

## **PLANNING APPLICATION**

Planning Application P224632

Proposed JDAP 24/02761 Application Extractive Industry

9730 (Lot 22) Caves Road, Hamelin Bay

### **PROPOSAL NAME**

SEE ATTACHED FORM

### **WHAT IS THE PROPOSAL**

SEE ATTACHED FORM

### **Proposal Content**

The Short Description of the proposal is included on the attached form.

The figures referred to in the Proposal Contents Elements table include:

- Context Plan
- Site Plan
- Excavation Works Plan
- Post Extraction Plan

The report is accompanied by the following technical reports, assessments and plans:

- Appendix A – Certificate of Title
- Appendix B – Planning Assessment
- Appendix C – Development Plans (*referred to above in Elements Table*)
- Appendix D – Acoustic Assessment
- Appendix E – Traffic Impact Statement
- Appendix F – Environmental Management Plan (*including Noise, Dust, Rehabilitation, Water and Environmental Management Plans*)
- Appendix G – Groundwater Monitoring Report
- Appendix H – Visual Impact Analysis
- Appendix I – Soil Data Analysis

### Spatial Data

The applicant's plans do not include geographic coordinates or scale bars. The referrer includes herein Figure 1(a) and 1(b), which show the site in both regional and local context and are coordinated based on GDA20.

### Rehabilitation

SEE SECTION AHEAD

### Commissioning

Described in terms of the commencement of 7 stages of excavation, each of 2ha area

### Decommissioning

Not included in development application

### Proposal time

Application is for 10 years.

## **INTRODUCTION**

This referral to the EPA is made for the following reasons:

- The applicant has not complied with EPA guidance on separation distance and assessment of sensitive landuse; it has omitted the nearest sensitive land use at Lot 29/9819 Caves Rd Deepdene, located at 220-230m from the proposed extraction area. Added to this, acoustic modelling presented by the applicant, shows noise received at this location exceeds the Noise Regulations (1997).
- On consulting the Shire regarding this omission in the application, it became clear that no primacy would be attached to it – I was informed that under the Development Assessment Panel (DAP) process, requesting further information would extend the timeline of the application, and the applicant has the right to reject this.
- Based on the foregoing, the large scale and duration of the proposed project, the inadequacy of the environmental investigations to date and the forced

timeline of the DAP approval process, there is considered to be a very real risk of significant environmental impact if the proposal is approved.

The first point above relates to the environmental factors of human health and amenity, which may be impacted by noise and dust generated from the proposed sand and limestone extraction operation (EPA, 2005; 2015). These factors are addressed collectively below.

Table 1 lists elements considered by the EPA in assessing environmental significance (EPA, 2023). They include elements that relate the large scale of the proposal, the diminished resilience of the environment to cope with the impacts due to climate change, potential for cumulative and offsite impacts and the poor rehabilitation outcomes of former sand and limestone extraction nearby. These factors are collectively considered ahead and represent a substantive risk of holistic environmental impact.

The sections ahead attempt to follow the EPA prescribed approach to s.38 Referral. However, this is constrained by the nature and stage of this proposal and hence not all sections are applicable. Also, because holistic environmental impact is identified, groupings of relevant environmental factors are considered which cross the EPA (2023)'s themes of Land, Water, Air etc.

<b>Potential environmental impacts for environmental factors:</b>		
<ul style="list-style-type: none"> <li><i>Air Quality, Social Surroundings, Human Health</i></li> </ul>		
1	<b>EPA policy and guidance</b>	EPA (2005); EPA (2015); Noise Regulations (1997)
2	<b>Receiving environment</b>	Lot 29/9819 Caves Rd, building envelope
3	<b>Likely environmental impacts</b>	Noise, dust, visual impact
4	<b>Application of the mitigation hierarchy, including other statutory decision-making processes</b>	The application of the mitigation hierarchy is predicated upon prior assessment of sensitive landuse, which has not been properly completed.
5	<b>Assessment and significance of residual impacts</b>	Not possible
6	<b>Likely environmental outcomes</b>	Noise impacts contravening the Noise Regulations; dust and visual amenity impacts

## EPA Separation Distances

Separation distances provide protection to sensitive land uses from an impacting land use, but also protect the impacting land use from encroachment of incompatible land uses. There are local examples of the latter application of separation distance – a neighbour's application to install chalets was rejected by the Shire because his location was <300m from the then operating sand/limestone mine. There appears no justification for not considering my location - a pre-existing sensitive land use (Lot 29 Caves Rd), located 220-230m from a proposed impacting land use.

The applicant has determined, in accordance with the EPA *Separation Distance between Industrial and Sensitive Land uses* (June 2005), that the nearest sensitive land use is located 400m north west of the extraction boundary (Lot 18 Grosse Rd). However, the dwelling location within Lot 29/9819 Caves Rd is evident in most of the applicant's figures and plans which are based on aerial photography (Figure 2). In this figure my residence is clearly visible on the adjoining Lot 29 to the south of the '526m' label, at a distance from the site of about 260m.

The applicant's environmental consultant refers to the EPA's *Separation Distance between Industrial and Sensitive Land uses* (June 2005), which for sand and limestone extraction is recommended to be 300 - 500m to sensitive land uses, depending on the size. The 2015 revision of this guidance maintains the recommended 300 - 500m separation. The consultant, noting the proposed use of crushing and screening plant, regards a 500m distance as an appropriate conservative approach. I consider this fact of the plant, coupled with the large scale of the proposed extraction, should be sufficient grounds to apply the upper range limit of 500m, as the appropriate the separation distance.

It's understood that under Schedule 1 of the EP Regulations, which governs the licensing of extraction industry, there are different tonnage thresholds: Category 12 (>50,000t /pa) and Category 70 (5,000-50000t/pa). If the proposed 1,314,489m<sup>3</sup> extraction volume is converted to tonnes (applying a generic density for sand of 1.7t/m<sup>3</sup>), then over a period of 10 years this equates to annual extraction tonnage in the order of 4.5X the Category 12 threshold. Further, comparison with typical extraction tonnages approved by the Shire of Augusta Margaret River, shows this proposed extraction to be often many multiples of those tonnages or volumes. Clearly, the scale of this proposal warrants a more rigorous consideration of sensitive landuse, not a disregard of it, as shown by the application in relation to Lot 29 Caves Rd.

In my recent submission to the Shire relating to this proposal, I refer to a separation distance of 260m, being the distance of my residence to the extraction area boundary. However, on review of the EPA (2015) guidance, this distance should extend between our building envelope and the extraction area, a separation distance of about 220 to 230m.

EPA (2015) notes in relation to separation distances:

- that while the EPA does not have a role in approving development applications, it is of the strong view that local government and development assessment panels have responsibility for making decisions that avoid impacts to sensitive land uses;
- An appropriate separation of sensitive land uses from a source of emissions is the key approach to ensuring that intended and unintended emissions from industrial, commercial, rural or other properties do not adversely impact on the health and amenity of people;
- The separation distances are based on scientific information (where available) and knowledge and experience of technical experts and are also drawn from various codes-of-practice, guidance from other jurisdictions, and the EPA's previous guidance material. These distances can vary based on the scale and size of the industry, location topography, prevailing winds and other factors.

### **Summary**

**The dwelling at 9819 Caves Rd is the nearest sensitive land use, located at about 220-230m from the extraction area.**

**The applicant has failed to identify 9819 Caves Rd as the nearest sensitive land use, and that it is located at less than EPA recommended separation distance (300-500 m) from the proposed extraction site.**

**Based on the EPA guidance above, the total and likely per annum extraction volume and the crushing and screening plant, warrant the upper limit of 500m separation distance being applied.**

**An application of the mitigation hierarchy as described in EPA (2023) ought not be carried out without prior assessment of nearby sensitive land use and definition of an appropriate separation distance.**

### **Noise – nearest sensitive land use**

The applicant's acoustic consultant Herring Storer Acoustic (HSA) conducted predictive noise assessment at the site. HSA's assessment report concludes noise levels during sand extraction will be compliant (<45 db(A)) at three receivers (R1 to R3). HSA notes that the receiver locations were provided by their client. As noted previously, they do not include Lot 29 Caves Rd.

The Noise Management Plan prepared separately by the environmental consultant states that "Consultation with all sensitive receptors has also been undertaken by the proponent." My immediate neighbour to the north (R2) confirms that he was not consulted. Several of my comments below are informed by discussion with acoustic expert Peter Popoff-Asotoff (DWER).

The reported compliance for each receiver was determined based on the highest noise level modelled for all the extraction stages, with an added penalty of 5 dB(A) to allow for tonality.

When the nearest sensitive receptor 9819 Caves Rd is identified within the context of the noise contour plots provided by HSA, non-compliance is the outcome.

The contours shown in HSA's report for Stage 7 operations show noise levels at 9819 Caves Rd well above the acceptance criterion of 45 dB(A), even before adding the 5 dB(A) penalty (Figure 3). It is noted that there is no higher contour value than 45 dB(A) provided in HSA's figures, though it is reasonable to expect higher noise levels would exist closer to the source.

The value of 50 dB(A) (ie >45(5)) shown in the table below for Stage 7 is, therefore, a minimum value.

The table below estimates the noise levels for 9819 Caves Rd from the contours generated for each of the stages, as shown in HSA's report. The 5 dB(A) penalty value is only shown below for values close to exceedance of the criterion.

<b>HSA Figure</b>	<b>Stage of Operations</b>	<b>dB(A) contour</b>	<b>Assessment Criterion (45dB(A))</b>
B1	1	30 - 35	
B2	2	35 - 40	
B3	3	35 - 40	
B4	4	Allow 40(5)	
B5	5	Allow 43(5)	Non-compliance
B6	6	35 - 40	
B7	7	≥45(5)	Non-compliance

The table shows several stages yield noise values exceeding or at the noise assessment criterion, for 9819 Caves Rd. Only one exceedance is required to show non-compliance.

Despite modelled noise levels already in contravention of the Regulations, there are other important questions regarding the noise modelling by HSA.

### Background Levels

People who have lived near sand and limestone extraction operations describe the mornings as being the worst time, when machines are starting/warming up. The early mornings are naturally the quietest times and hence when the impact of noise is greatest. HSA assessed ambient or background noise and derived an averaged value of 45-50 dB(A) during the day, compared to earlier morning ambient noise in the range of 20-25 dB(A). It is understood that there are different statistical approaches to reducing the ambient monitoring log data to single numbers representing day/evening/night background levels. It is unclear what statistical

approach HSA has applied, however, it's likely they have applied a standard averaging approach which may not fully reflect the highest potential level of "impact" that would be suffered by sensitive receptors near the site, regardless of the Regulations-prescribed assessment criterion of 45 dB(A).

#### Actual vs generalised operational scenarios

HSA states: "information provided is that material is understood to be located at 10m depth (from ground level), therefore as the pits progress, the bottom of the pit will be such that there is a pit wall (operating face) being maintained between equipment and receivers" (p.6 of their report). It is noted that mitigation of noise by way of the active pit wall may occur for a nearest sensitive receptor located to the north and with operations working from south to north. There is no such mitigation if the nearest sensitive receptor is located at Lot 29 Caves Rd.

The main sand hill located at the eastern side of stages 2 and 3 has a natural RL of about 62mAHD. To reduce this to the proposed pit floor at 30mAHD requires a total cut of 30m, compared to the acoustic consultant's allowance referred to above of only 10m from ground level. Has the noise created during the additional 20m of excavation from the resource's highest elevation been accurately captured in HSA's modelling? Has the most detailed topographic contour data been applied in the modelling, to ensure the most realistic prediction of potential noise impacts?

The HSA noise source inventory includes "semi-tipper truck" and one of these is included in the scenarios for each operational Stage. It is assumed that this truck is a haul truck that will take the extracted material offsite, but this is not clear. Additional noise sources which have not been modelled or allowed for as a contingency, include:

- Additional plant as may be necessary eg rock breaking equipment.
- the potential for truck queuing either within the site, or on Caves Rd, as trucks wait to be loaded.
- as stated in the Environmental Management Plan, there will be no fuel storage or maintenance done onsite. Fuel tankers and other heavy vehicles will likely be required to enter the site.
- Water tanker for dust suppression.

It is considered that independent expert review of the acoustic assessment data is required.

## **Noise – surrounding amenity**

The Cape to Cape Track crosses Cosy Corner Rd between its intersection with Caves Rd and the beach (Figure 1 (a)). The possibility of the proposed extraction operation visually impacting users of the Track at elevated locations along it, has not been assessed. Regardless of whether there is direct visual impact, noise from the operation has the potential to impact the amenity of walkers along this natural corridor through the landscape of the southern Cape.

## **Summary**

**A predictive acoustic assessment of the proposed operation reported noise levels for Lot 29 Caves Rd which exceed the assessment criterion, contravening the Noise Regulations.**

## **Dust**

Dust generation is a significant issue in limestone quarries due to the small particle size, especially when the material has a low moisture content or the surface material dries out. The proposed extraction site is often an extremely windy location, with little in the way of a natural vegetation to buffer wind and prevent dust uplift. Dust therefore has the potential to leave the site and impact surrounding properties including loss of amenity, surface deposits, fouling of rainwater supplies and respiratory or eye irritations. Dust has the potential to transform this location, with dust clouds in summer creating a significant visual impact, evident from short, medium and long distances. The nearby covenant-protected vegetation and fauna will also be impacted by dust and noise from an extraction project of this scale.



<b>Potential environmental impacts for environmental factors:</b>		
<ul style="list-style-type: none"> <li><i>Landforms, terrestrial environmental quality, inland waters</i></li> </ul>		
1	<b>EPA policy and guidance</b>	<p>EPA Objective: to maintain the variety and integrity of distinctive physical landforms so that environmental values are protected.</p> <p>EPA Objective: to maintain the quality of land and soils so that environmental values are protected.</p> <p>EPA Objective: to maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected (all EPA (2023)).</p>
2	<b>Receiving environment</b>	Agricultural land, groundwater, surface water
3	<b>Likely environmental impacts</b>	Interception of groundwater during extraction; on- and offsite drainage issues; residual surface water body; impact on down-gradient, groundwater-dependent forest and wetland area under conservation covenants and regionally.
4	<b>Application of the mitigation hierarchy, including other statutory decision-making processes</b>	Applicant has stated sand/limestone extraction will extend to 30mAHD, maintaining 2m of separation to groundwater.
5	<b>Assessment and significance of residual impacts</b>	
6	<b>Likely environmental outcomes</b>	

These factors are considered in the sections ahead. It's noted that, in terms of "distinctive physical landforms", the stabilised sand dunes proposed for extraction are the subject of very strong planning-based arguments against this project, based on *Rural Landscape Significance*. This aspect is not considered further here.

## Groundwater

The groundwater investigation described in the application fails to define the seasonal variation in the water table beneath the site. Accepted practice is that monitoring should extend over two wet seasons. Thus, the reported single groundwater monitoring event in July 2024, following an extremely dry year (20%

less than the long-term average of 950mm based on the rain gauge at Lot 29 Caves Rd), is a poor basis for estimating the maximum groundwater level beneath the site and whether it will be intersected during extraction.

There was no geological logging provided with the groundwater investigation report. The potential for karstic limestone to be present, as it is in the Ridge to the west of the site and the nature of the clay loams/granite-gneiss contact with the lime sand/limestone formation, is unknown. Groundwater movement or conductivity can be extremely variable in karstic terrain; hence how the groundwater might behave during and after extraction is not understood.

Groundwater contours included in the Applicant's report (Figure 2) confirm that the elevated sand hills central to the extraction area exert a control locally on the groundwater system. The contours indicate eastward groundwater gradient or flow influenced by the Leeuwin- Naturalist Ridge, meeting westward groundwater flow from the elevated sand ridge near Caves Rd. The Caves Rd side of the elevated sand landform shows groundwater flow to the east. Figure 4 presents a schematic interpretation of the groundwater contours in terms of landform and shows an expected "mounding" of the watertable within the elevated landform proposed for extraction.

This interpretation is supported by the applicant's groundwater consultant who states: "We consider the above groundwater levels to be consistent with the topography of the site, with groundwater mounding towards the higher elevated areas and draining towards the existing creek systems south and east of the site."

**Given the geometry of the recharge landform and the potential for groundwater to "mound" within it, coupled with the resumption of a more typical winter rainfall, it is considered likely that groundwater will be intersected during excavation to the 30mAHD proposed as a base level for extraction.**

### **Water table rise and residual waterbody post extraction**

Dewatering is not normally an element of sand and limestone extraction operations, as it often is with other mining operations. Hence, the remnant waterbodies from former limestone extraction NE of the site within the same geological formation, are there because the groundwater has risen and/or because mining occurred below the watertable (Figure 1, "lake"; Figure 5).

An interactive online database shows the elevations for the surface of the large waterbody range between 30m and 32m, with adjacent surface elevations around the lake in the range of 35-40mAHD (Figure 6). This indicative data is presented to support the proposed site being in the same geological formation and in a similar position within the landscape, with the watertable at about 30mAHD or higher.

Accounts by excavator operators who have worked in the former limestone quarries nearby, indicate that common practice was excavate from below the watertable, pile to drain, before crushing and screening.

**Groundwater rise following extraction is likely and along with direct penetration of the watertable may result in a remnant permanent waterbody. Such a waterbody can result in poor amenity, drainage impacts within and beyond the site and evaporative losses from groundwater to the detriment of the groundwater-dependent environment nearby.**

### **Summary**

**There has been insufficient monitoring to confirm groundwater will not be disturbed at the site during extraction, as well as how it might respond following the proposed extraction. A precautionary approach should be adopted.**

**The elevated sand ridge proposed for extraction is a significant rainfall recharge landform for groundwater, supporting groundwater flows to the south and south east, into the Turner Brook drainage system. This helps sustain remnant Eucalypt forest and the wetland area protected under covenant at 9819 Caves Rd, to the south of the proposed site (Figure 1).**

**It is well known that south west forests have suffered a 15-20% reduction in rainfall and 80% reduction in streamflow since the mid-1970s. The proposed removal of a significant groundwater recharge landform upgradient of 9819 Caves Rd conflicts with the objectives of the conservation covenant at this property and more broadly with vegetation protected under reserves and national parks in the region.**

### **Environmental Management Plan - Rehabilitation**

The applicant's environmental consultant states that the surface after extraction of the porous and permeable sands "will be free-draining to the water table". Limestone is evident in outcrop at the site within Lot 22 now. It is the hardened and cemented equivalent of the lime sand, therefore necessarily less permeable. As extraction proceeds and more limestone is encountered, the permeability of the surface will diminish significantly. The permanent waterbodies remaining after sand and limestone extraction nearby attest to this, along with the more important direct control being the watertable (Figure 1).

Further, the consultant's proposal that water management, including of potential storm events, can be managed on a progressive 2ha basis with infiltration to already rehabilitated ground, is not supported by nearby former extraction sites.

The environmental consultant states in the EMP:

*The planned end use of the quarry is to restore a natural soil profile and return the extraction area to pasture, ensuring there is no net loss of agricultural land.*

The post extraction substrate will be a material with very different properties to the existing natural surface currently used as agricultural land. If it is not actually a rock surface, it will likely be a substrate with higher pH, poor drainage capacity and stripped of nutrient and organic component. Such materials are notoriously difficult to re-vegetate in a sustainable way, requiring the addition of substantial material and nutrients to enable any growth. Given this, the consultant's description of ripping the final surface followed by replacing the topsoil cover, appears to fall short of a return of the site to agricultural pasture. Water quality testing was not reported in the groundwater investigation however there are local reports of very high pH water in nearby former quarry lakes, rendering it unsuitable for plants.

**The applicant's assurance that the extractive surface will be rehabilitated to pasture with net zero loss of agricultural land appears designed to satisfy the Scheme requirements for this Rural zoning. It is unsupported and without technical merit.**

The potential for impacts on the following environmental factors are presented together, as they are included under the protection of the conservation covenant at Lot 29 Caves Rd.

Potential environmental impacts for environmental factors:		
• Flora and vegetation, terrestrial fauna		
1	EPA policy and guidance	EPA Objective: To protect flora and vegetation so that biological diversity and ecological integrity are maintained (EPA (2023)).  EPA Objective: To protect terrestrial fauna so that biological diversity and ecological integrity are maintained. (EPA (2023)).
2	Receiving environment	Groundwater, GDE vegetation and Turner Brook wetland and drainage area

3	<b>Likely environmental impacts</b>	Threatened species including Red-tailed Black Cockatoo; and down-gradient, groundwater-dependent forest and wetland area under conservation covenant.
4	<b>Application of the mitigation hierarchy, including other statutory decision-making processes</b>	
5	<b>Assessment and significance of residual impacts</b>	
6	<b>Likely environmental outcomes</b>	

Lot 29 Caves Rd includes a distinctive interface between the Holocene-aged, stabilised dune formation and the forest and Turner Brook - related wetland area to the south (Figure 1). This includes a narrow belt of old growth Karri, which are located there because of the conjunction of the underlying “karri loams” and the beneficial expression of the groundwater at the base position in the landscape (Appendix 1).

A synopsis of the covenant values is included in Table 2. These include priority plant and animal species; the Red-tailed Black Cockatoo is identified as threatened fauna found within the covenant.

Between my access gate and the Caves/Cosy Corner Rds intersection, all three bird species can be present at different times - Red-tailed, Baudins and Carnaby's - feeding on the mallee (*E. calcicola*) at around this time of year (see photos in Appendix 1). Apart from potential groundwater-related impacts on vegetation within the covenant, there is clear potential for noise impacts on these birds from heavy haulage trucks, crushing and screening activities.

## CONCLUSIONS

This referral to the EPA is made for the following reasons:

- The applicant has not complied with EPA guidance on separation distance and assessment of sensitive landuse; he has omitted the nearest sensitive land use at Lot 29/9819 Caves Rd Deepdene, located at 220-230m from the proposed extraction area;
- Following EPA guidance, the large scale and duration of this project including it's crushing and screening plant, warrant setting the upper limit of 500m as the necessary separation distance to protect the surroundings, health and general amenity of sensitive landuses.

- The sand deposit proposed for extraction is a significant groundwater recharge landform. Given its geometry, with the potential for groundwater to "mound" within it, coupled with the resumption of a more typical winter rainfall, it is considered likely that groundwater will be intersected during excavation to the 30mAHD proposed pit base level.
- Destruction of this recharge landform will impact groundwater flow to the south and east, where it helps sustain remnant Eucalypt forest and the wetland area protected under covenant at 9819 Caves Rd.
- Potential remnant waterbodies after extraction, as well as a generally reduced separation between surface and the watertable will cause evaporative losses, an additional stress to the groundwater system. The poor prospect for rehabilitation of the stripped profile, further contributes to this.
- This proposal presents a risk of cumulative impact over time on fauna habitat and the general amenity of fauna. This relates specifically to threatened species like the Red-Tailed Black Cockatoo, active in the area and protected under covenant at Lot 29 Caves Rd.
- The impacts described above are set both cumulatively and holistically within the context of the 15-20% reduction in rainfall and 80% reduction in streamflow suffered by south west forests since the mid-1970s.
- Based on the foregoing, there is considered to be a very real risk over time, of significant environmental impact if this proposal is approved.

## References

EPA, (2005). *Separation Distance between Industrial and Sensitive Land uses*. Environmental Protection Authority, No. 3, June 2005.

EPA, (2015). *Draft Environmental Assessment Guideline for Separation Distance between Industrial and Sensitive Land uses*. Environmental Protection Authority, June 2015.

EPA, (2023). *Statement of environmental principles, factors, objectives and aims of EIA*. Environmental Protection Authority, April 2023.

*Environmental Protection Act 1986: The Environmental Protection (Noise) Regulations 1997.*