Decision Report

Application for Licence

Division 3, Part V *Environmental Protection Act 1986*

Licence Number	L9046/2017/1
Applicant	Enmic Pty Ltd
ACN	066 882 291
File Number	DER2016/002506
Premises	Boranup Quarry Mining Tenement M70/1302, Reserve 30656, Caves Road, BORANUP M70/1302
Date of Report	30 November 2018
Status of Report	Final

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1. Definitions of terms and acronyms

In this Decision Report, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
AACR	Annual Audit Compliance Report
ACN	Australian Company Number
AER	Annual Environment Report
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
DWER	Department of Water and Environmental Regulation
Decision Report	refers to this document.
Delegated Officer	an officer under section 20 of the EP Act.
DMIRS	Department of Mines, Industry Regulation and Safety
DWER	Department of Water and Environmental Regulation
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
EP Noise Regulations	*Environmental Protection (Noise) Regulations 1997 (WA)*
Licence Holder	Enmic Pty Ltd
mbgl	metres below ground level
Minister	the Minister responsible for the EP Act and associated regulations
Mining Proposal	Mining Proposal Reference Number 47789
NEPM	National Environmental Protection (Ambient Air Quality) Measure 2015.
Noise Regulations	*Environmental Protection (Noise) Regulations 1997* (WA)
Occupier	the same meaning given to that term under the EP Act.
OEPA	Office of the Environment Protection Authority
PM	Particulate Matter
PM_{10}	used to describe particulate matter that is smaller than 10 microns

	(µm) in diameter
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
Primary Activities	as defined in Schedule 2 of the Licence
Risk Event	As described in *Guidance Statement: Risk Assessment*
RIWI Act 1914	*Rights in Water and Irrigation Act 1914*
UDR	*Environmental Protection (Unauthorised Discharges) Regulations 2004* (WA)
µg/m^3	micrograms per cubic metre

2. Purpose and scope of assessment

2.1 Background

Boranup quarry is located in Reserve 30656 vested to the Shire of Augusta Margaret River. The Shire operated the quarry between 1970 and 2003 for Lime-sand extraction. Lime-sand is used for the mitigation of soil acidity which had become a significant problem on agricultural lands in the shire.

Agricultural use of nitrogenous fertilisers led to the gradual increase of soil acidity. This can affect plant growth by reducing the availability of some nutrients. Lime-sand neutralizes the soils and returns crop productivity. As well as supplying Lime-sand to the agricultural industry, tests will be conducted on the resource for suitability for cement and lime based products.

The introduction of the *Mining Act 1978* required a mining tenement over the reserve should Lime-sand be extracted. Consequently a prospecting Licence P70/1383 was pegged by Margaret River Resources Pty Ltd who then sold the tenement to Concept Nominees Pty Ltd. Subsequently, the Prospecting Licence was converted to a Mining Lease M70/1302 which is now a granted tenement held by Enmic Pty Ltd with duration of 21 years expiring on 8 August 2034.

2.2 Application and scope of assessment

Enmic Pty Ltd (Enmic) submitted an application on 20 December 2016 for a licence under the provisions of the EP Act to develop the Boranup quarry located on M70/1302, Reserve 30656, Caves Road, Boranup in Western Australia over the next 15 to 20 years. The application is to screen to up to 500 000 tonnes per annum of Lime-sand to supply the market.

Therefore, the Delegated Officer has confirmed that Enmic Pty Ltd is the **Occupier** of the premises for this assessment.

A Mining Proposal was submitted by Enmic to the Department of Mines, Industry Regulation and Safety (**DMIRS**) which is consistent with the application subject to this assessment.

The Enmic licence application seeks authorisation because the proposed production throughput exceeds the licence threshold. Therefore, the operation is a prescribed activity **Category 12** under Schedule 1 of the **EP Regulations** as described in Table 2.

Table 2: Prescribed Premises Categories

Classification of Premises	**Short description**	***Production or design capacity***	***Premises production or design capacity or throughput***
Category 12	Screening, etc. of material	More than 50 000 tonnes per year	1 752 000 tonnes per year design capacity is based upon 400 tonnes per hour. The nominated throughput is 500 000 tonnes per year is based upon throughput of 250 tonnes per hour campaigns.

Category 12 screening etc. of material is listed in schedule 1 to the EP Regulations. The prescribed threshold for Category 12 is greater than 50 000 tonnes per year. As the

application is to process up to 500 000 tonnes of material per year, a Licence will be issued dependent upon the risk of the emissions to the receiving environment or to public health.

Category 12 (as defined in the EP Regulations) relates to the activities of processing materials extracted from the ground by either screening, washing, crushing, grinding, milling mechanical sizing or separation.

This **Decision Report** sets out **DWER**'s assessment and decision making in relation to a concurrent application for a licence under Division 3, Part V of the **EP Act** for the proposal.

The scope of assessment for this **Decision Report** relates to the risk of emissions to public health and the environment during operations of infrastructure relating to the screening of material in the processing area only being mobile screening plant and material conveyors.

Key finding

The Delegated Officer has determined that:

1. Legal access to the land is currently held by Enmic Pty Ltd in the form of Mining Lease M70/1302.
2. The scope of this Decision Report is for assessment for a category 12 prescribed activity with a production throughput of up to 500 000 tonnes per year. *However,* the Shire of Augusta – Margaret River recommends that extraction must be limited to a maximum capacity of 60 000 tonnes per year.

This proposal is submitted to support the recommencement of Lime-sand extraction from Reserve 30656, Caves Road Boranup located 5 km north east from Hamelin Bay and 15 km north west from Augusta town site.

Figure 1 indicates the tenement boundary that will become the Premise Boundary map for the Licence.

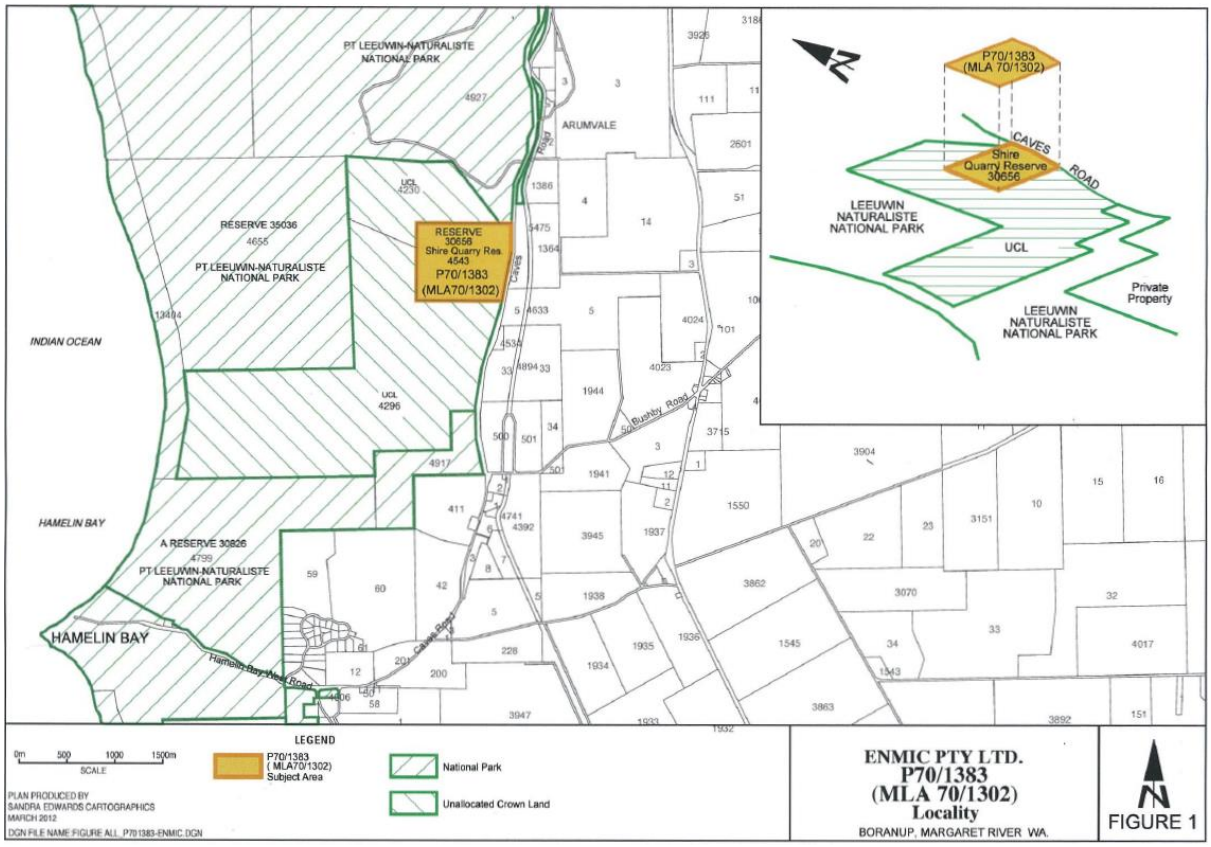

Figure 1: Premise Boundary map – M70/1302

3. Overview of Premises

3.1 Operational aspects

The Boranup quarry consists of a quarry pit with a mobile screening plant fed by excavator and two loaders. The screening operation will occur beside the working face with stockpiles beside the haulage truck turn arounds.

Currently, Lime-sand is extracted seasonally from M70/1302, through late summer and autumn, for use as an amendment for agriculture lands. Typically, the Lime-sand has a calcium carbonate content of 80 plus percent and magnesium carbonate of around 6%. The acid insoluble fraction is normally about 12% and consists of fine silica sand.

The Proposal covers the excavation of the existing 2.3 hectares and an additional 3.5 hectares over 20 plus years (Table 3).A mobile screening plant will process up to 500 000 tonnes per year of Lime-sand extracted from the ground at the Boranup quarry.

Table 3: Proposed disturbance on M70/1302.

	Current Disturbance	Proposed Disturbance
Open Pit	2.2 ha	5.5 ha
Access Tracks	0.1 ha	0.3 ha
Undisturbed land	75.4 ha	71.2 ha
Tenement Area	77 ha	77 ha

The proposed Lime-sand operation will move progressively across the proposed excavation area. As excavation progresses westwards the open pit will in turn become the loading area, and then will be rehabilitated. The access road will be progressively constructed across the excavated areas. With such a high face of sand the top of the face will be near the western edge of the next stage to allow excavation from the floor of the pit. The pit will be staged to enable sequencing of clearing topsoil and restoring the land surface as illustrated in Figure 2.

Sand is excavated to the full thickness of the face which will vary during the life of the pit from 20 to 40 metres. Lime-sand is loaded directly from the face to road truck by a loader or excavator or are loaded to a screen from which various grade stockpiles are formed. The loader recovers the product from the stockpiles and loads the road trucks as required. At the end of excavation each portion of the pit the floor and batter slopes are to be reformed and planted to local native vegetation.

The dune will be lowered by cutting to an elevation of 70 metres in the east rising gradually to 90 metres as the excavation proceeds to the west. The excavation area has been selected to minimize clearing, and also at the end of mining the peaks of the dunes will be retained and the slopes will copy slopes already present prior to excavation.

The only processing on site is Lime-sand screening to remove roots and other vegetative material.

There is no waste sand or other materials. The only matter that will be produced is organic roots and minor organic matter and plant fragments that will be derived from the screens operation. The organic matter will be used to lay across the surface of the excavated area to assist with rehabilitation.

There will be no support facilities located on site with all facilities being based in Augusta or Margaret River. The loader and other plant will be parked on the floor of the excavation overnight and during excavation campaigns, but will be removed from site when the campaign is complete.

There will be no fuel stored on site, with all fuel and maintenance being conducted from portable plant mounted on a dedicated truck. This truck will remove all wastes and products from maintenance operations. A serviced portable toilet system will be located on site when the site is operating. Washing plant is not required on site.

It is anticipated there will be 30,000 tonnes per campaign, corresponding to 10 laden truck movements per day at 30 tonnes per load. This will equate to about one to two laden truck per hour on average. Normally, there will be one or possibly two campaigns per year depending on demand for the Lime-sand material.

The access and loading of each truck will normally take approximately 10 minutes. Therefore even on busy days the level of activity is anticipated to be low with only one loader and an average of one truck on site at any one time. To excavate at a faster rate, two loaders will be required and there will be times when two trucks will be on site with a truck parked, waiting.

The premises has a fixed irrigation system with a number of take-offs that cover access roads, egress roads, loading areas and the stockpile if unfavourable weather conditions during operations or if truck movements cause dust lift-off.

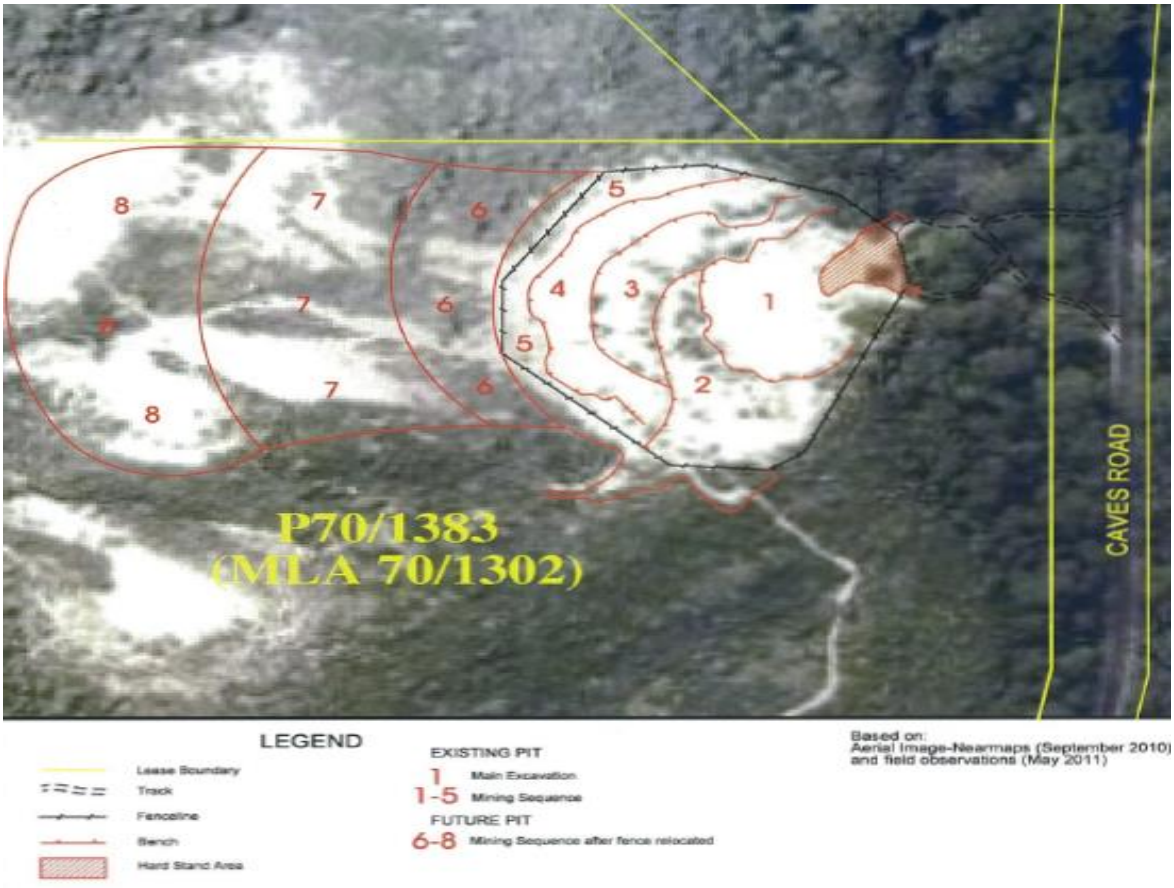

Figure 2: The proposal is shown by the red boundaries numbered 1 to 11

The Boranup facility infrastructure, as it relates to Category 12 activities, is detailed in Table 4.

Table 4: Boranup Quarry Category 12 infrastructure

Infrastructure	
Prescribed Activity Category 12	
Raw material (Lime-sand) screened into various sizes and stockpiled on the premises.	
1	One mobile screening plant (Metso ST356 or equivalent) and one mobile conveyor (Lincom 1690t or equivalent)
2	Loader (Cat 980 G or equivalent)
Directly related activities	
1	Extractive operations
2	Loading of Lime-sand product into haul trucks (and truck movements on site)

On Thursday 12 January 2017 DMIRS undertook a site inspection of the Boranup Lime-sand Quarry located on Mining Lease 70/1302. The inspection was in response to a complaint DMIRS received regarding the operation, in particular excessive levels of noise and dust.

The inspection did not identify significant levels of dust and the operator was considered to be taking reasonable measures on site to prevent the generation of dust. A large screener was located on site (Figures 3). DWER was notified after the inspection.

Figure 3: Screening operation conducted on M70/1302 during DMIRS site inspection.

4. Legislative context

4.1 Shire of Augusta – Margaret River

The Shire of Augusta – Margaret River is vested as the manager of Reserve 30656 which has been leased to the Licence Holder for the term of the Mining Tenement lease.

4.2 Department of Mines, Industry Regulation and Safety

Mining Proposal Reference Number 47789 for Tenement M70/1302 was granted on 17/06/2014 for a 21 year term (expires on 08/08/2034).

4.3 Environment Protection and Biodiversity Conservation Act 1999 (Cth)

This project has not been referred or assessed under the *Environment Protection and Biodiversity Conservation Act 1999 (*Cth).

4.4 Department of Water and Environmental Regulation

4.4.1 Applicable regulations, standards and guidelines

The overarching legislative framework of this assessment is the EP Act and EP Regulations.

DER guidance statements which inform this assessment are:

- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Licence Duration (August 2016)*
- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessments (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

4.4.2 Part IV of the EP Act

This project has not been referred to the Environmental Protection Authority and is not subject to conditions under Part IV of the EP Act.

4.4.3 Contaminated Sites

The site is not listed on DWER's Contaminated Sites Database.

4.4.4 Works Approval and Licence history

No previous Licences or Works Approval exists for this proposal.

4.4.5 Water licensing

Water supply for operations for the fixed irrigation system is provided under current water licence number GWL180709(1) that has an allocation of 7,500 kL per year from a bore drilled into the fractured rock superficial aquifer. Potable water will be brought to the site daily and as required.

4.4.6 Clearing

A clearing permit CPS5804/1 was issued on 21 November 2013 and expiring on 21 December 2023.

5. Consultation

The Application was advertised in the *West Australian* newspaper on 15 May 2017. No comments were received.

Letters inviting comment on the Application were sent to the Shire of Augusta – Margaret River, DMIRS and the former Department of Water (DoW - now part of DWER) on 15 May 2017.

In response to the application, the Shire of Augusta – Margaret River recommends as follows:

(a) Operating times should be limited to between 7am and 7pm Monday to Friday and 7am to 1pm Saturdays. To be consistent with the Shire's Extractive Industry policy;

(b) Appropriate dust management measures must be implemented, which should including limiting the exposed footprint to a maximum of 2.5ha;

(c) Extraction must be limited to a maximum capacity of 60 000T per year as per the information provided in the application documents and to the Shire during the royalty agreement process. Extraction of up to 500 000T is a substantial increase in what was presented to the Shire and the Department of Mines and Petroleum under the mining tenement application. The proposed increase will result in a substantial increase in heavy vehicle traffic on Bushby Road, with associated safety and road maintenance concerns. It is recommended that the DER consult with Main Roads WA to determine the suitability of RAVs using Caves Road and Bushby Road, especially in the context of a proposed 500 000T upper limit;

(d) It is recommended that broadband style reversing alarms on equipment should be used;

(e) Due consideration should be given to the Shire agreement, Mining Tenement and conditions and the Environmental Management Plan.

DoW stated that the only processing on site is potentially screening the Lime-sand to remove roots and other vegetative material. There are no waterways or wetlands on the subject site. In view of the above situation, the main risks related to the wastewater is hydrocarbons from heavy machinery, noting that any wastewater is to be appropriately treated and contaminants appropriately disposed of as stated in the 'Hydrocarbon Spillage Management' section.

The proposal is located within the Blackwood Groundwater Area as proclaimed under the *Rights in Water and Irrigation Act 1914*. DoW emphasises the importance of maintaining an adequate separation to groundwater levels to the activity.

No comments were provided by DMIRS.

6. Location and siting

6.1 Siting context

Reserve 30656, covered by M70/1302, is located on Caves Road Boranup, 5 km north east from Hamelin Bay and 15 km North West from Augusta town site. The area consists of Lime-sand dunes. Most of the ground occupied by the dunes is predominantly un-vegetated.

Land immediately to the north, south and west is unallocated Crown Land under the Department of Planning, Lands and Heritage. The Caves Road separates the project Premises from the freehold titled properties.

6.2 Residential and sensitive premises

There are eight residents plus a tourist attraction located less than 1 500 m from the proposed of the screening plant location and material stackers in cell 1. The locations of sensitive receptors (dwellings) are indicated by the yellow pins in Figure 4 below. The movement of the screening plant and stacker will be westward away from the sensitive receptors. Boranup quarry is shown by yellow pin titled 'Enmic'.

The distances of representative receptors from the initial location of screening plant and material stacker is listed in Table 5.

Table 5: Representative receptors

Representative receptors	Closest distance from the Extraction Area (approximate)
R1	~420m north east of screening plant in cell 1
R2	~455m north east of screening plant in cell 1
R3	~500m north east of screening plant in cell 1
Tourist Attraction (Maze)	~740m north northeast of screening plant in cell 1
R4	~800m north northeast of screening plant in cell 1
R5	~880m north east of screening plant in cell 1
R6	~715m south east of screening plant in cell 1
R7	~1,175m east southeast of screening plant in cell 1
R8	~1,215m north northeast of screening plant in cell 1

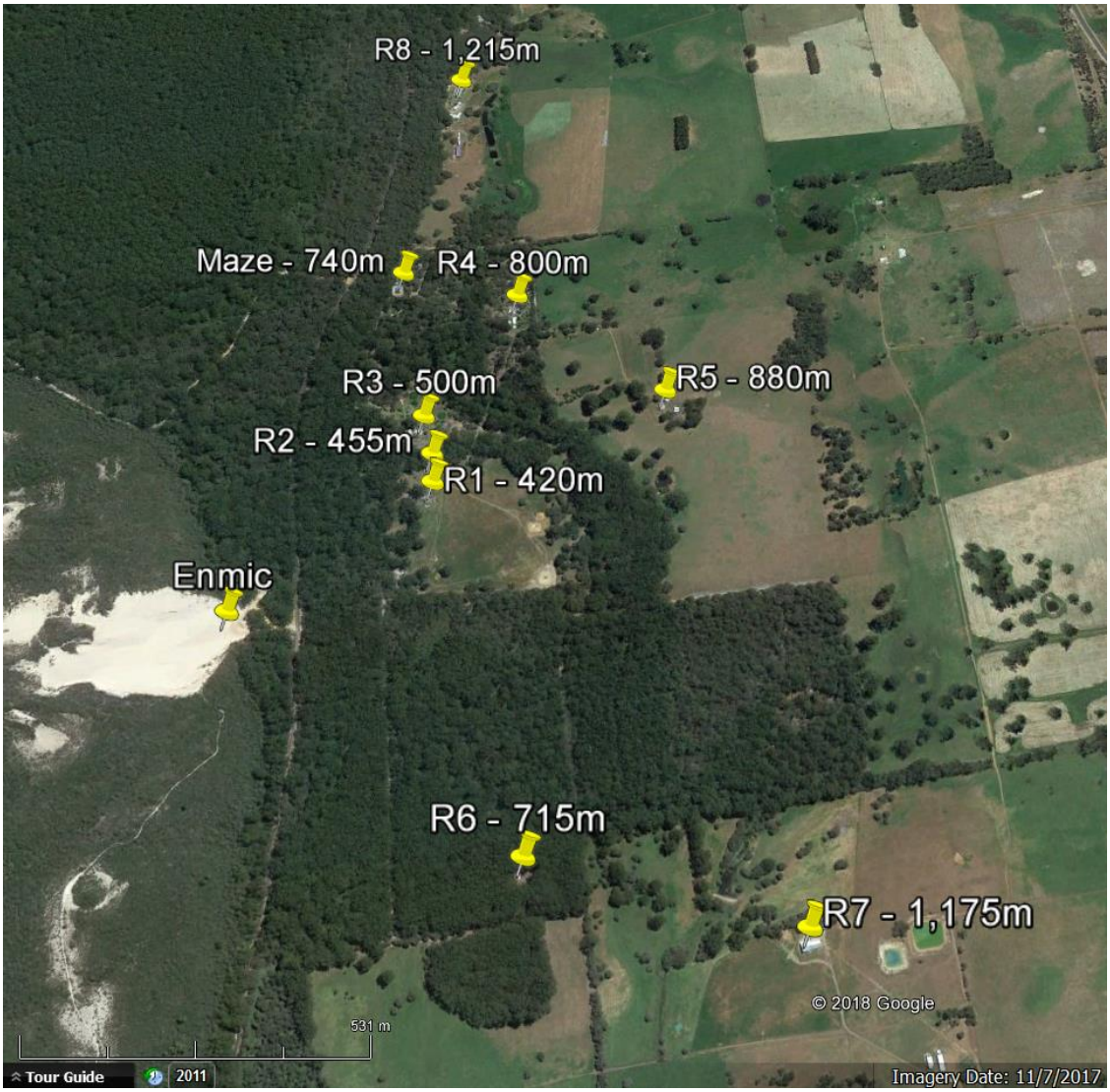

Figure 4: Location of sensitive receptors extraction areas.

6.3 Specified ecosystems

Specified ecosystems are areas of high conservation value and special significance that may be impacted as a result of activities at or Emissions and Discharges from the Premises. The distances from the extraction area to specified ecosystems and designated areas (as listed in *Guidance Statement: Environmental Siting (*November 2016) are shown in Table 6.

Table 6: Environmental values

Specified ecosystems	Distance from the Premises
Geomorphic Wetlands, Augusta to Walpole - Palusplain	One site located 550m NE and two others 1500mSE of the excavation area.
Threatened Fauna - (Schedule 1) Fauna that is rare or likely to become extinct as a critical endangered fauna	One confirmed site located 1000m W of the excavation area.

6.4 Groundwater and water sources

The geological interpretation of the area is for the loam alluvial soils east of Caves Road to extend west under the Lime-sand dune sequence.

Groundwater is perched on top of the underlying clays and loams of the regolith which will result in the groundwater being 10 metres below the access road with the separation increasing to the west under the Lime-sand dunes, to a separation of over 70 metres below the existing land surface and over 10 metres below the lowest final elevation of the base of the pit.
Groundwater and water sources are shown in Table 7.

Table 7: Groundwater and water sources

Groundwater	Distance from Premises	Environmental Value
RIWI Act 1914 (WA) Blackwood Groundwater Area	Excavation pit floor level will be approximately 5 m above maximum groundwater table at 1m AHD (from Mining Proposal).	Used for aquaculture, livestock and domestic uses. Required to facilitate conservation and protection of coastal vegetation and wetlands.
	A number of groundwater users located greater than 1000m from the boundary of excavation area (based on available GIS dataset - WIN Groundwater Sites).	

6.5 Soil type

The soils consist of bare cream to white coloured Lime-sand of high calcium carbonate composition. Under vegetation there is a thin slightly brown grey upper surface that has been partly added to by the addition of small amounts of organic matter that colours the top 300mm of sand light grey. Underlying the surface sands the Lime-sand is slightly calcified by precipitation which provides structure to stabilise the dune sand of the coastal dunes.

Surface geology comprises five sand dunes and probably three areas of Tamala limestone. The sand is carbonate-rich. The dunes of the younger Quindalup System are superimposed upon an older series of dunes.

6.5.1 Regional climatic aspects

The local area has warm summers with cool winters. Climate data is recorded at Cape Leeuwin.

Average monthly maxima range from 16.4 – 23.3ºC from winter to summer with minima ranging from 11.2 – 16.9ºC in summer.

Rainfall for the area is 969 mm which falls predominantly from May to September.

Humidity averages 76 – 81 % at 9.00 am dropping to 72 – 77 % at 3.00 pm.

6.5.2 Wind direction and strength

Winds at Cape Leeuwin are stronger on the exposed Cape, averaging 22.7 – 29.7 kph. Whereas on the site, with the shelter of high dunes, being inland and tall forest trees to the east, winds will be significantly lighter, particularly at ground elevation.

Wind directions are north to west on winter mornings (9.00 am) and west to south on winter afternoons (3.00 pm). In summer the wind directions at 9.00 am are east to south-east increasing in strength from the south-east at 3.00 pm.

The strongest winds are winter storms from the north-west to south-west and summer

afternoons from the south-east.

6.5.3 Rainfall and temperature

The mean rainfall in Karridale, located ~2.7km south east of the quarry, for the years 1897 to 1963 (over 60 years) is ~1200mm (BOM website, accessed 9 March 2018) which falls predominantly over 150mm in the months May till August (Figure 6). The annual mean maximum temperature over the same duration is 20.3ºC with the highest summer maximum being 24.7ºC in February and lowest winter maximum temperature of 16.1ºC in July annually.

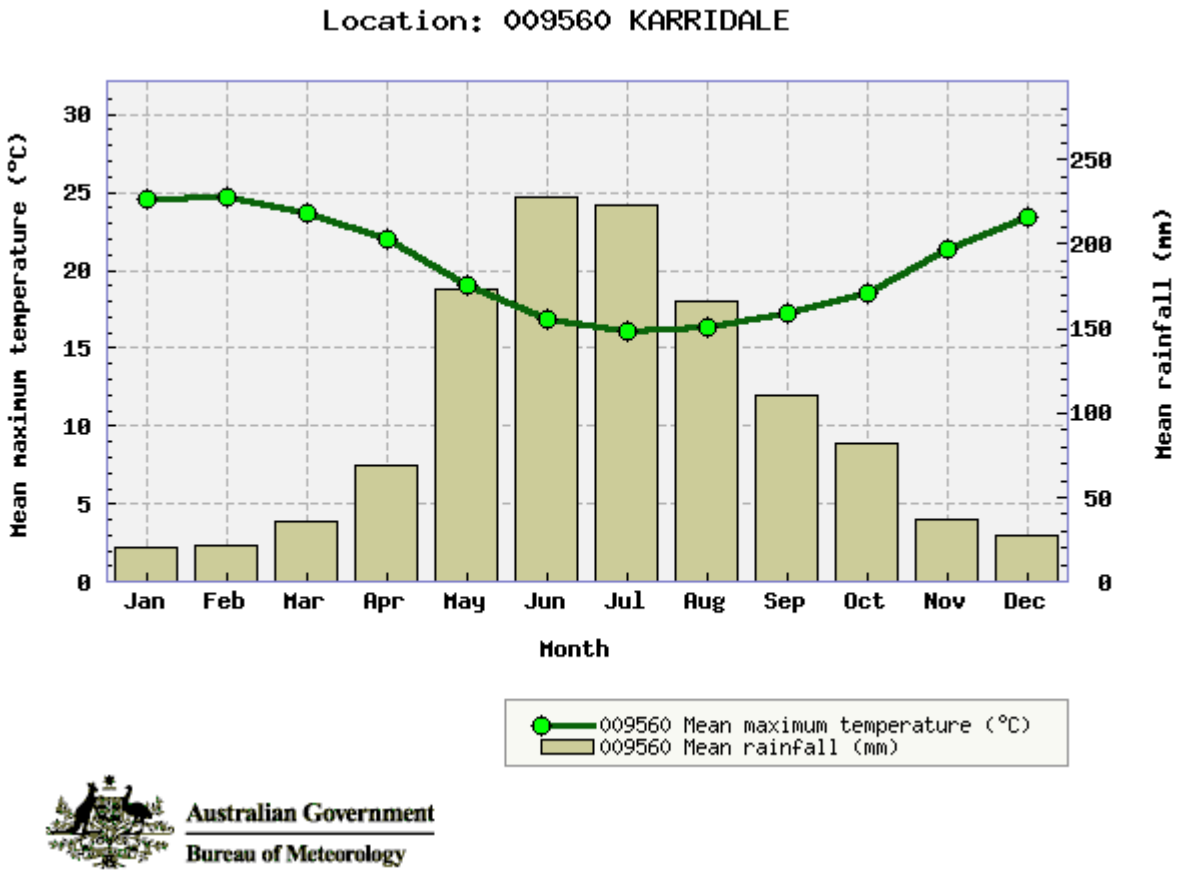

Figure 6: Mean Maximum Rainfall and Temperature from Karridale

Below is the monthly data for the periods identified in the statistics column of the table.

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years
Mean maximum temperature (°C) for years 1897 to 1930	24.6	24.7	23.7	22.0	19.1	16.9	16.1	16.4	17.3	18.5	21.3	23.4	20.3	34
Statistics	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**	**Years**
Mean rainfall (mm) for years 1894 to 1963	20.1	21.9	35.6	68.9	172.8	227.9	223.3	166.5	110.2	82.4	37.3	27.6	1203.9	63

12.3 = Not quality controlled

7. Risk assessment

7.1 Determination of emission, pathway and receptor

In undertaking its 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.

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. Where there is no actual or likely pathway and/or no receptor, the emission will be screened out and will not be considered as a Risk Event. In addition, where an emission has an actual or likely pathway and a receptor which may be adversely impacted, but that emission is regulated through other mechanisms such as Part IV of the EP Act, that emission will not be risk assessed further and will be screened out.

The identification of the sources, pathways and receptors to determine Risk Events are set out in Tables 8 below. Table 8 also identifies which potential emissions will be progressed to a full risk assessment.

Table 8: Identification of emissions, pathway and receptors during operation

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
Operation of infrastructure	Vehicle movements on unsealed roads within the premises boundary Loading and unloading of material stockpiles	Noise	Adjacent rural lots Residential receptors Tourism facility	Air / wind dispersion	Amenity impacts	Yes – refer to section 7.4	Noise causing an amenity impact to adjacent rural lots, tourism facility and residential receptors during operation.
		Dust				Yes – refer to 7.5	The distance to the nearest receptors is 420m. Dust causing an amenity impact to adjacent rural lots, tourism facility and residential receptors during operation.
	Operation of processing plant	Noise	Adjacent rural lots Residential receptors Tourism facility	Air / wind dispersion	Amenity impacts	Yes – refer to section 7.4	Noise causing an amenity impact to adjacent rural lots and residential receptors.
		Dust				Yes – refer to 7.5	The distance to the nearest receptors is 420m. Dust causing an amenity impact to adjacent rural lots and residential receptors during operation.

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
Operation of infrastructure		Waste: Contaminated stormwater	Shallow groundwater	Flow through the soil and intercepts local shallow groundwater	Erosion and scouring of ground. Sedimentation inhibiting vegetation growth and survival. Groundwater quality impacts inhibiting plant growth. Poor quality groundwater reducing beneficial use.	No	Stormwater within the active mining area and where the process plants are located, will infiltrate rapidly into the Lime-sand soils. Size and extent of operation is unlikely to cause impacts to groundwater quality or have detrimental impact on environment and public health.
	Use and storage of hydrocarbons / lubricants	Leaks and spills causing hydrocarbon/ lubricant discharge to land	Soil and coastal vegetation adjacent to areas of spill or breach Underlying groundwater supply Surface water systems and aquatic ecosystems	Direct discharge to land and seepage to groundwater	Soil contamination impacting vegetation growth and survival. Degradation of groundwater quality Run-off into surface water system and impacts to surface water ecosystems Degradation of water supply	No	Hydrocarbon refuelling will be completed using mobile refuelling tankers. No hydrocarbons will be stored on the premises. Leaks and spills causing contamination of localised soil, vegetation and groundwater managed under the sites management plans. The size and extent of leaks and spills is insignificant and unlikely to adverse impact upon receptors.

7.2 Consequence and likelihood of risk events

A risk rating will be determined for risk events in accordance with the risk rating matrix set out in Table 9 below.

Table 9: Risk rating matrix

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

DWER will undertake an assessment of the consequence and likelihood of the Risk Event in accordance with Table 10 below.

Table 10: Risk criteria table

Likelihood		**Consequence**		
The following criteria has been used to determine the likelihood of the Risk Event occurring.		**The following criteria has been used to determine the consequences of a Risk Event occurring:**		
			Environment	**Public health* and amenity (such as air and water quality, noise, and odour)**
Almost Certain	The risk event is expected to occur in most circumstances	Severe	• **onsite impacts**: catastrophic • **offsite impacts local scale**: high level or above • **offsite impacts wider scale:** mid-level or above • Mid to long-term or permanent impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are significantly exceeded	• Loss of life • **Adverse health effects:** high level or ongoing medical treatment • Specific Consequence Criteria (for public health) are significantly exceeded • **Local scale impacts:** permanent loss of amenity
Likely	The risk event will probably occur in most circumstances	Major	• **onsite impacts**: high level • **offsite impacts local scale**: mid-level • **offsite impacts wider scale**: low level • Short-term impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are exceeded	• **Adverse health effects:** mid-level or frequent medical treatment • Specific Consequence Criteria (for public health) are exceeded • **Local scale impacts**: high level impact to amenity
Possible	The risk event could occur at some time	Moderate	• **onsite impacts**: mid-level • **offsite impacts local scale**: low level • **offsite impacts wider scale**: minimal • Specific Consequence Criteria (for environment) are at risk of not being met	• **Adverse health effects:** low level or occasional medical treatment • Specific Consequence Criteria (for public health) are at risk of not being met • **Local scale impacts:** mid-level impact to amenity
Unlikely	The risk event will probably not occur in most circumstances	Minor	• **onsite impacts**: low level • **offsite impacts local scale**: minimal • **offsite impacts wider scale**: not detectable • Specific Consequence Criteria (for environment) likely to be met	• Specific Consequence Criteria (for public health) are likely to be met • **Local scale impacts:** low level impact to amenity
Rare	The risk event may only occur in exceptional circumstances	Slight	• **onsite impact**: minimal • Specific Consequence Criteria (for environment) met	• **Local scale**: minimal to amenity • Specific Consequence Criteria (for public health) met

^ Determination of areas of high conservation value or special significance should be informed by the *Guidance Statement: Environmental Siting.*
* In applying public health criteria, DWER may have regard to the Department of Health's *Health Risk Assessment (Scoping) Guidelines.*
"onsite" means within the Prescribed Premises boundary.

7.3 Acceptability and treatment of Risk Event

DWER will determine the acceptability and treatment of Risk Events in accordance with the Risk treatment table 11 below:

Table 11: Risk treatment table

Rating of Risk Event	Acceptability	Treatment
Extreme	Unacceptable.	Risk Event will not be tolerated. DWER may refuse application.
High	May be acceptable. Subject to multiple regulatory controls.	Risk Event may be tolerated and may be subject to multiple regulatory controls. This may include both outcome-based and management conditions.
Medium	Acceptable, generally subject to regulatory controls.	Risk Event is tolerable and is likely to be subject to some regulatory controls. A preference for outcome-based conditions where practical and appropriate will be applied.
Low	Acceptable, generally not controlled.	Risk Event is acceptable and will generally not be subject to regulatory controls.

7.4 Risk Assessment – Noise (operations)

7.4.1 Description of Risk Event

Noise emissions from the Boranup Quarry (quarry pit and processing area) could contribute to an exceedance of the assigned levels at the boundary of adjacent rural lots (noise sensitive premises).

7.4.2 Identification and general characterisation of emission

Noise generated from the processing of extracted material, loading and unloading of material stockpiles and vehicle movement within the Premises. Table 12 contains the general sound power levels for the average type of equipment used for the operations.

- The Application states operating times as follows:7:00am to 7:00pm from Monday to Friday; and
- 7:00am to 1:00pm Saturdays.

Table 12. Sound power levels of the equipment to be used at the quarry pit and processing area

Item (number of)	Sound Power Level dB(A)
Screens plant	112
Stockpile stacker and conveyor	104
Excavator	109

Front End Loaders	109
Haulage Trucks	104

7.4.3 Description of potential adverse impact from the emission

Noise has the potential to impact on the amenity of residential receptors. Where assigned noise levels are exceeded regularly, health impacts may arise from stress and/or loss of sleep.

7.4.4 Criteria for assessment

The operation of the quarry pit and processing areas must meet the assigned levels prescribed by the *Environmental Protection (Noise) Regulations 1997*.

7.4.5 Applicant controls

The Applicant must ensure the mobile processing operation is;

1. The processing plant shall be located on the pit floor; and,
2. The staging of the screening operation shall be as shown in the figure 2 red boundaries numbered 1 to 11.

7.4.6 Consequence

The operational activities are expected to be managed to comply with the assigned levels prescribed in the *Environmental Protection (Noise) Regulations 1997*. However, there may be impacts to amenity on a local scale during operations. EPA guidance "Separation Distances between Industrial and Sensitive Land Uses", June 2005 recommends a buffer of 300-500 metres between sand and limestone extraction operations and sensitive land use. The nearest receptor is located 420 metres .Therefore, the consequence rating has been determined as ***slight***.

7.4.7 Likelihood of Risk Event

Based on the Applicant's controls, impacts to amenity will probably not occur in most circumstances. Therefore, the likelihood rating has been determined as ***unlikely***.

Table 13**: Applicant's proposed controls for operational noise**

Site infrastructure	Description	Operation details	Reference to issued Licence plan
Controls for noise			
Acoustics barrier	The excavation is to progress westwards, away from receptors,	Minimum of 5 metres below natural ground level	Schedule 1 Plan of processing plant stages shown in red and numbered 1 to 11.

7.4.8 Overall rating of risk of noise during operation

A comparison of the consequence and likelihood ratings described above with the Risk Rating Matrix (Table 8) has determined that the overall risk rating for noise is ***low***.

7.5 Risk Assessment – Dust (operations)

7.5.1 Description of Risk Event

Fugitive dust may be generated by vehicle movement on unsealed roads, stockpiles, exposed areas, processing (screening) and during transfer of materials. Depending on length of exposure, density and material type, dust may cause health and amenity impacts.

7.5.2 Description of potential adverse impact from the emission

Impacts to receptors are likely to be greatest during times when material is excavated, screened and loading, especially during windy, dry weather conditions which is most likely to occur during summer

The closest sensitive receptor to the screening area is located 420 m NE of screening plant.

All the receptors to the NE and SE of the screening plant (refer to Figure 4) are located within an area vegetated by trees. Trees are expected to provide a degree of screening for dust emissions.

7.5.3 Criteria for assessment

Assessments of the potential dust risk are normally made using the Land development sites and impacts on air quality, *Department of Environmental Protection and Conservation Guidelines, March 2011, A guideline for managing the impacts of dust and associated contaminants from land development sites, contaminated sites remediation and other related activities*.

7.5.4 Applicant controls

The site operations occur in the base of the pit below natural ground elevation behind tall forest trees on the eastern boundary of the tenement. The loader is the only vehicle normally on site apart from the occasional but regular entry of a road truck to take product from the site and vehicles for maintenance and personnel transport.

For the existing quarry, and its continued operations for Lime-sand excavation, the main particles are sand sized particles of Lime-sand. These are normally less than 1.0 mm and have a capability of moving by saltation and do not travel far, being easily stopped by adjoining bunds, and faces of the pit. Excavation will progress west away from the receptors.

As noted previously the main dust risk is from vehicle activity along the limestone access road and hard stand during excavation in the summer months when the soil is dry. This can generate finer limestone dust.

Applicant controls include a fixed irrigation system with take-offs to irrigate and wet down entrance roads, egress roads, loading areas and stockpiles during operations. Dust suppressants may be used to limit dust lift off from areas prior to rehabilitation operations commencing. The fixed irrigation system is a control identified in this licence.

7.5.5 Consequence

Excessive dust has the potential to impact the adjoining land.
Minimal impacts are expected to amenity on a local scale during adverse weather conditions. Therefore, the consequence rating has been determined as ***minor***.

7.5.6 Likelihood of Risk Event

Notwithstanding the proponent controls, given the proximity of the premises to sensitive receptors and the relatively wind-exposed location, there remains a risk of fugitive dust affecting the receptors.However, a complaint has been made to the DMIRS regarding dust emissions generated during processing operations on site. Therefore, the likelihood rating has

been determined as ***possible***.

7.5.7 Overall rating of risk of dust during operation

A comparison of the consequence and likelihood ratings described above with the Risk Rating Matrix (Table 9) has determined that the overall risk rating for noise is ***low***.

7.6 Summary of acceptability and treatment of Risk Events

A summary of the risk assessment and the acceptability or unacceptability of the risk events set out above, with the appropriate treatment and control, are set out in Table 14. Controls are described further in section 9.

Table 14: Risk assessment summary

	Description of Risk Event			**Applicant controls**	**Risk rating**	**Acceptability with controls (conditions on instrument)**
	Emission	**Source**	**Pathway/ Receptor (Impact)**			
1.	Noise	Processing equipment Vehicular movement Loading and unloading of material stockpiles	Noise causing amenity impacts to residential receptors.	Excavation will progress west way from receptor	Slight consequence Unlikely likelihood **Low risk**	Acceptable subject to proponent controls
1.	Dust	Processing equipment Vehicular movement Loading and unloading of material stockpiles	Dust causing amenity impacts to residential receptors.	Excavation will progress west away from the receptors.	Minor consequence Possible likelihood **Low risk**	Acceptable subject to regulatory controls

8. Regulatory controls

A summary of regulatory controls determined to be appropriate for each Risk Event is set out in Table 15. The risks are set out in the assessment in section 7 and the controls are detailed in this section. DWER will determine controls having regard to the adequacy of controls proposed by the Applicant. The conditions of the future licence will be set to give effect to the determined regulatory controls.

Table 15: Summary of regulatory controls to be applied on the Licence

		Controls (references are to sections below)		
		9.1.1 to 9.1.2 Infrastructure and equipment	9.2.1 Operational requirements	9.2.2 Monitoring
Risk Items (see risk analysis in section 7)	1. Noise from infrastructure and operations	●		
	2. Dust from infrastructure and operations	●	●	

9. Licence controls

In accordance with *Guidance Statement: Risk Assessments* (February 2017), DWER has regard for the Applicant's proposed controls and where they lower the assessed consequence or likelihood of a risk event, these controls are conditioned in the instrument.

The controls outlined below will be imposed as conditions on the Licence to manage the risk of emissions during operation of the premises.

9.1.1 Infrastructure and Activities

Site Infrastructure/activities	Specified requirements
Processing plant (mobile screening plant)	When in operation, parked on the floor of the excavation during excavation campaigns and removed from site once the campaign is complete.
Excavator	When in operation, parked on the floor of the excavation during excavation campaigns and removed from site when the campaign is complete.
Processing stockpiles	Located in the base of the pit.
Operating hours	As a specific requirement to regulate noise the LGA has advised to be consistent with the Shire's Extractive Industry policy that operating times should be limited to between 7am and 7pm Monday to Friday and 7am to 1pm Saturdays. However the DMIRS approved Mining Proposal also permit operational hours from 6am to 6pm for 7 days a week during campaigns. Hours of operation will not be regulated by this licence as the noise controls are set by limits described in regulation 8(2) table 1 of the Noise Regulations.
Premises production	The LGA has advised that extraction must be limited to a maximum capacity of 60 000T per year as per the information provided in the application documents and to the Shire during the royalty agreement process.
Management	
Signage at the premises	Easily visible, to include site-manager's phone contact information to enable complainants to contact site management.

9.1.2 Dust control requirements

The Delegated Officer considers that the dust control measures listed below are required to manage dust, and to provide regulatory oversight of commitments made by the Applicant.

Infrastructure	Requirements
Fixed irrigation system	Available at all times when screening or loading activities are being conducted.
Dust suppressants	May be required to be used to manage dust lift-off.

9.2 Specified actions

Specified actions required to control and manage the risk of noise is explained below.

Management controls	
Complaints management system	As a minimum, records the number and details of complaints received concerning the environmental impact of the activities undertaken at the Premises and any action taken in response to the complaint.

9.3 Reporting

Reporting required will include an Annual Environment Report to include a summary of complaints and a Compliance Report.

10. Determination of Licence conditions

DWER notes that it may review the appropriateness and adequacy of controls at any time and that, following a review, DWER may initiate amendments to the Works Approval under the EP Act.

The conditions in the issued Licence in Attachment 1 have been determined in accordance with DWER's *Guidance Statement: Setting Conditions*.

The issued licence will expire on 8 August 2034 in line with the Mining Tenement expiry date.

Table 16 provides a summary of the conditions to be applied to this licence.

Condition Ref	Grounds
Emissions Condition 1	This condition is valid, risk-based and consistent with the EP Act.
Infrastructure and Equipment Condition 2	This condition is valid, risk-based and contains appropriate controls.
Specified Actions Condition 3	This condition is valid, risk-based and contains appropriate controls.
Record-keeping Condition 4, 5, 6 and 7	These conditions are valid and are necessary administration and reporting requirements to ensure compliance.

DWER notes that it may review the appropriateness and adequacy of controls at any time and that, following a review, DWER may initiate amendments to the licence under the EP Act.

11. Applicant's comments

The Applicant was provided with the Decision Report and Licence on 13 November 2018. The Applicant provided comments on 22 November 2018 which are summarised, along with DWER's response, in Appendix 2.

12. 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 Licence will be granted subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Stephen Checker

Digitally signed by Stephen Checker
Date: 2018.11.30 14:24:22 +08'00'

Steve Checker
MANAGER WASTE INDUSTRIES
REGULATORY SERVICES

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

Appendix 1: Key documents

	Document title	In text ref	Availability
1	Application documents - Email: *Subject: Re: Application for Licence – Lime Nominees Pty Ltd, M 70/697, Old Ledge Pointy Road Lancelin dated 23/12/2016*	Application	accessible at www.dwer.wa.gov.au DWER records (A1395103)
2	*Atlas of Australian Soils, Sheets 1 to 10. With explanatory data,* Northcote,K.H. with Beckmann,G.G., Bettenay,E., Churchward,H.M., Van Dijk,D.C., Dimmock,G.M., Hubble,G.D., Isbell,R.F., McArthur,W.M., Murtha,G.G., Nicolls K.D., Paton,T.R., Thompson,C.H., Webb,A.A. and Wright,M.J. (1960-1968). (CSIRO Aust. and Melbourne University Press: Melbourne).	Northcote *et al.* 1960-1968	External publication - CSIRO
3	*Notice of Intent – Proposed Lime-sand Quarry M70/697 – Excavation and Rehabilitation Management Plan, Old Ledge Point Road, Ledge Point by Cockburn Cement Limited dated 1 December 2003*	Notice of Intent (NoI)	accessed at www.dwer.wa.gov.au DWER Record (A1395102)
4	DER *Guidance Statement: Setting Conditions*, October 2015	Guideline 15A	Part of application documents accessible at www.der.wa.gov.au
5	DER *Guidance Statement: Licence Duration*, August 2016	Guideline 16A	
6	DER *Guidance Statement: Risk Assessment*, February 2017	Guideline 17A	
7	DER *Guidance Statement: Decision Making*, February 2017	Guideline 17B	
8	DER *Guidance Statement: Environmental Siting*, November 2016	Guideline 16B	
9	Australian Bureau of Meteorology	BOM Website	Accessed at www.bom.gov.au
10	Guidance for the Assessment of Environmental Factors – Separation Distances Between Industrial and Sensitive Land Uses, Nº3, June 2005	Guidance	Accessed at www.epa.wa.gov.au

Appendix 2: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of Applicant's comment	DWER response
Condition 2 – Infrastructure and equipment	Water Truck: Site has a current water licence (GWL180709) with fixed irrigation system with take-offs to irrigate the stockpile, access roads, egress road and loading areas. Request to remove requirement for a water truck to be in attendance during all operations for dust controls and replace with fixed irrigation.	Request to replace the water truck with a fixed irrigation system is considered as a reasonable change of management control.
Condition 2 – Infrastructure and equipment	Operating Hours: The DMIRS Mining Lease (M70/1302) conditions permit operating hours from 6am to 6pm for 7 days per week during operational campaigns. Enmic declared their normal operating hours are from 6am to 6pm for 6 days per week with no mining operations on Sundays. Enmic also has a no operation policy over long weekends, Easter and Christmas breaks in order to reduce potential interaction with tourist and holiday traffic. Enmic wish to maintain the 7 day operations to ensure mine safety and minor maintenance can be completed without impediments.	A conditions restricting operating hours was initially placed on the draft licence to control noise emissions during operational campaigns. The SoAMR provided advice requiring the operating hours be set to as described by the shire's extractive industry policy. Alternatively, the DMIRS approval permits operation as described in the applicants comment in column 2. Given the noise risk assessment and the SoAMR and DMIRS approvals regulates the operating hours, then the onus falls upon Enmic to ensure their operations do not exceed the Noise Regulations. Therefore Enmic's operations must comply with the limits described in regulation 8(2) table 1 of the *Environmental Protection (Noise) Regulations 1997* no matter what hours Enmic operate. Therefore an operating hour restriction is not required as a condition of this licence.

Attachment 1: Licence L9046/2017/1