LUNDSTROM ENVIRONMENTAL CONSULTANTS
PTY LTD

ACN 600 398 945

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ATTACHMENT 3B: PROPOSED ACTIVITIES

The Myalup Limestone Quarry (the premises) has been assessed as prescribed premises, under Category 12 (Screening, etc. of material) within Schedule 1 of the *Environmental Protection Regulations 1987.*

Licence Number L8831/2014/1 was issued on 20 August 2015, the expiry date of the licence is 16 June 2024 and the premises was licensed for 200 000 tonnes per annum. The licence L8831/2014/2 was then renewed for 1 year to have a new expiry date of 16 June 2025 and amended to increase the annual throughput to 500,000 tonnes per annum. This application is to renew the current licence.

Please also note the proposed annual throughput is the maximum expected in any one year, and it has been increased to accommodate for the extraordinary works currently occurring in the Southwest, in particular the demand for the Bunbury Outer Ring Road (BORR). It is expected the annual throughput will return to previous volumes (up to 200,000 tonnes/year) once the demand for these projects has ceased.

Key equipment to be used in the operation includes:

- A primary jaw
- Screening plant
- Secondary impactor
- Radial stacker
- Trailer mounted diesel generator
- Loader
- Bulldozer

Operations will be restricted to 7am to 7pm, 6 days a week.

The process involves limestone preparation, processing and land restoration/rehabilitation.

There are no unique or non-standard processes or operations associated with the proposed Limestone extraction.

Topsoil is scraped off the surface of the limestone caprock and pushed up into small stockpiles for later use in rehabilitation. These stockpiles are positioned to provide buffers for dust and noise. The

limestone is ripped and bladed to a central dump area by bulldozer. The limestone is lifted into the crusher by a loader.

Electric primary and secondary crushers, powered by self-contained diesel generators, crush the limestone into smaller fragments. This material is then run through a screening plant where it is graded into different sized products. These products are stacked into stockpiles. The limestone product is loaded from stockpiles to road trucks and taken off-site.

The pit sides are battered to between 1:4 and 1:6. Once excavation is complete the pit floor is deep-ripped in two directions. When ripping is complete, overburden, followed by topsoil is spread across the surface. The rehabilitated area is raked to remove rocks and then seeded with pasture grass or planted with native vegetation as required.

Emissions Discharge Points

Air, odour and light emissions are not applicable to this site. There are no solid or liquid wastes produced and no discharges to land. The site is not a contaminated site.

Although limited, potential does exist for dust and noise emissions from the proposed operations.

Dust and noise emissions may be generated by the operation of the crushing and screening plant, heavy and light vehicle movements along access roads and loading from the material stockpiles.

Sensitive land users

The site is surrounded by native vegetation and pastures. The nearest noise sensitive premises not associated with the quarry activity is owned by the landowner and is a holiday cottage located approximately 360m east of the crusher/screener on Lot 4, with operations otherwise well buffered by farming land and Yalgorup National Park to the north. The next closest sensitive premises is >1500m from the EIL areas.

Noise

The proposed extraction activities will create some operational noise, the majority of which will be generated by bulldozers, crushing and screening, loaders and haulage trucks. This noise is expected to be localised and create minimal nuisance beyond the boundary of the extraction area.

The EPA environmental assessment guideline “Separation Distance between Industrial and Sensitive Land Uses” lists the generic buffers for sand and limestone pits as 300-500m depending on the extent of the processing (EPA 2015). The nearest noise sensitive premise is a residence owned by the landowner, located approximately 360m to the west of the current crushing and screening activities on Lot 4. The future location of the crushing and screening facility will be further away from the sensitive receptor as shown in Attachment 7. No other

residences are located within 1 km of the proposed activity. A vegetation buffer exists between the landowner's residence and the extraction activity. During previous quarrying on property no noise issues were recorded. No offsite noise impacts are anticipated due to the surrounding vegetation and distance to the residential areas.

Methods to mitigate noise are as follows:

- Reversing croakers installed instead of reversing alarms.
- Quietest equipment available is used and maintained to Env Prot (Noise) Regs 1997 Standards.
- Stockpiles will be strategically located to attenuate the noise.
- Operations will be restricted to 7am to 7pm, 6 days a week.
- Employees and contractors working on site will be provided with information on how to minimise dust emissions.
- A notice has been erected at the front gate that provides emergency contact details for the Operations Manager.
- A complaints system will be put in place and these will be recorded by the Operations Manager and acted on promptly.

Dust

Dust emissions may be generated during the following activities:

- Removing topsoil
- Extraction of limestone
- Loading of haulage trucks
- Equipment movement on unsealed surfaces
- Crushing and screening

The EPA environmental assessment guideline "Separation Distance between Industrial and Sensitive Land Uses" lists the generic buffers for sand and limestone pits as 300-500m depending on the extent of the processing (EPA 2015). There are no dust sensitive premises within 1km of the proposed operations, with the exception of the landowner's premises which is located 360m west of the current crushing and screening activities.

B & J Catalano Pty Ltd are required to undertake monitoring of ambient air quality using dust deposition gauges at four locations around the boundaries of the limestone excavation operations to determine whether dust is being exported from the site. The dust monitoring locations are shown in Attachment 2.

In the absence of dust guidelines in Western Australia, the EPA Victoria State Environment Protection Policy (Air Quality Management) has been used on the recommendation from DWER. A nuisance dust trigger level for mining and extractive industries is set at 4g/m2/month.

The average monthly wind speed and direction information from the Bunbury weather station indicates that there is generally an easterly to south easterly wind in the mornings and predominantly westerly to south westerly wind in the afternoons. Wind from the north is very rare,

which makes it unlikely that dust generated from extractive activities on site would accumulate in the southern monitoring gauge. From the climate statistics available on BOM website, it was found that the month of November has the highest Mean 3pm wind speed, 22.6km/h and highest Mean 9am wind speed, 18.4km/h. The November wind roses show that the afternoon westerly winds make about 50% of the wind compared to the morning easterly winds which is about 25%, it can be inferred that the afternoon westerly winds are the predominant and strongest wind at the prescribed premises.

Significantly higher readings in the western deposition gauge are most likely due to the proximity of the dust deposition gauge to Lake Preston (approximately 30m), by the deposition of salt and shell grit resulting from the strong westerly winds blowing across Lake Preston.

Lake Preston, considered as environmental receptor to the west of the operation is unlikely to be impacted by the dust generated by Category 12 activities on Lot 2, 4 and 5, as the strongest winds in the area are westerly, blowing towards the Category 12 activities and away from the Preston Lake. No dust complaints were received from human receptors. No impact to threatened ecological community of Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain that are located within and around the premises boundary, was noted during the site visits.

Dust Gauge positions were changed in late 2022, however occasional exceedances of the trigger value still occur at the northern, eastern, and southern dust deposition gauges. Further monitoring is required to determine the suitability of the new locations, and the extent of dust emissions for this site. The Licence Holder intends to revise their authorized monitoring locations such that it can better monitor dust emissions from the activities associated with Category 12 works.

Management measures to mitigate dust are as follows:

- A water cart is on site during periods when material is being moved or crushing is being conducted. If and when dust is caused to occur during these periods, the water cart will be employed to damp down the areas of concern.
- If necessary, loads will be dampened prior to loading/unloading.
- If dust can be seen to be carried outside the site, the source of dust will be identified and measures implemented to prevent or minimise further dust emissions.
- If there are high winds and conditions are dusty, then operations will be stopped until such time as adequate wetting down has occurred or conditions have changed.
- Stockpiles will be located where lift-off from the prevailing wind is minimised. If necessary stockpiles are treated with sprays or polymer binders.
- Handling of materials will be kept to a minimum.
- Internal roads will be surfaced with gravel. A 30km per hour speed limit will apply to trucks on these internal roads at all times.
- Truck loads will be covered for preventing dust generation in transit.
- Employees and contractors working on site will be provided with information on how to minimise dust emissions.
- No burning of waste will occur.
- A notice has been erected at the front gate that provides emergency contact details for the Operations Manager.

- A complaints system will be put in place and these will be recorded by the Operations Manager and acted on promptly.

Water

In all extraction operations the potential exists for impacts to be incurred on surrounding water resources, or by stormwater erosion of exposed areas. The water management strategies outlined below will ensure the mitigation of potential impacts.

Surface Water Management

Lake Preston runs along the western boundary of Lots 2, 4 and 5 Ludlow Road (Attachment 7). No surface drainage lines have been identified within the property, drainage is internal and infiltrates into the underlying groundwater.

The DWER (formerly known as DoW) recommend a buffer distance of 200m from sensitive water resources such as conservation wetlands like Lake Preston (DoW 2000). The proposed extraction area and associated activities remains outside of the buffer and hence activities will not directly impact this conservation area.

Due to the very permeable nature of the limestone in the region, it is unlikely that any long-lived expression of surface water will exist within the extraction area, even after heavy winter rains.

The stormwater management measures described below will ensure that there will be no surface runoff from the extraction area into Lake Preston.

Storm Water Management

Stormwater management issues are not anticipated for the extraction area due to high permeability of the ground/soil materials. This has been the case for the existing extraction area. The depression created by extraction will protect Lake Preston and associated vegetation from runoff and sediments that may be generated from high intensity rainfall events.

Groundwater Hydrology

An estimation of the historical maximum groundwater level beneath proposed EIL area was conducted in 2018 (LEC, 2019). As detailed below, the proposed extraction depth is more than 5m above this historical maximum therefore no groundwater will be intercepted.

A search of the Department of Water and Environmental Regulation (DWER) Water Information Reporting database found four bores (these are the Lake Clifton D1, D2, C4 and C5 bores), lying within the same catchment as the property, for which sufficient water level data was available to build and interpret hydrographs. Hydraulic gradients and flows in the area are heavily influenced by groundwater discharge to the eastern shore of Lake Preston. Because of the uniformity of the groundwater gradient north to south the conditions observed at these bores are considered to be representative of the groundwater conditions at the property, even though these bores are located approximately 5.5km to the south and 5.5km to the north of the property (Figure 3).

Table 1 summarises the range of water levels for DWER monitoring bores D1, D2, C4 and C5.

Table 1: Summary of Ground Water Level Data for DWER Monitoring Bores (DWER 2018)

Bore Number	Season	Range (m AHD)	Period Recorded
D1	Winter High	-0.219 to 0.661*	1979 to 2001
D2	Winter High	-0.414 to 1.796	1979 to 2018
C4	Winter High	-0.105 to 0.855	1979 to 2018
C5	Winter High	0.47 to 1.888#	1979 to 2009

*The value of 1.161mAHD recorded on 17/07/84 is considered to be an error and is therefore excluded from the data range.

#The value of 2.411mAHD recorded on 21/07/82 is considered to be an error and is therefore excluded from the data range.

To estimate the historical maximum groundwater level at the proposed EIL area, the value for the highest ever water table recorded from D1, and the corresponding records for D2, C4 and C5, have been used to estimate the maximum groundwater contours (Figure 3).

Calculations have been done as follows:

- D1 and D2 are situated 272m and 1344m, respectively from the Lake Preston shore.
- The highest groundwater level for D1 (26/10/1989), and corresponding level for D2), is 0.661 and 1.796mAHD respectively.
- The hydraulic gradient that existed at the time of highest water table (calculated from above) was 1:944.
- The above was repeated for bores C4 and C5, with corresponding groundwater levels for 26/10/1989 as 0.705 and 1.25mAHD respectively.
- There was insufficient data to calculate the 0mAHD groundwater contour accurately. The estimate of the 0mAHD contour (Figure 3) is based on the above data combined with the regional water level contour mapping done by Rockwater (2009) and Commander (1988) for the area.

Figure 3 shows that on the date of the historical maximum, the groundwater level was likely to have been between the 0 and 1mAHD in a line parallel with the eastern shoreline of Lake Preston. Using these contours, it can be estimated that the highest water table that is likely to have occurred at the proposed EIL area was 0.22mAHD at the western boundary and 0.58mAHD at the eastern boundary of the existing EIL area.

Since the proposed extraction depth is 6mAHD, no groundwater will be intercepted.

No dewatering activities will be undertaken. No groundwater will be exposed by this development since the final land surface will be 6mAHD, which is well above the maximum winter high groundwater table.

Due to the small-scale nature of the operations, no groundwater contamination is anticipated. No fuel or lubricant storage will occur on the site. Refuelling will take place using a mobile refuelling vehicle which is equipped with a “snap-on snap-off, fast-fill and auto shut-off” facility. Plant will be refuelled each morning, leaving the vehicles almost empty overnight. No major servicing, which could lead to fuel and oil spills, will take place on the site. B & J Catalano have a Safety Practice

document for Hydrocarbon Spill Response outlining their procedures for controlling, recovering, treating and reporting hydrocarbon spills and this will be implemented in the unlikely event of a spill occurring.

The use of fertilisers will be necessary during the rehabilitation process. At this time, the Department of Agriculture and Food will be consulted as to the appropriate levels of fertiliser requirement. The correct application of these products will serve to control leaching of nutrients into the groundwater.

Herbicides will be used only as required for weed control and their use is expected to reduce as vegetation is established. In choosing herbicides, preference will be given to substances that strongly adsorb to soil and have low potential to leach into groundwater.

References

Bureau of Meteorology (BoM) (2019). Rainfall frequency information. Website: www.bom.gov.au

Department of Water and Environment Regulation (DWER) (2019). Water quality protection note no. 15, Basic raw materials extraction. Government of Western Australia.