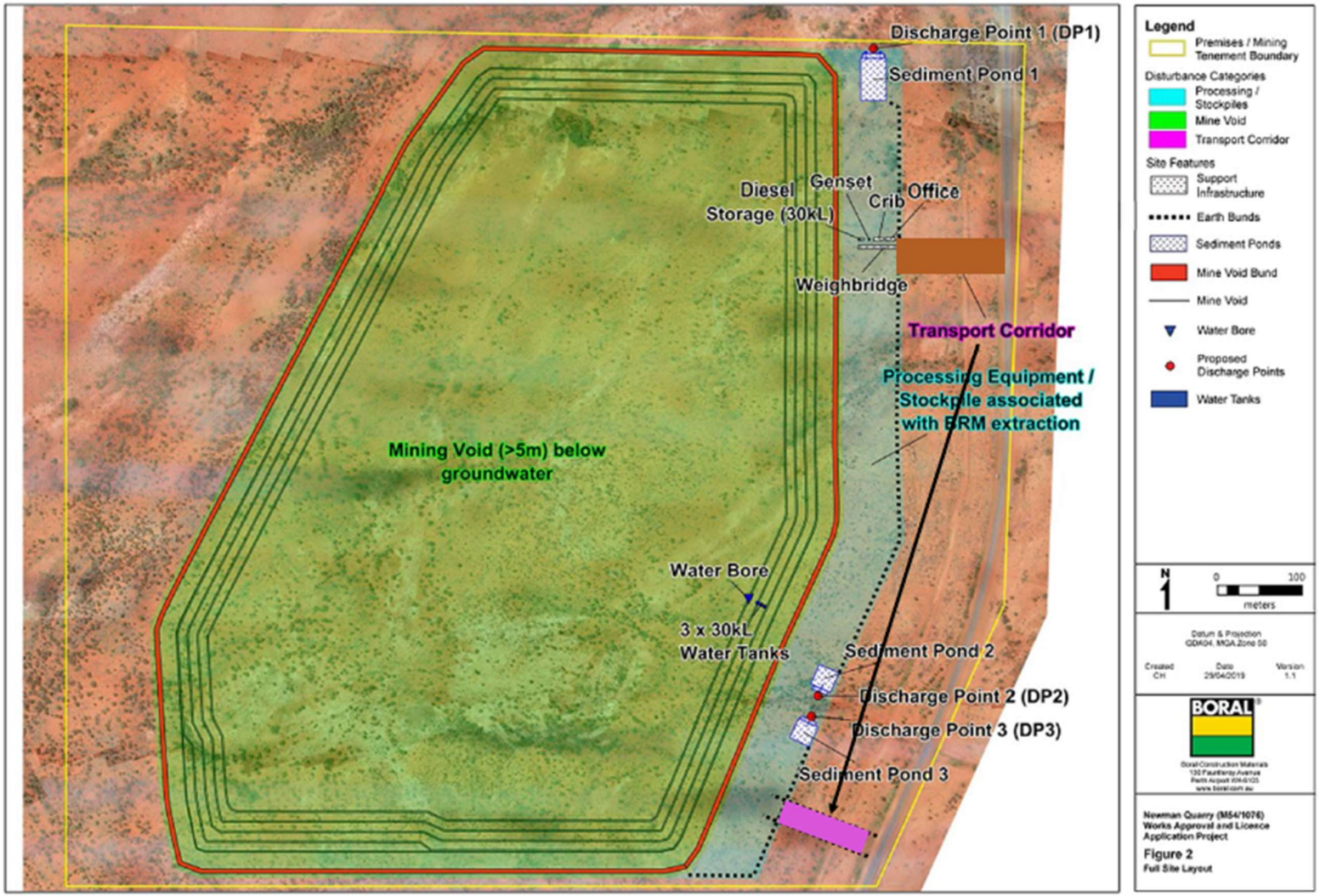

Figure 1: Site Layout Plan *(Image provided as part of works approval application supporting documentation and modified to reflect change to transport corridor / access road)*

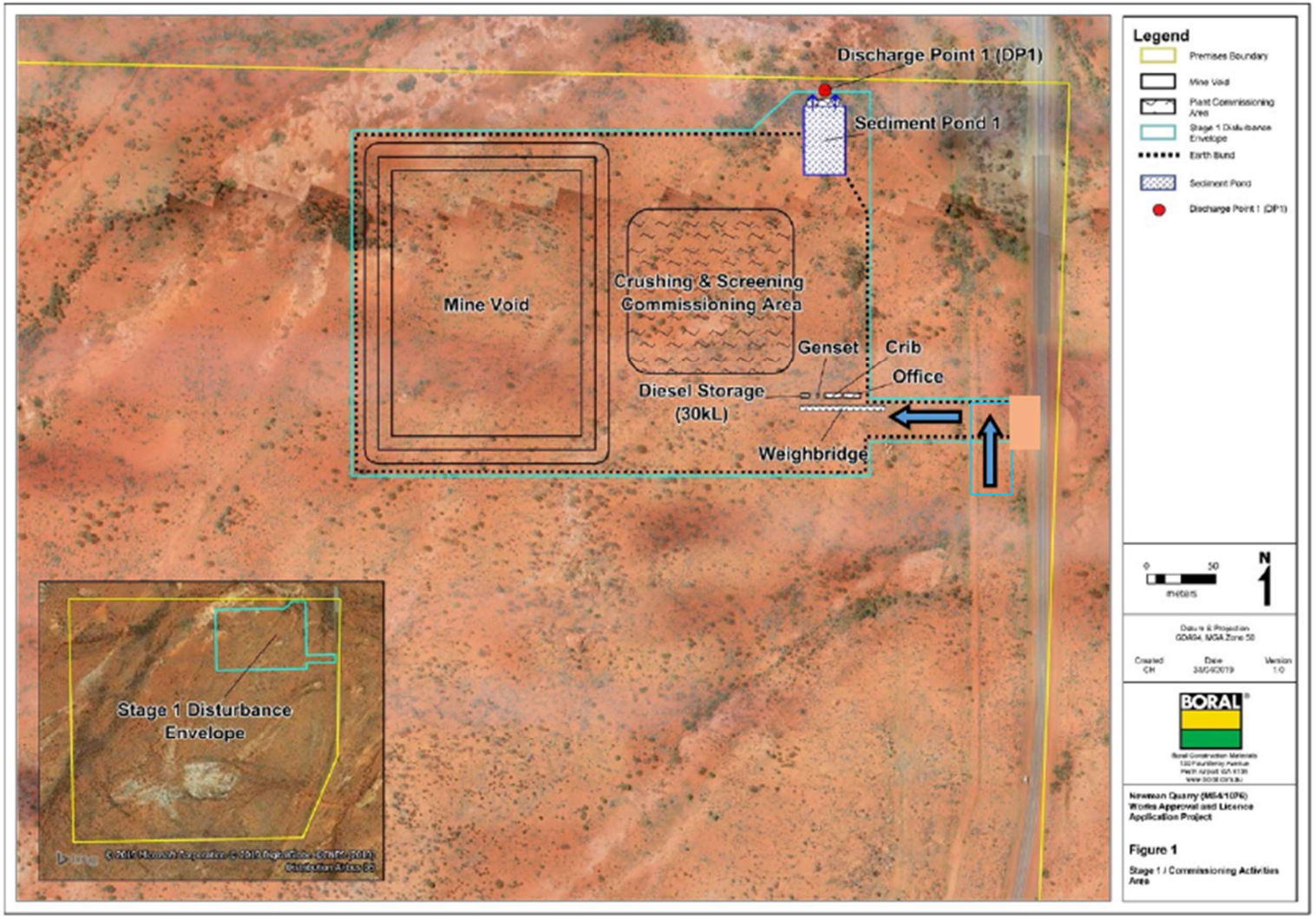

Figure 2: Operational area during operations authorised under the Works Approval – Stage 1 Layout
(defined by the light blue boundary line) - Image provided as part of works approval application supporting documentation and modified to reflect change to transport corridor / access road.

3.4 Exclusions to the Premises

The activity of raw material (dolerite and granite) extraction (quarrying) and blasting is not a prescribed activity and as such is not considered in this assessment. The quarry is regulated by the Department of Mines, Industry Regulation and Safety (DMIRS) as noted in Section 4 below. Other activities being undertaken that are excluded from this assessment include: the installation of a transportable site office; fuel tank and diesel generators; temporary accommodation and amenities block at the facility; and the construction of the access and haulage roads and flood diversion bund along the north west boundary of the quarry to divert potential seasonal flows around the quarry.

4. Legislative context and other approvals

The clearing of native vegetation is not being assessed or authorised under this Works Approval. The Applicant is proposing to undertake initial clearing under exemption: Regulation 5; Item 20 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. Any proposed subsequent clearing will be subject to application to DMIRS for a native vegetation clearing permit (NVCP).

The Applicant stated that following consultation with the Shire of Meekatharra they were advised that no local government approvals are required.

Extraction of the hard rock material (quarrying) has been authorised under DMIRS approval of Mining Lease M52/1076 granted on 14/02/2020. Extraction of up to 40,000kL/annum of groundwater for use in dust suppression has been authorised under DWER Licence GWL202414(1). The quarry dewatering activities are regulated under the *Rights in Water and Irrigation Act 1914* under the Applicant's Licence to take water.

Approvals relevant to the premises are summarised in Table 2 below.

Table 2: Relevant approvals and tenure

Legislation	Number	Approval
Mining Act 1978	M52/1076 granted 14/02/2020	Mining Lease M52/1076 and Mine Closure Plan MCP52/1076 managed by DMIRS
Rights in Water and Irrigation Act 1914	GWL202414(1)	• Extraction of up to 40,000kL/annum; • Dewatering for mining purposes; and • Dust suppression for mining purposes

5. Emission sources, pathways and receptors

5.1 Emissions

The potential for emissions to impact on sensitive receptors has been assessed in accordance with the Department's Risk Framework (DER, 2017). The key emissions considered in this report are fugitive dust, noise and movement of sediment from activities including screening equipment placement and use, aggregate stockpiles and vehicle movements during construction and short term operation under the works approval.

The Applicant has proposed measures to assist in controlling these emissions, where necessary. The control measures have been considered when undertaking the risk assessment detailed in Section 5.

Following completion and compliance with this works approval, a Category 12 licence under Part V of the EP Act will be required to authorise emissions associated with the ongoing operations at the premises i.e. crushing and screening and related activities, including vehicle

movements and the handling and storage of processed materials. A risk assessment for the short term operation of crushing and screening equipment has been included in this Decision Report, however licence conditions will not be finalised until DWER receives and assesses the licence application.

5.2 Receptors

Risk is assessed as a combination of emission sources, the proximity and sensitivity of receptors to those emission sources and any pathways that can allow the emission to reach and potentially harm the receptor. Figure 3 and Table 3 below provide a summary of human and environmental receptors in proximity to the premises and the risk assessment in Section 6 considers these receptors in the context of emissions and potential pathways. Figure 4 below, shows the surface hydrology and topography within and surrounding the premises boundary.

Table 3: Receptors and distance from activity

Human receptors	**Distance from Prescribed Premises**
Newman town site	30km north.
Great Northern Highway	Greater than 200m east of the quarry and 100m from aggregate stockpiles at nearest point. 10.2km south to closest rest stop / parking bay and 3.3km north to the nearest truck stop.
Environmental receptors	**Distance from Prescribed Premises**
Environmentally Sensitive Area	The nearest area classified as environmentally sensitive is the Ethel Gorge Aquifer stygobiont community (ID90581), approximately 20km north, near Newman town site.
Public drinking water source areas – Located within the Pilbara Surface Water Area	The nearest Public Drinking Water Reserve is the Newman Water Reserve located over 23km to the north of the premises boundary.
Major watercourses/waterbodies – lies within the Upper Fortescue River Catchment	Ephemeral tributaries of the Warrawanda Creek traverse the northwest corner within the premises boundary (within 50-100m of the proposed mine abandonment bund). Water flow is to the north-east.
Groundwater – located within the East Murchison Groundwater Area	Groundwater in the area is found at depths between 7-15mbgl and is of good quality. Beneficial uses include pastoral and mining uses. Exploration bores and a production bore within the proposed quarry footprint indicate groundwater at approximately 20mbgl and of fresh to brackish quality (490mg/L to 1000mg/L).

5.2.1 Other site characteristics

The locations of other receptors are described in Table 4 below.

Table 4: Other site characteristics

Other receptors or areas of concern	**Location**
Aboriginal site of significance	The nearest Registered Aboriginal Site is Warrawanda Creek (ID 11238), located approximately 5km north-east of the premises.

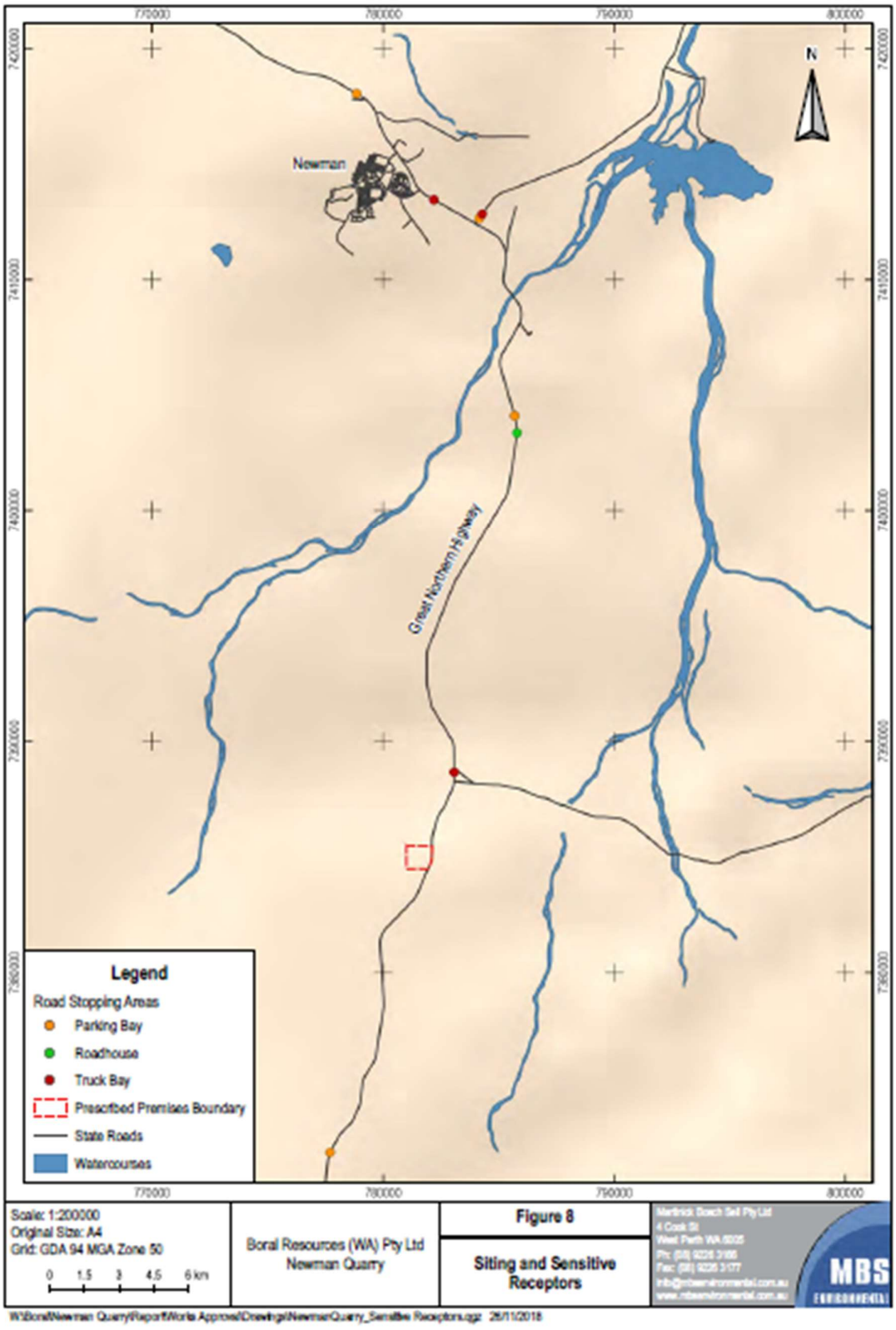

Figure 3: Siting and sensitive receptors *(Image provided as part of works approval supporting documentation)*

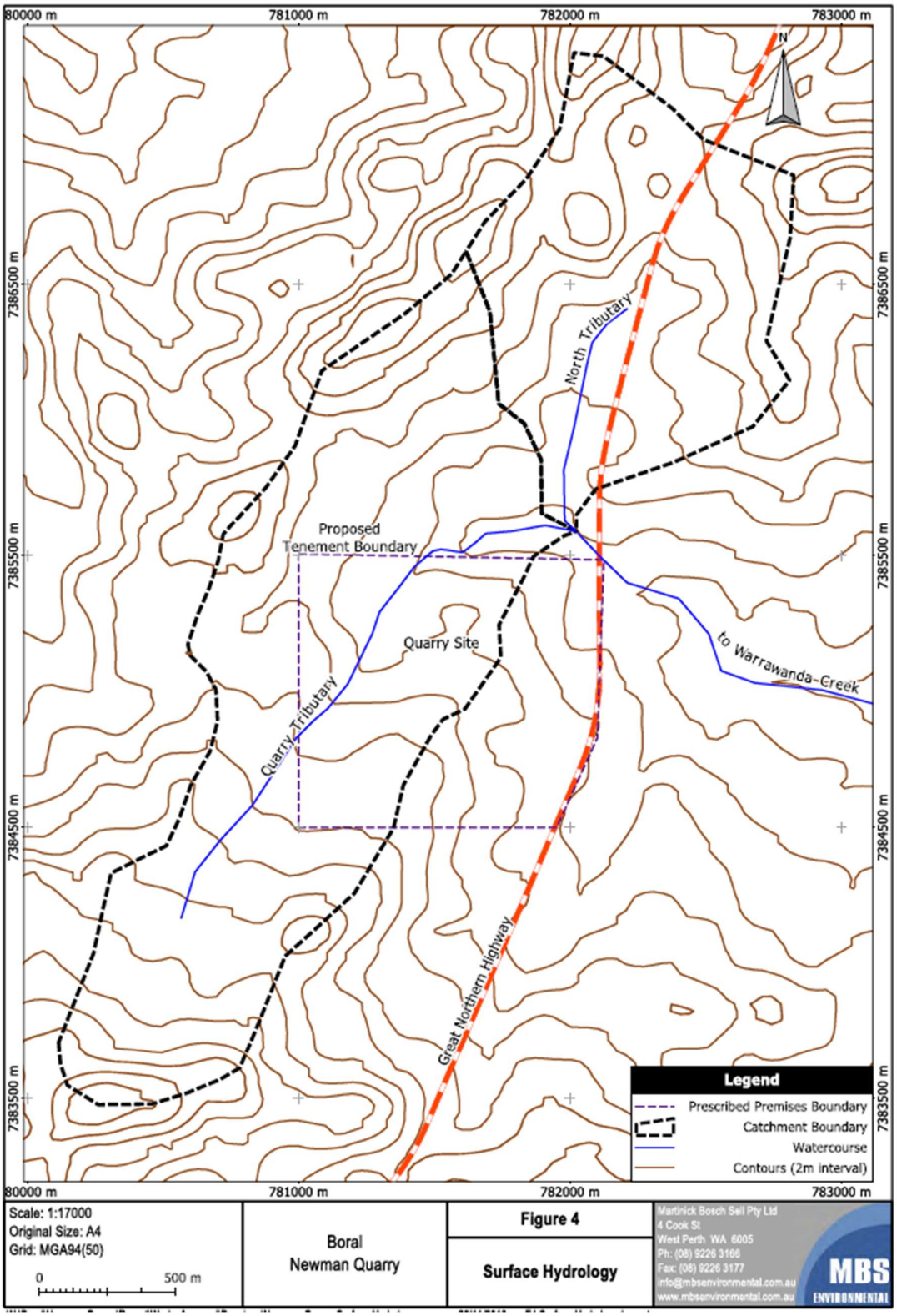

Figure 4: Surface hydrology and topography

(Image provided as part of works approval supporting documentation)

5.1 Pathways

Dust and noise emissions during construction and operation of the crushing and screening plant, have the potential to be conveyed to human receptors by atmospheric and wind conditions. Using information available on the Bureau of Meteorology's website, the closest available weather station for climate data is the Newman Aero station (No. 007176). Based on the climate data for this station (November 1994 to December 2018), the prevailing wind direction in both the mornings and afternoons is easterly.

Disturbed earth has the potential to be carried by stormwater run-off and may result in a discharge to land of stormwater with high levels of suspended solids. Contamination may also occur if sediments come into contact with contaminants and/or natural processes result in pH changes, releases of naturally occurring substances due to geochemical changes from excavation activities, such as the release of heavy metals. These pathways have been considered in the risk assessment table in Section 6.

6. Risk assessment

In undertaking the risk assessment, DWER will identify all potential emissions pathways and potential receptors to establish whether there is a Risk Event which requires detailed risk assessment.

Risk ratings have been assessed for each key emission source and take into account potential source-pathway-receptor linkages. The mitigation measures / controls proposed by the Applicant have been considered in determining the risk rating. Emissions during construction and operations have been assessed separately. The works approval that accompanies this report authorises construction and operation for a limited timeframe. A licence is required for ongoing operation of the premises.

6.1 Identification of emissions, pathway and receptors during construction

Risk Event					**Continue to detailed risk assessment**	**Reasoning**
Source/ Activities	**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**		
Placement of crushing and screening plant Installation of water storage tanks and associated pipework Installation of weighbridge Construction of sediment pond and earthen bunds	Dust	Closest residential receptors 30km north	Air/wind dispersion	Health and amenity impacts	No	The Delegated Officer considers that construction works are not expected to generate significant dust emissions and are of a short duration. The separation distance between the nearest residential dwellings and the prescribed activity is considered sufficient for there to be no impacts from dust emissions from the proposed activities at the residential areas. The separation distance between the nearest identified threatened ecological communities or rare or threatened flora species and the proposed prescribed activities is considered sufficient for there to be no impacts. No further assessment required.
	Noise	Closest residential receptors 30km north		Amenity impacts	No	The separation distance between the nearest residential dwellings and the prescribed activity is considered sufficient for there to be no impacts from noise emissions from the proposed activities at the residential areas. The EP (Noise) Regulations apply.

6.2 Identification of emissions, pathway and receptors *during operation**

Risk Event				Consequence rating**	Likelihood rating**	Risk**	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities	**Potential emissions**	**Potential receptors, pathway and impact**	**Applicant controls**					
Crushing and Screening activities Unloading, loading and storage of processed material Vehicle movements associated with handling of processed materials	Dust	Air/windborne pathway causing impacts to health and amenity of closest human receptors. Potential for adverse impacts on surrounding vegetation through dust deposition.	Water sprays and dust covers fitted to crushing and screening equipment in operation when equipment is in use. Raw feed material wet down by water cart prior to processing. Wetting down processing areas, roads and stockpiles using water truck with spray bars and water cannons. On site vehicles restricted to slow speeds (limit not specified)	Slight	Unlikely	Low	No residential human receptors within potential impact zone. The prevailing wind (easterly) is away from the adjacent Great Northern Highway, where the nearest general parking bay is 10km to the south and nearest truck bay is 3.3km north. The proposed applicant controls are expected to be sufficient for mitigating dust emissions.	**Works Approval Controls:** • Condition 1 Specifies equipment and infrastructure design and installation requirements including pollution control equipment (e.g. fixed water sprays). • Condition 6 Specifies operational requirements in accordance with proposed applicant controls for the restricted operational period. **Licence Controls:** Requirements for regulatory controls will be reviewed at licence assessment stage.
	Noise	Air/windborne pathway causing impacts to amenity of closest human receptors to prescribed operations.	Fully enclosed, silenced diesel generators. All equipment and vehicles will be maintained and serviced to ensure efficient operation to minimise noise.	N/A	N/A	N/A	No residential human receptors present. Noise impact is adequately addressed by the EP (Noise) Regulations.	The EP Noise Regulations apply.

Risk Event				Consequence rating**	Likelihood rating**	Risk**	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities	**Potential emissions**	**Potential receptors, pathway and impact**	**Applicant controls**					
Processing and storage of material	Sediment runoff from screening activities area and aggregate stockpiles	Overland runoff causing impacts to ephemeral, minor creek from sediment deposition to the creek / drainage line and associated impacts on riparian flora and fauna.	Height of quarry boundary on western side provides barrier to potential runoff to ephemeral drainage line through the north-west section of the premises. Earthen bund constructed along full length of eastern boundary of quarry and stockpiling/processing areas. Sediment pond to capture runoff and allow settling of sediments. Pond to have a rock armored discharge point for controlled discharge in event of an overflow.	Minor	Unlikely	Low	Applicant controls are suitable for limiting sediment release and runoff. Given the nature of the extracted material (dolerite / granite) and operations, it is unlikely that the sediments will contain contaminants.	**Works Approval Controls:** • Condition 1 Specifies equipment and infrastructure design and installation requirements including pollution control equipment. **Licence Controls:** Requirements for regulatory controls will be reviewed at licence assessment stage.

**The works approval that accompanies this report authorises construction and short term (3 months) operation of the screening plant, to allow the works approval holder time to apply for and receive an operating licence.*

***Consequence ratings, likelihood ratings and risk descriptions are detailed in the Department's Guidance Statement: Risk Assessments (February 2017)*

7. Consultation

A summary of stakeholder and applicant consultation is provided in the table below.

Method	Comments received	DWER response
Application advertised in The West Australian newspaper and on DWER website on 22 January 2019	No comments received	NA
Direct interest stakeholders notified	Shire of Meekatharra – no comments received	NA
	Department of Mines, Industry Regulation and Safety (DMIRS) – Comments received on 8 February 2019: • No clearing permit request has been received. Assessment of any clearing application would not commence until M52/1076 is granted; • Approval of M52/1076 is still pending.	The Works Approval will be granted following receipt of evidence of the granting of Mining Lease 52/1076 Evidence of DMIRS grant of Mining Lease M52/1076 was provided by the Applicant on 18/02/2020.
Applicant notified of draft for comment on 8 April 2019	Comments and further information provided on 2 May 2019	Refer to table in Appendix 2
Applicant provided with revised draft for further comment on 7 June 2019	No comments received	NA

8. Conclusion

This assessment of the risks of activities on the premises has been undertaken with due consideration of a number of factors, including the documents and policies specified in this decision report (summarised in Appendix 1).

Based on this assessment, it has been determined that the Issued Works Approval will be granted subject to conditions commensurate with the Applicant's proposed controls, determined controls during short term operations and conditions necessary for administration and reporting requirements.

The Applicant is required to submit a Licence application subsequent to submission of compliance reporting on the authorised works construction activities.

Caron Goodbourn
Manager, Process Industries
Regulatory Services

Delegated Officer under section 20 of the *Environmental Protection Act 1986*

Appendix 1: Key documents

Document title	Availability
Newman Quarry Works Approval and Environmental Licence Application Form and Supporting Document (December 2018)	DWER records A1750116
DWER request for further information sent on 20 December 2018 and response received on 15 January 2019	DWER records A1773918
GWL20241491) – Instrument Report – Boral Resources (WA) Ltd	DWER records DWERDT133131
DMIRS response to DWER consultation regarding the Newman Quarry Works Approval application	DWER records A1763713
Email correspondence from Applicant,14/01/2020 – Application extension request subject to Mining Lease grant	DWER records DWERDT244067
DER, July 2015. *Guidance Statement: Regulatory principles.* Department of Environment Regulation, Perth.	accessed at www.dwer.wa.gov.au
DER, October 2015. *Guidance Statement: Setting conditions.* Department of Environment Regulation, Perth.	
DER, February 2017 *Guidance Statement: Risk Assessments*. Department of Environment Regulation, Perth.	
DER, February 2017. *Guidance Statement: Decision Making*. Department of Environment Regulation, Perth.	

Appendix 2: Summary of Applicant consultation comments

Applicant consultation

Works Approval condition / Decision Report section	Comment	DWER response
Condition1, Table 2 regarding construction of three proposed sediment ponds.	Due to staging of the project, sediment ponds 2 and 3 will not be required in the first 10 years of operation. The proposed disturbance area for the works approval and commissioning is restricted to a 10ha area in the north-east. The Applicant (Boral Resources) therefore requests an amendment to Condition 1, Table 2 to remove the requirement to construct sediment ponds 2 and 3.	DWER agrees to amend Condition 1, Table 2 to exclude the requirement to construct Sediment Ponds 2 and 3 under the Works Approval, noting that a future Licence Amendment to authorise additional construction works at the premises will be required.
Schedule 2, Table 5 Reference to crushing and screening equipment	Applicant clarified the range of typical crushing and screening equipment (or equivalents) expected to operate at the premises during commissioning and future ongoing operations. The Delegated Officer has noted the specific make and model of equipment used is dependent on equipment availability and will not have a significant impact on emissions or environmental risk. Applicant requested amendment to Schedule 2, Table 5 to note the range of processing equipment to be used.	DWER notes the comments provided and has adjusted Table 1 in this Decision Report and Schedule 2, Table 5 accordingly.