



Boral Resources (WA) Ltd

Gidgegannup Granite Quarry

**Public Environmental Review –
Response to Submissions**

2010





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Public Environmental Review-
Response to Submissions

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ABBREVIATIONS & ACRONYMS

BCM	Boral Construction Materials
Boral	Boral Resources (WA) Ltd
DEC	Department of Environment and Conservation (WA)
DEWHA	Department of Environment, Water Heritage and the Arts (Cwth)
EMP	Environmental Management Plan
EMRC	Eastern Metropolitan Regional Council
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EPA	Environmental Protection Authority (WA)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
ha	hectares
Hanson	Hanson Construction Materials Pty Ltd
MBC	Midland Brick Company
Midland Brick	Midland Brick Company
Mt	mega tonnes = million tonnes
NEPM	National Environment Protection Measure
OEPA	Office of the Environmental Protection Authority
PER	Public Environmental Review
RFA	Regional Forest Agreement
SPAA	Stoneville and Parkerville Progress Association
the Quarry	proposed Gidgegannup Granite Quarry
the Site	Lots 193,166,153 and 152 Toodyay Road, Gidgegannup.
tpa	tonnes per annum
ug/m3	micrograms per cubic metre
WAPC	Western Australian Planning Commission

1.0 INTRODUCTION

Boral Resources (WA) Ltd (Boral) is proposing to develop a granite quarry ("the Quarry") within a parcel of land consisting of Lots 193, 166, 153 and 152 Toodyay Road, Gidgegannup (the "Site"). Part of the Site has previously been used for clay extraction and it is now proposed to access the underlying granite resources. The development of the Quarry will cover a total area of approximately 42 ha (predominantly on Lots 193 and 153), which is expected to yield 500,000 tonnes of rock per annum when the proposed operation reaches maximum capacity in twenty years time. The size of the Quarry is physically constrained and therefore the resource volume is finite. The life of the Quarry is not expected to extend beyond 50 years, based on the forecast extraction. If the forecast annual volumes are not achieved, the life of the Quarry is effectively prolonged.

A Public Environmental Review (PER) of the Proposed Gidgegannup Granite Quarry was prepared by GHD in January 2010 on behalf of Boral, for assessment by the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986* (EP Act). The PER describes the proposal, examines the likely environmental impacts and provides details of proposed environmental management and mitigation measures.

In particular, the PER focuses on the environmental factors identified as part of the initial PER scoping process Boral was required to undertake. The factors identified for this proposal and accepted by the EPA as appropriate scope for the PER, are as follows (in alphabetical order):

- Aboriginal heritage.
- Air quality
- Fauna
- Flora and vegetation
- Groundwater
- Noise and vibration
- Pollution
- Solid waste
- Surface water
- Transport impacts
- Visual amenity

Each of the factors was then assessed in order to identify the potential impact, proposed management and mitigation and predicted outcome of the proposal and this information presented in the PER.

The proposal is also being assessed as a "controlled action" under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) because of potential impacts on the Carnaby's Cockatoo, a listed Vulnerable species under that Act. The Commonwealth has accredited the Western Australian impact assessment process under the bilateral agreement between the Commonwealth and Western Australian Government and this proposal is being assessed under the provisions of that agreement.

In addition to community consultation conducted prior to and during the preparation of the PER, the document was subject to an eight week period of public review, which ended on 29 March 2010. Twenty one submissions on the PER were received by the EPA. These have been collated and the Boral response to each submission is set out in this report.

2.0 SUMMARY OF SUBMISSIONS

A range of issues was raised in the submissions covering the following topics (in alphabetical order):

- Aboriginal heritage
- Acid sulphate soils
- Air quality
- Alternative options
- Blasting
- Carnaby's Cockatoo
- Cumulative impact of additional quarry
- Environmental monitoring
- Fauna
- Flora and vegetation
- General comments
- Groundwater
- Impact of changes to topography
- Consultation
- Lifestyle
- Light pollution
- Longevity of quarry
- Noise and vibration
- Offset areas / buffer zones
- Ownership of site
- Overall objections to the proposal
- Planning approval
- Quality of PER document
- Stockpile management
- Surface water impacts
- Tourism
- Transport / traffic
- Visual amenity
- Water supply

This section contains a summary of the submissions received during the public review period of the PER and is presented as follows:

- Table 1 provides the number of submissions received, according to submitter type; and
- Table 2 provides a summary of submissions according to issues raised. The issues are listed against the environmental factors (ie scope) assessed in the PER. Where the issues raised are outside this scope, they are listed against "other factors".

The comments provided in each of the above tables are essentially provided verbatim.

A full summary of all submissions received during the public review period is provided in Appendix A.

Table 1: Number of Submissions Received by Submitter Type

Submitter	No of Submissions Received
Commonwealth Government	1
Department of the Environment, Water, Heritage, and the Arts (DEWHA)	
State Government	3
Office of the EPA: Strategic Policy and Planning Services Division, Terrestrial Ecosystems Branch	
Department of Water: Regional Management and Water Information	
Department of Environment and Conservation: Noise Regulation Branch	
Local Government	1
City of Swan: Manager of Statutory Planning	
Traditional owners	1
Swan Valley Nyungah Community for the combined Swan River and Swan Coastal Plains and Darling Ranges Traditional Owners and Native Title Holders	
Local groups	4
Jane Brook Catchment Group	
Stoneville and Parkerville Progress Association Inc	
Gidgegannup Progress Association Inc	
Swan Valley Ratepayers and Residents Association Inc	
Local residents – individual submissions (unnamed)	10
Other	1
BGC (Australia) Pty Ltd	

Table 2: Summary of Issues Raised in Submissions

Environmental Factor	Summary of Issues Raised	Submissions received
Aboriginal heritage	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • disturbance and destruction of specific sites; • protection of spiritual and cultural significance of area • restricted access to indigenous people • concern that negotiation between Boral and traditional owners is inequitable <p>The Swan Valley Nyungah Community acknowledged that "Boral has been a very good company to meet and talk with and be consulted by, and they have taken our concerns seriously". However they raise an overall objection to the proposal at this location.</p>	<ul style="list-style-type: none"> • acknowledge Boral has altered quarry design on two occasions to avoid Ancient Rock Engravings. • - claim there are other Sites throughout the Land of the proposed Quarry that will be destroyed. <p>Swan Valley Nyungah Community</p> <ul style="list-style-type: none"> • Indigenous heritage - little importance is granted to the existence of identified sites in the document. - many sites remain uncovered - agreement of local elders re disturbance of known sites is insincere as it is not a contract between parties on equal footing. <p>Jane Brook Catchment Group</p> <ul style="list-style-type: none"> • Indigenous people will have their cultural areas disturbed and destroyed and inaccessible by permanent fencing. <p>Gidgegannup Progress Association Inc</p> <ul style="list-style-type: none"> • The aboriginal people have a very special connection with this area and their ancient spiritual attachment with the land is far more important to our society than the short term gain being sought by multinational companies. <p>Local resident(s) # 2</p> <ul style="list-style-type: none"> • Boral want to "disturb" 2 sites (page vi). "Disturb" appears to mean destroy. Boral state they have protected two other sites by altering the footprint and creating a 50m exclusion buffer zone. It appears to be trade off that only two sites are to be destroyed and the evaluation of the sites to be preserved against those to be destroyed is questionable. • Boral is still "seeking permission" to "disturb" these sites. This matter needs to be resolved before any approval is given. • Permanent fencing into the foreseeable future will deny indigenous people access to their lands (pxx). Indigenous sites saved will be excluded from access and visitation. Is this "preservation" of value? <p>Gidgegannup Progress Association Inc</p> <ul style="list-style-type: none"> • Boral want to "disturb" 2 sites (page vi). In this situation "disturb" means destroy. Boral say they have protect 2 other sites by altering the footprint and creating a 50m exclusion buffer zone. Boral clearly believe that offsets of indigenous sites (and environment) should allow them to "disturb" these 2 sites. • It is debateable whether they are of equal value....Boral clearly have no respect or understanding of the value of these sites. They are still "seeking permission" to "disturb" these sites. <p>Local resident(s) # 9</p>

Environmental Factor	Summary of Issues Raised	Submissions received
Air quality	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • Concern that NEPM standards not applicable; • dust impacts on neighbours; • cumulative air quality; • removal of vegetation will limit ability of area to contain dust; • health issues associated with dust (radiation, crystalline silica); • the adequacy of the dataset used for air modelling; and • the need for ongoing dust monitoring. 	<ul style="list-style-type: none"> - quarry will add to Perth's air pollution from all phases of its operation - removal of vegetation will further limit the ability of the area to contain the dust problem or capture carbon - Boral's stated position is that dust comes from other sources in the vicinity so a little more doesn't matter - it must be an industrial areas, so NEPM standards don't apply. Jane Brook Catchment Group <ul style="list-style-type: none"> • We have concerns that because this area is classified as "industrial", and therefore NEPM standards for air quality are not applicable or enforceable (page v). The cumulative affect in this area is disturbing for residents and for the production of livestock and crops. Gidgegannup Progress Association Inc <ul style="list-style-type: none"> • Dust problems – hard to measure a nuisance value eg washing covered in dust as before when Herne Hill Quarry was in operation. • The easterlies already reach sever wind speeds throughout the summer months and will easily carry dust particles from the operating quarry to envelop vast areas of the Swan Valley. <p>Swan Valley Rate Payers and Residents</p> <ul style="list-style-type: none"> • From conclusions: Health issues have not been addressed for local residential areas, workforce, flora and fauna in relation to the air quality and chemical /compound make-up of the crustal alpha particulates being released into the air. • Granite is a natural source of radiation,...but its known affects on health is limited as studies into the mining and inhalation of the dust particles are currently limited and available health information is unreliable as no long term formal studies have been undertaken. ...The Boral PER does not take into consideration the radiation hazards connected to alpha particles nor does it provide surety of safety. • From conclusions: Although dust mitigation strategy has been completed, it is consistent with the actual prevailing winds, landscape and combination of 2 quarries producing 2/5mtpa. • Sensitive receptors are not positioned consistent with wind direction thus being able to give accurate assessment. • Inconsistencies with information on wind direction and speed. Actual statistics taken from the area over long term by the Bureau of Meteorology are a more accurate measure was not used in the study. • Local resident(s) # 2 • Dust concerns. Local resident(s) # 3 • Ensure that the scope of studies accommodate the physical properties of granite dust, in particular the radioactivity aspects. • I live downwind of the proposed location and therefore considered to be in a location where the propensity for dust deposition and inhalation is high. I would therefore consider myself and neighbours a 'Sensitive Receptor' living in Herne Hill and only 2.45km away from the proposed operation.

Air quality	Refer to summary on previous page	<ul style="list-style-type: none">• I live downwind of the proposed location and therefore considered to be in a location where the propensity for dust deposition and inhalation is high. I would therefore consider myself and neighbours a 'Sensitive Receptor' living in Herne Hill and only 2.45km away from the proposed operation.• The PER is void of any consideration to the physical properties of the dust hazard and seems to only consider it as an environmental factor through deposition, compromising foliage and quoting "possible health effects".• Only desktop studies and dispersion modelling has been used. In the absence of measuring stations, why were residents downstream of prevailing wind patterns not asked?• With respect to meteorological wind pattern data and the propensity for dust pollution , the PER is predicated on data and sources that are either not correct for the proposed location in question or possibly presented in a way that is not consistent with recent data from more accurate sources (ie weather station much closer to the location).• Of particular concern is the use of an 'average daytime wind speed'...If a more representative data source was used, as residents of this area well know, what is of significance is the occurrence and length of prolonged seasonal high wind speeds during specific periods...• The Darling Scarp Granite outcrops are particularly high in radioactivity, being the major source of high background radiation....It is the dust that warrants the closest scrutiny because if its ability to become airborne and be ingested into the sensitive tissue of the lungs. ...when radioactive granite dust is inhaled into the lung, the alpha radiation is extremely damaging to the delicate lung tissue.• All granite contains large amounts of crystalline silica, which is also harmful to the lungs. It is not appropriate for homeowners to be exposed to the respiratory hazards that are present in granite. <p>Local resident(s) # 5</p> <ul style="list-style-type: none">• The Ambient Air Quality standards should be applicable to Boral because their zoning is resource and not, as Boral state, that they are 'within an 'industrial area'....Receivers or regulators should be installed on Boral's land and be monitored and controlled for air quality in a resource area which, to our knowledge , is not the equivalent of an 'industrial area'. Ambient air quality standards should be applicable not retractable.• The report on air quality standards seems to read that the neighbours of Boral create dust so the monitoring is fine because Boral according to the PER, are already in an 'industrial area'. Therefore, Boral relinquish their responsibility for air quality. <p>Local resident(s) # 6</p>
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GIDGEGANNUP GRANITE QUARRY
PER Response to Submissions



Air Quality	Refer to summary on previous pages	<ul style="list-style-type: none">• The extractive activity classifies this area as “industrial” and therefore NEPM standards for air quality are not applicable or enforceable (page v)....Therefore there is no incentive to maintain acceptable dust levels.• If everyone is allowed to act in this manner, the cumulative effect is undesirable for Gidgegannup and the surrounding bush environment. <p>Local resident(s) # 9</p> <ul style="list-style-type: none">• ...there is no mention of whether Boral will be conducting dust monitoring as a proposed management tool. If monitoring is to be conducted then it would also be sensible to conduct directional monitoring to ensure dust emissions are being recorded from the correct quarry and not from neighbouring activities. The combination of potential dust emissions from both sites, particularly if not in accordance with relevant standards may only exacerbate the problem, especially in the vicinity of Boral's Lot 51.• The PER also states that clay extraction may occur on the site in the future by Midland Brick Company, the current land owner, however the contribution to dust from either existing clay extraction or future extraction has not been considered. Future clay extraction sites have not been identified and therefore the impact of this activity on the operation of the quarry cannot be assessed nor can the potential impacts of the two activities occurring contemporaneously. <p>BGC (Australia) Pty Ltd</p>
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Environmental Factor	Summary of Issues Raised	Submissions received
Fauna	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • Disruption to migration routes and food sources; • Concern that fauna research undertaken to date is insufficient; • More in-depth site fauna surveys should have been undertaken over a more representative time period (ie capture all seasons, night and day); • Concern about relevance of Hanson survey to this site; • Existing information does not correlate to local residents observations regarding fauna in the area; • Concern re loss of habitat, especially migration corridors, food sources, large nesting trees; • Impact of quarry noise and vehicles on animals; • Concern about migration corridor being insufficient; • Impact on Carnaby's Cockatoo (especially breeding and foraging habitat); and • Cumulative impact of development in the area on loss of fauna habitat. 	<ul style="list-style-type: none"> • Fauna: <ul style="list-style-type: none"> - very little importance is given to existing wildlife in the proposal; - concern regarding loss of habitat, especially wildlife corridors, large nesting trees; - cumulative impact of noise and vehicle movement from this & other existing noise sources on animals, ie area of disturbance greater than suggested. <p>Jane Brook Catchment Group</p> <ul style="list-style-type: none"> • ...the impact of this quarry will result in depletion of fauna populations, whose migration routes and food sources are disturbed and obliterated and severely confined. • The completion of quarrying activities will see a large area of land excluded from returning fauna by high fencing. The provision of a fauna corridor (page iv) is debateable as to its effectiveness as wild animals will shy away from unnatural noise and vibration. • There is no doubt that populations will be displaced and forced into surrounding areas which are already stressed by groundwater depletion, pollution, erosion, dieback, etc. • Boral will trap and relocate fauna (page ix) prior to commencing works. <ul style="list-style-type: none"> - why not do this earlier so that the information could have been in the PER. - the transportation of species to another area will be providing competition to the species already inhabiting the area, thus causing another problem. • The destruction of this large area of quality bushland means the destruction of habitat. • Migratory corridors are not by inference habitat. These are habitat linkages"(p 45). The inadequacy of this zone for a corridor is clearly described on Figure 8 (next to p 64) which requires fauna to travel along a long narrow fenced raceway (adjacent to Hanson boundary), only to exit in a concentrated manner on Toodyay Road, putting road users at greater risk. • A far better solution would be to remove the Hanson boundary fence, and combine the two corridor areas to create a more sustainable zone of movement and occupancy. • Boral make the...statements based on assumption, hearsay, reports of others based on insignificant local on-site research (Hanson) and desktop surveys. In no way are their findings supported by continuous 12 month surveying of fauna (or flora species). Without such ON SITE survey, the true nature of fauna populations cannot be assessed. <p>Gidgegannup Progress Association Inc</p>

Fauna	Refer to summary on previous pages	<ul style="list-style-type: none">• 2 year timeframe and day/night study log for a detailed study of an area adjacent to a "A Class Reserve"; typically the John Forest national Park;:• Some species of frog are not mentioned, there area minimum of eight (8) varieties on my property alone including underground species;• Lizard species including the Bearded Dragon have been spotted on my property and in the adjoining areas, although not threatened, the numbers appear to be declining possibly due to loss of habitat;• Specific studies of water species, western pigmy perch for instance is on the decline, live in this habitat and may move downstream when water quality is low, moving upstream when the flows are of a higher quality.• The Chuditch and dunnart have been identified to habitat the area, however the numbers and the impact of these vulnerable species by introduction of heavy transport, dust and vibration should be studied.:• Carnaby's, Red Tailed Black Cockatoo and Red Capped Parrots do range over this area, in the last five years, they seem to be more prevalent, both species are vulnerable due to the mating of a pair for life, vulnerability to impacts nearby during mating and breeding cycles...• Red Capped Robins and Blue Wrens are also regular nesters on my property.• No allowance has been given in the study area for seasonal changes or endemic underground species such as amphibians (Western Spotted Frog, Turtle Frog...and Water Retaining Frog), some mammals or reptiles.• Local resident(s) # 2• Local flora and fauna habitats obliterated. To name just a few, we have large flocks of Carnaby's cockatoo which forage in the area, as well as a nesting pair of wedge-tailed eagles, whose nest is situated right in the area to be mined. We have countless species of birds including hawks, owls, black-shouldered kites, Australian kestrels, little eagles, a peregrine falcon, sacred kingfishers and rainbow bee eaters. Other animals include echidnas, bandicoots, kangaroos, blue tongue goannas, skinks and black monitors.• Local resident(s) # 3• The Forest Red-tailed Black Cockatoo and Carnaby's Cockatoo are likely to occur within the quarry area – The quarry is yet one more development that will impact on both feeding and potential breeding of both of these species. It can be said that this particular development may have relatively small individual impact, but as part of the ever increasing development around the Perth Metropolitan area, the impact is cumulative and serious.• This...comment above applies to most of the fauna surveyed – limited individual impact, but must be considered cumulatively with all development happening in the escarpment area. <p>Local resident(s) # 4</p>
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Fauna	Refer to summary on previous pages	<ul style="list-style-type: none">• This level of fauna assessment is insufficient for the region. Data was relied on from Hanson's Red Hill level 2 assessment ...Two field assessments on two days only in two years...is limited and not encompassing.• A comprehensive field survey is warranted throughout the year. Boral should commission their own assessment rather than rely on data from neighbours....Hanson's assessment was insufficient and incomplete at the time and Boral's reliance on Hanson's assessment compounds encumbered data.• Table 12, page 40 does not include the Wedge-tailed eagle. These predatory birds use kilometres for hunting and a nest is approximately situated within four-seven kilometres north of the proposed quarry.• Also...Carnaby and/or Baudini and Forest Red are commonly found /observed in the PER area under review.• All fauna are affected by the effect of a working quarry; some species more than others. The quarry area proposed will interfere with the habitat of these cockatoos and could interfere and disrupt the breeding cycle of the population. Human activities interferes with their foraging, they signal distress when human presence is near their nest, and noise from quarry blasting or gun shots disturbs the flock enough to fly away. The removal of any potential trees for nesting could be the death knell for another breeding pair of cockatoos.• ...eight trees were identified as possible suitable trees for nesting' Four out of these eight trees were 'suitable'. ...Can the remaining suitable trees be moved to fauna corridors on Boral's land Or, at least, provide new nesting boxes in existing trees north of the Susannah Brook.• An increase in fauna linkage corridors throughout Boral's land would demonstrate and juxtapose that Boral are committed to environment protection and that would set a progressive precedent to other extractive quarries. <p>Local resident(s) # 6</p> <ul style="list-style-type: none">• 31hac (really 42hac) doesn't sound a large area, but when you add it to the activity of Hanson, EMRC and Midland Clay pits, it sums up a fast shrinking scarp land habitat that is being fragmented by noisy vibrating activity that is unnatural and results in an area wide depletion of fauna populations, whose migration routes and food sources are disturbed and obliterated and severely confined.• Fauna is moved on, inconveniencing neighbouring farmers and intensive agricultural/viticultural enterprises.• The completion of quarrying activities will see vast tracts of land excluded from returning fauna by permanently locked gates and high fences. The provision of a fauna corridor (page iv) is debateable as to its effectiveness as wild animals will shy away from unnatural noise and vibration.• There is no doubt that populations will be displaced from their territories by the unnatural activity and forced into surrounding areas which are already stressed by groundwater depletion, pollution, erosion, dieback, unbalanced native fauna populations (excessive kangaroos) and the activities of trespassers.• Boral misses the point when they say "no species uses the area exclusively"...Boral haven't even conducted property on site surveying or trapping, so how can they say what does or doesn't inhabit the site?
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Fauna	Refer to summary on previous pages	<ul style="list-style-type: none">• A common message is that Boral's 31/42 ha of clearing will not have significant impact (page iv) on fauna and its habitat, but add it to the widespread clearing by Midland Brick, Hanson and EMRC, and the picture looks very different....EVERYONE with their own small scale activity is collectively eroding the environment and the quality and quantity of habitat available for fauna species.• Boral will trap and relocate fauna (page ix) prior to commencing works.<ul style="list-style-type: none">- where?- how long will they trap?- for what species?- if they can do the trapping before commencing quarrying, then why can't they extensively trap for PER research?- who will do the trapping?- will there be third party monitoring to ensure transparency and protection in case an endangered species is "inconveniently" caught?- where will the animals be released? To overload another area and be exposed to its predator profile?...You cannot simply translocate animals elsewhere to compensate them for the destruction of their own territory and food source.• The destruction of this large area of quality bushland means the destruction of habitat.• Migratory corridors are NOT habitat. ...Boral preservation of migration areas to the west and east is nothing more than "habitat linkages" (page 45) that force native animals to travel further for food and suffer greater exposure to predators. The inadequacy of this zone for a corridor (certainly NOT as a habitat) is clearly described on Figure 8 (next to page 64) which requires fauna to travel along a long narrow fenced raceway (adjacent to Hanson boundary), only to exit in a concentrated manner on Toodyay Road, putting road users at greater risk.• There will be increase incident of "lost" animals meandering along roadside verges trying to find the narrow entry to the migratory corridor. A far better solution would be to remove the Hanson boundary fence, and combine the 2 corridor areas (they've shared research data, so why can't they combine a wildlife corridor) to create a more sustainable zone of movement and occupancy.• Boral make the...statements based on assumption, hearsay, reports of others based on insignificant local on-site research (Hanson) and desktop surveys. In no way are their findings supported by continuous 12 month surveying of fauna (or flora species). Without such ON SITE survey, the true nature of fauna populations cannot be assessed. <p>Local resident(s) # 9</p>
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Fauna	Refer to summary on previous pages	<ul style="list-style-type: none"> If both the requests of Boral and Hanson are approved and quarrying is allowed to commence in the manner forecasted by each company, then the combined zone of deforestation/land destruction, including the existing Red Hill waste treatment facility, will create a 4km wide (E-W) zone of restricted access for N-S faunal movement. In the best case scenario...there will exist only a 300m gap between Hanson and Boral operations.Boral states that there is a 705 gap between its proposed operations and the existing operations of Hanson. The statement in Appendix E is misleading. <p>What studies have been undertaken as to the possible effect of restricting faunal movement along such a wide zone across the Darling Scarp? Boral states that it is committed to maintaining a fauna corridor along the western margin of the site (page 45 and Figure 8 in the Per). However, the width of the proposed offset that would allow for such a corridor is only 50m wide in this area (Figure 8). Local resident(s) #10</p>
Fauna – Carnaby's Cockatoo	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> Concern that the Carnaby Cockatoo assessment not sufficient ; offset areas would need to include appropriate nesting and foraging habitat; and cumulative impact of this proposal and existing operations on loss of Carnaby's habitat. 	<ul style="list-style-type: none"> Significant fauna ...The Report for Gidgegannup Quarry, Referral under EPBC Act (December 2009) states that field inspection was undertaken on the 2nd December 2008..."to assess the potential usage of the site by Carnaby's Cockatoos. No birds were seen on the site and the trees assessed for usage." Birds Australia WA ...state that "Carnaby's Cockatoos are believed to breed mostly in the wheatbelt, returning to coastal and near coastal areas from late December to July". If this is the case then the timing of the field assessment may not have been at the most opportune time for sightings of Carnaby's Cockatoos and the assessment should have been conducted later in December or more preferably in late January to February. <p>BGC (Australia) Pty Ltd</p> <p>Offsets:</p> <ul style="list-style-type: none"> ...just because black (Carnabys) cockatoos do not use a site over a particular period of time, there is the potential for the black cockatoos to return to this site in the future. Any offset area to be set aside would need to include appropriate nesting and foraging habitat for the Carnaby's. DEWHA would also need certainty that the land would be secure in tenure and not mined in the future. DEWHA notes that 48.35 ha are proposed to be set aside for offset. Below is guidance on recent offset ratios that have been approved by the Minister... <p>Each project is assessed on a case by case basis. However, the Minister expects projects that involve black cockatoo habitat to achieve similar standards to previous approved projects. As a guide the following are some ratios which are indicative of the outcomes recent projects affecting black cockatoo habitat have achieved through a combination of mitigation strategies.</p>

<p>Fauna – Carnaby's Cockatoo</p>	<p>Refer to summary on previous page.</p>	<p>4:1 or higher has been achieved for the creation of foraging habitat – ie for every hectare of cleared habitat, 4ha were created through new plantings of foraging species. The department seeks to create new foraging habitat because we understand that there is not enough foraging habitat to support current black cockatoo populations. 6:1 or higher has been achieved for protection of foraging habitat – protecting existing habitat that is under threat can also assist black cockatoos, but his needs to be a higher ratio than creating new habitat because this measure does not add new habitat to existing resources. 6:1 or higher has been achieved for protection of breeding habitat – the department prefers protecting existing breeding habitat because of the time it takes for new breeding habitat (seedlings) to become viable (more than 230 years). Given this length of time, the ratio for creating new breeding habitat needs to be higher (above 10:1).</p>
		<p>DEWHA</p> <ul style="list-style-type: none">Impact on Carnaby's Cockatoo is still a very serious cumulative effect as more and more developments occur in the area.The Carnaby's Cockatoo Report in Appendix C only covers the area of the quarry pit and stockpiles – it does not cover at all potential feeding and breeding disruption from noise, excavation and pit operations in the broader surrounding areas to the North owned by Midland Brick....A more detailed study on the whole area is required for a meaningful report,A properly researched and executed study of impact of the whole 450 hectare Midland Brick Ltd owned site is required before this development could be approved. Otherwise the impact on the Cockatoo can not be reasonably determined.Nesting box proposal for any trees removed as potential Carnaby's Cockatoo breeding sites – issue is noise and clearing disturbance over the whole Midland Brick Site. <p>Local resident(s) # 4</p> <p>significant impact thresholds</p> <ul style="list-style-type: none">DEWHA notes that 48.35 ha are proposed to be set aside for offset. Below is guidance ... recent significant impact threshold criteria that has been developed.Significant impact thresholds <p>The Department considers that an action is likely have a significant impact on one or more of the three black cockatoo species if there is a real chance or possibility that it will result in one or more of the following:</p> <ul style="list-style-type: none">- Any clearing of breeding habitat in woodland stands of 0.5ha or more that contains 3 or more breeding trees of suitable size (ie a DBH greater than 500 mm);- any clearing of known breeding trees of suitable size (ie a DBH greater than 500mm);- Clearing of more than 1 ha of foraging habitat;

Fauna – Carnaby's Cockatoo	Refer to summary on previous pages.	<ul style="list-style-type: none"> - Creation of a new gap of more than 4 kilometres between patches of black cockatoo habitat; - Clearing of a known roosting site (including individual trees used for roosting); - Shooting of birds or taking of eggs or chicks from the wild; - Introduction of invasive species such as honey bees that creates competition for hollows; - Spreading of known plant diseases such as Phytophthora; or - Altering hydrology or fire regimes so that black cockatoo habitat of more than 1 ha would become degraded or destroyed. <p>DEWHA</p>
Environmental Factor	Summary of Issues Raised	Submissions received
Flora & Fauna	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • Concern about loss of habitat and impacts on wildlife corridors not just on the site but regionally; • Concern that flora and fauna research undertaken to date is insufficient and that only limited on-site surveys have been undertaken; • More in-depth site surveys should have been undertaken over a more representative time period (ie capture all seasons, night and day); • Concern that rehabilitation will not be undertaken seriously as the area may be subject to further mining of clay reserves in the future; and • Protection of Susannah Brook. 	<ul style="list-style-type: none"> • Actual flora and fauna visits very limited – majority of very wordy studies are based on desktop work. Further work covering several seasonal exposures should be required for a complete and balanced assessment, before this development is approved. • Very limited actual site fauna and flora surveys conducted. Mostly one or two visits only for specific surveys – not covering multiple seasons or times (day/night etc). • Just 2 visits listed – one in winter and one in spring – very, very limited actual on the ground flora survey time in limited seasons. • The area of the quarry pit to be cleared is pristine bushland looking out towards the coastal plain. Wildlife corridor/s between Hanson quarry are likely to be impacted. Local resident(s) # 4 • Local flora and fauna habitats obliterated. ...There are countless species of flora, some of which are endangered, in the nearby Wandoo Heights nature Reserve...Who can say how it will be affected if the quarrying operation disturbs and destroys their habitat. Local resident(s) # 3 • We are concerned by the statement: 'that Midland Brick will likely return to the Site in the future to access remaining clay reserves'. This will have a negative impact on any rehabilitation that Boral may undertake as the company will not spend any money if areas are to be re-used for further extraction. • To counteract this scenario more lands need to be vested by Boral for wildlife corridors. A suggestion would be all land within a minimum of 250meters of Susannah Brook be set aside and all Boral's land north of Susannah Brook be classified as protected for fauna and flora. This would at least safeguard two perimeter boundaries for fauna corridors. • A desktop assessment and a limited field survey verifying the desktop was restrained in assessing flora and vegetation. ...More field surveys over different seasons throughout a year should be undertaken to obtain a comprehensive study of flora and vegetation. A random two days over two years field study, one in the middle of winter the other middle of spring, is inadequate because there are yearly climate variables with flora and vegetation. Local resident(s) # 6

Environmental Factor	Summary of Issues Raised	Submissions received
Flora and vegetation	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • The management and ongoing protection of offset and buffer areas from future mining; • Adequacy of dieback management measures; • Rehabilitation of the proposed quarry and the existing clay pit, including concerns re quality of previous rehabilitation attempts in the clay pits; • Concern re fragmentation and overall loss of habitat, especially migration corridors, food sources, large nesting trees; • Inadequate surveys of vegetation and groundwater on the site; • Cumulative impact of development in the area on loss of fauna habitat. • Impact of quarrying on underlying aquifers and vegetation reliant on this water source and • Topsoil management. <p>A number of the submissions also raised general objections to any further clearing in this area, citing the local and regional significance of this vegetation.</p> <p>The Office of the EPA, Terrestrial Ecosystems Branch claims that no flora and vegetation report is provided in the PER.</p>	<ul style="list-style-type: none"> - concern regarding fragmentation of habitat and reduced biodiversity caused by further clearing; - little faith in dieback management measures; - disagree with offset areas. None of this area should be available to quarry; Jane Brook Catchment Group • Boral have set aside land of "equal" value including some riparian habitat alongside Susannah Brook • - how is this land protected? - Is this land covenanted to the National Park? - Riparian habitat should be quarantined from quarrying and clearing - does this mean that future expansion of the quarry is possible and this land is merely being quarantined for that event? • are the existing Midland Brick clay pits going to be revegetated? These pits have been infested by weeds and have allowed feral vermin to gain a foothold. How is this to be addressed? • Boral have not undertaken on site surveying to determine the presence and extent of aquifers and the effect blasting could have on these aquifers, fracturing them and depriving remnant vegetation of summer waters resources and severely affect their ability to survive the seasonal drought. .. • Table 8 (pp 32,33) demonstrate the likelihood of considerable populations and species variety of "priority flora". Table 6 (p 29) describes the quarry area as having at least three vegetation types in very good conditions. This demonstrates the inappropriateness of more clearing of irreplaceable scarp land bush. • Figure 6 (next to p34) confirms the presence of widespread populations of Priority 4 flora and a stand of Kingia exceeding 6m. The loss of unique vegetation such as these should not be permitted. • Re the 10 Clearing principles: <ul style="list-style-type: none"> - Principle 1 – native vegetation should not be cleared if it comprises a high level of biological diversity (it does – refer page 2, Table 8 pages 32,33). Boral reply is that areas of vegetation just as good or better exist in the vicinity. This does not meet the criteria of Principle 1, which simply states native vegetation shall not be cleared if it is biologically diverse. - Clearing Principle 2 relates to the clearing of vegetation necessary for fauna survival (p 59).42 hectares is being cleared and is significant when it comprises a significant portion of the last buffer zone between National Park and rural and residential development. - Clearing Principle 3 relates to clearing impacts on Priority 4/endangered flora. Boral makes the assumption that destroying only 10 plants will not be a "significant impact on the species, either locally or regionally" (p 59) but does not support this statement with data. • P.xiii says acceleration and deceleration lanes will be incorporated into the entrance works. This will mean more clearing of roadside vegetation...Gidgegannup Progress Association Inc

Flora and vegetation	Refer to summary on previous page.	<ul style="list-style-type: none">• Boral have set aside land of "equal" value including some riparian habitat alongside Susannah Brook (page iii).<ul style="list-style-type: none">-how is this land protected?- Is this land covenanted to the National Park?- since when does setting aside land associated with Susannah Brook count as a credit for destruction elsewhere?- Riparian habitat should be automatically quarantined from quarrying and clearing....that exclusion is not meant to compensate or permit clearing elsewhere.- does this mean that future expansion of the quarry is possible and this land is merely being quarantined in the event of that?- which independent/third party, if any, has decreed that this land is adequate value to compensate for that which will be lost forever?• It is far easier to rehabilitate a clay pit than vertical rock faces, yet the existing Midland disused clay pits are infested by weeds, feral vermin has gained a foothold and rehabilitation has not occurred. How does Boral propose to address this?• Midland Brick has a terrible record for revegetation in this area (admitted by Boral). Why should we feel confident that Boral will successfully rehabilitate a quarry, whose vertical hardface walls are much more difficult to remediate than a claypit?• How can Boral assert that destroying 42 ha of quality bushland not constitute "serious or irreversible damage to the environment" (page 16)? The best efforts of revegetation will never replace what clearing and quarrying has destroyed.• Boral have not undertaken on site surveying to determine the presence and extent of aquifers. They have used desktop studies (page 19), "anecdotal evidence by Boral personnel" (of questionable bias and what qualifications) of the movement of water 200m away (page 21) and results of a drilling program at EMRC (in the other side of the road, several km away) it dismiss the possibility of significant aquifers, large and small, to be "isolated, of no regional interconnectivity, minor and any impact (by quarrying /blasting) would be much localized (page 21). ... Blasting activities that fracture the containment structures of these ",minor perched aquifers" will deprive remnant vegetation of summer water resources and severely affect their ability to survive the seasonal drought. It is these aquifers which feed the vegetation above which in turn, support the local fauna population. Destroying localized aquifers by nearby mining activity will widen the extent of vegetation and fauna destruction.• Boral have simply not conducted CONTINUOUS 12 month ON SITE surveys of flora species. Desktop surveys are no substitute for on-sites assessment....Their reluctance to do this merely indicates that they are uncaring and do not want to be inconvenienced by findings of rare or endangered species.
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Flora and vegetation	Refer to summary on previous pages.	<ul style="list-style-type: none">• Table 8 (pages 32,33) demonstrate the likelihood of considerable populations and species variety of "priority flora". Table 6 (page 29 describes the quarry area as having at least 3 vegetation types in very good conditions. This demonstrates the inappropriateness of more clearing of irreplaceable scarp land bush. ...The loss of unique vegetation such as these should not be permitted.• Re the 10 Clearing principles:<ul style="list-style-type: none">- Principle 1 – native vegetation should not be cleared if it comprises a high level of biological diversity (it does – refer page 27, Table 8 pages 32,33). Boral reply is that areas of vegetation just as good or better exist in the vicinity. This does not meet the criteria of Principle 1....it does not state that it can be cleared if there is an "offset".- Principle 2 relates to the clearing of vegetation necessary for fauna survival (page 59). 42ha=100 acres. There is an ever shrinking supply quality supply of natural bushland in the scarp area. 100 acres becomes significant when it comprises a significant portion of the last buffer zone between National Park and rural and residential development....It shows the danger of failing to consider the overall impact of numerous applications to clear and develop.- Principle 3 relates to the clearing impacts on Priority 4/Endangered Flora. Boral is dismissive of the effect of the clearing as destroying "only 10 plants" and makes assumption that this will not be a "significant impact on the species, either locally or regionally" (page 59 but has actually acquired no relevant information to support his arrogant statement.• Local resident(s) # 9• Buffer zones...will these be on the proponent's property, on the Midland Brick property or on neighbours' property. What undertakings will be made to plant these out with screening vegetation? <p>Gidgegannup Progress Association Inc</p> <ul style="list-style-type: none">• Topsoil management:<ul style="list-style-type: none">- The PER details strategies for the management of topsoil including that "topsoil will be stockpiled and respread over the batter slopes of the Quarry to encourage rehabilitation after completion of each phase". The condition imposed on the BGC Voyager II Quarry,...details that "the proponent shall not stockpile overburden and topsoil onsite except in exceptional circumstances" ...This condition has been imposed in response to the view that stockpiling has the potential to decrease endemic native seed viability. Rehabilitation has been described as to be done after completion of each phase. However, in the case of the proposed Gidgegannup quarry, this would not be able to be achieved until completion of the entire project due to the excavation area being an open pit. <p>BGC (Australia) Pty Ltd</p>
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Flora and vegetation	Refer to summary on previous pages.	<p>Offset / conservation area:</p> <ul style="list-style-type: none"> This area extends into lots 198 and 166, which are not owned by the proponent – how will this work – ongoing issue of interaction between Boral Resources and Midland Brick a concern... <p>Local resident(s) # 4</p> <p>The members of SPAAP are also very concerned regarding the protection of significant trees at the quarry site. The members of SPAAP request the EPA require any mature species onsite to be transplanted and maintained rather than be culled before any staged clearing of vegetation is carried out. In this way some of the mature transplanted species may survive.</p> <p>Stoneville and Parkerville Progress Association Inc</p> <ul style="list-style-type: none"> No flora and vegetation report is provided in the PER so it is not possible to comment on the validity of the assessment against EPA's requirements....However the absence of a full flora and vegetation assessment is contrary to EPA Guidance Statement 51. The RFA vegetation complexes (Matiske and Havel 2000) should be included in the vegetation extent and status calculations to enable full assessment of regional significance. The "Lithic (granitic) communities on shallow soils" should be assessed against the known values of Priority 4 Ecological Community (PEC) – Central Northern Darling Scarp Granite Shrubland Communities. Several species listed in Appendix B occur within this community, however without the flora and vegetation report it is impossible to determine if the species occur in the same community. <p>Office of the EPA: Strategic Policy and Planning Services Division, Terrestrial Ecosystems Branch</p>
Environmental Factor	Summary of Issues Raised	<p>Submissions received</p> <p>Groundwater</p> <p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> impacts of the quarry pit on local groundwater and therefore on bores on nearby properties; concern that no on-site groundwater surveys have been done; concern that proponent has not demonstrated an understanding of local geology which directly affects groundwater hydrology; and concern there is insufficient information to assess impact of quarrying on local groundwater. <p>Jane Brook Catchment Group</p> <ul style="list-style-type: none"> Groundwater: <ul style="list-style-type: none"> - new pit could intersect the deep water table and this will have long term irreversible effects. - destruction of a potential potable water source is unacceptable. <p>Local resident(s) # 2</p> <ul style="list-style-type: none"> Section 4.7 Hydrogeology – desktop study only with surface visits to Boral and Hanson Sites – extrapolations from EMRC site, but more recent EMRC monitoring info submitted to DEC, including groundwater contamination at SW margins of EMRC property not included. <p>Local resident(s) # 4</p>

Groundwater	Refer to summary on previous page.	<ul style="list-style-type: none">• Conduct specific hydrological studies in order that definitive conclusions can be made.• ...reference to a major source from which to draw conclusions, is made to a report conducted on a site 1km away, upstream of man-made diversion mechanisms, for a land-fill waste area....it seems negligent to use this report as a major source when qualifying effect on ground, sub-surface and local aquifers. It would be far more responsible to conduct a survey in the proposed project area. Observations relating to water tables, flow paths and surface drainage would be heavily influenced by the fact that Toodyay Rd cuts right between the two sites where man-made drainage and water diversion techniques have been deployed. <p>Local resident(s) # 5</p> <ul style="list-style-type: none">• The PER does not contain enough facts upon which to form the conclusion that the local groundwater table will not be drawn-down or effected by quarrying. The concern is that any draw-down of the local groundwater table could adversely affect the flow-rates in the bore holes of the local residents.• Most of the data cited in the Hanson AquaTerra report, upon which the Boral PER draws heavily, is not based on data collected by Hanson and refers to the results of the Red Hill waste treatment facility bore hole and 5 other holes in Achaean granitic terrain that lie within 5km of the Red Hill quarry. Hence, many of the conclusions with regards to groundwater hydrology in the proposed Boral quarry area are based on the limited data of others and a bore hole that is located about 1km away at Red Hill. This bore may not be representative of the groundwater hydrology of Boral's intended quarry site.• The company has not completed any of their own bore holes in the proposed quarry outline to measure depth to groundwater or inflow-rates within the fractured rock aquifer but rely on the limited data of other. This seems remiss and as for the lack of documentation concerning visual amenity, may indicate that Boral is reluctant to perform the adequate baseline work to assist in future measurement of the company's ability to operate in a sensitive environment.• The PER does not provide a geological map of the area to demonstrate knowledge of the location of dolerite/diorite dikes and fracture/damage zones, which may focus groundwater flow paths and localize draw-down of the local groundwater table.• Boral could be in error with regards to the inferred northerly trend of the diorite dikes on their property and have not demonstrated local geological evidence, such as an accurate geological map, to support their claim that "the compartmentalized groundwater system caused by the north-south trending dikes...would tend to limit east-west groundwater drawdown impacts" (page 20 in the PER).• I would give more credence to the forward looking statements made in the PER concerning the lack of impact on the groundwater table and the bore water supply in nearby properties if the company collected and provided more data from their own site and indicated an understanding of the local geology, which directly effects groundwater hydrology. <p>Local resident(s) #10</p>
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Environmental Factor	Summary of Issues Raised	Submissions received
Noise and vibration	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • Impacts of planned out-of hours construction work and the need for noise management plan 7 days before hand; • Management of construction noise; including the need for a specific management plan demonstrating how noise from bund construction will be minimised; • Noise levels during stage 1, with specific questions raised; • Concern about noise management for temporary infrastructure, ie mobile crushing, screening; • Working hours and the impact of noise outside of "normal" working hours, especially early mornings and weekends; • Noise from other vehicles accessing the site – will they also have quiet alarms? and • Blast management including specific questions regarding exclusion zones and traffic management as well as relevant noise, vibration and dust limits. • Impact of quarry noise on lifestyle <p>Summary continued on following page.</p>	<ul style="list-style-type: none"> • Most noise issues raised previously have been adequately addressed; • Noise control measures proposed should be able to bring the noise emissions into compliance at closest residence, if properly implemented; • Regarding out-of-hours planned construction work, the proponent needs to revise their management measures to ensure compliance with noise regulation 13(3), ie to submit a noise management plan and obtain an approval from the City of Swan at least 7 days before the planned out-of-hours construction work. • The proponent has not responded to the recommendation of developing a construction noise management plan for the proposed noise bund construction work, clearly distinct from quarry operations. It is necessary that the proponent can demonstrate that the noise impact from bund construction will be minimised. <p>Department of Environment and Conservation: Noise Regulation Branch</p> <ul style="list-style-type: none"> • It is noted in the PER that during Stage 1, for approximately the first five (5) years of operation (depending on demand volumes) that the operation will be unable to comply with Noise Limit Regulations. Questions: <ul style="list-style-type: none"> - what are the estimated noise levels of the operations during stage 1? -what noise level limits will be acceptable to the EPA for a five year stage 1 duration? - what more can be done to reduce the impact of any mobile crushing, screening and handling plant situated in the start-up pit until the fixed plant can be installed and commissioned. <p>Stoneville and Parkerville Progress Association Inc</p> <ul style="list-style-type: none"> • Boral admits noise levels will exceed regulatory guidelines during the initial construction and operational phases until permanent infrastructure is installed (page iv) e into the pit. This could be anything from 10 to 20 years of adverse noise impact on neighbours. • Boral admit that the construction of the noise bund (above ground) will generate the greater noise impacts to surrounding areas (page iv) than allowed by regulation, greater than the initial construction phase of the pit. How long is this to impact on neighbours? The bund may be removed...Therefore it will be an ongoing source of excessive noise. • Noise will be an issue as Boral are requesting some very long working hours 5am-6pm Mondays to Saturdays (not that elsewhere in the PER they are requesting a 7pm closure) and possibly Sundays....the early hours will be disturbed by heavy haulage vehicles and on site loading and transport vehicles. At that time of the day, noise travels a long way in the stillness of the early morning. • "Quiet alarms such as Smart alarms that emit a noise only 5dB above ambient noise and/or low frequency 'croaker' alarms will be used;" To be meaningful this also needs to apply to all trucks visiting the site. • Page 21 of the Noise Impact Assessment ...says that noise will exceed assigned daytime levels – at 5.00am!

Noise and vibration	<p>Continued from previous page...</p> <p>There is also a general objection here and in the comments on light impacts, regarding any operations on a Sunday.</p>	<ul style="list-style-type: none">• Construction activities may occur outside the assigned hours of 7.00am-7.00pm. ...Boral is not required to give advance notice of this. It is merely required to explain itself "the next business day". (page 72) This is unacceptable.• Independent noise studies need to be carried out at various points around the proposed site on neighbouring properties to measure impact.• Gidgegannup Progress Association Inc<ul style="list-style-type: none">• Noise interrupting passive enjoyment of the tranquil Swan Valley. No pleasure to be gained from walking or horse riding in an area accompanied by vibrations, blasting and noise of trucks backing up and filling up their trays.• Local resident(s) # 3<ul style="list-style-type: none">• Boral admits noise levels will exceed regulatory guidelines during the initial construction and operational phases (how long?) until permanent infrastructure is installed (page iv) e into the pit. This will be many years of adverse noise impact on neighbours, as Boral pit will be considerably closer than the one proposed by Hanson• Boral admit that the construction of the noise bund (above ground) will generate the greater noise impacts to surrounding areas (page iv) than allowed by regulation, greater than the initial construction phase of the pit. How long will this impact neighbours? The bund may be removed...Therefore it will be an ongoing source of excessive noise and aggravation for neighbours.• Noise will be an issue as Boral are requesting some very long working hours: 5am-6pm Mondays to Saturdays (not that elsewhere in the Per they are requesting a 7pm closure) and possibly Sundays....the early hours will be disturbed by heavy haulage vehicles and on site loading and transport vehicles.... It is not right that they request such extended working hours without consideration of neighbours' right to peace and quiet after working hours.• Page 21 of the Noise Impact Assessment ...says that noise will exceed assigned daytime levels. ...Boral are arrogant and inconsiderate by expecting the community to put up with this.• Construction activities may occur outside the assigned hours of 7am-7pm. Boral is not required to give advance notice of this. It is merely required to explain itself "the next business day". (page 72) This is unacceptable.• Local resident(s) # 9<ul style="list-style-type: none">• Noise problems with primary crushing, secondary crushing, screening and truck movements.• Noise pollution from a hugely expanded, working quarry.• Blasting vibrations causing possible damage to homes and buildings.
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Noise and vibration	Refer to summary on previous pages.	<ul style="list-style-type: none">• "Quiet" alarms such as Smart Alarms that emit a noise only 5 dB above ambient noise and/or low frequency 'croaker' alarms will be used" – to be meaningful this also needs to apply to all trucks visiting the site.• Re Impacts of Blasting - ...very technical & comprehensive report. Risk assessment covered very clearly. Appears to be acceptable risk to surrounding infrastructure. <p>Local resident(s) # 4</p> <ul style="list-style-type: none">• We are concerned about the staging of temporary mobile crushing equipment by the 5th year. There will be a noise issue with temporary infrastructure, in particular, the mobile crushing equipment.• As well the quarry is proposing a slow 'ramp up' so why are they proposing extended and flexible hours of operation. The hours need to be fixed.• 5am-6pm hours of operation are too early in the morning and too late in the evening. The noise factor with mobile equipment is a major deterrent by itself, let alone the noise impact for immediate residential neighbours. ...Boral will not be housing its jaw crusher as it is mobile equipment. Therefore, we suggest 6am to 6pm Monday to Friday for sales, however, crushing operations to be from 7am to 4pm. Monday to Friday only. <p>Local resident(s) # 5</p> <ul style="list-style-type: none">• ...we oppose operations on Saturday afternoons and no crushing whatsoever on Saturdays. Neighbours need to have some respite from quarrying operations. As well, vehicular traffic can flow freely again as the trucks congest the roads...• ...we oppose all operations on Sundays. It is the only day of the week that peace and quiet resumes in the valley. ...Moreover, according to Lloyd George Acoustics, I "is recommended that the site only operate between 7am to 7pm Mondays to Saturdays..."• There needs to be fixed hours and agreement with stakeholders to the hours of operation of Boral. <p>Local resident(s) # 6</p> <ul style="list-style-type: none">• The control and management of blasting is of major concern to the members of SPAA, many of whom travel past the proposed quarry site on daily basis.• Specific questions raised:<ul style="list-style-type: none">- will blasting more frequently (eg once/week) provide smaller blasts resulting in less impact on the environment, wildlife, less noise, vibration and potential for fly-rock damage/injury- what are maximum allowable limits for noise?- what are maximum allowable limits for vibration?- what are maximum allowable limits for blast overpressure?- what are maximum allowable limits for dust emissions?- who will take measurements and how will the results be made public?
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Noise and vibration	Refer to summary on previous pages.	<ul style="list-style-type: none">• the PER document advises that there should be at least 250 metres clearance from Toodyay Road to reduce the risk of flyrock. It also advises that allowances for fly-rock should be 40 metres behind the blast and 100 metres in front. The power lines and road edge are only 100 metres from the centre of the starter pit.<ul style="list-style-type: none">- how is flyrock to be prevented from penetrating Toodyay Road during the start up phase of the quarry development ?- what traffic management plans are there for advising motorists of the date and time of blasting (ie roadside warning signs/permanent warning signs)- how will the local community be given adequate notice and advised of the date and time of blasting? (ie letterbox drop/phone calls, email, SMS, to close neighbours; adverts in local papers, email, SMS to surrounding closures).- what traffic management plans are there for controlling traffic during a blast? (ie manned traffic controllers/road closures?)-given the close proximity to Toodyay Road from the starter pit, what are the likely effects of blast pressure upon passing traffic along Toodyay Road?• Stoneville and Parkerville Progress Association Inc<ul style="list-style-type: none">• The risk assessment blasting Operations...states that the "proposed quarry starter pit is designed to be at a distance of approximately 100m from the Toodyay Road and associated services that are within the road reserve". Theoretical flyrock on a 102mm hole is 655m and on an 89mm hole is 598m...With this in mind, will the usual 600m exclusion zone still apply?• Air blast overpressure has been calculated to be of a maximum of 125 dBI at sensitive sites. This may have an impact on unsuspecting drivers along Toodyay Road. BGC (Australia) Pty Ltd
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Environmental Factor	Summary of Issues Raised	Submissions received
Pollution - environmental monitoring	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • Concerns regarding the success of self regulation and the need for independent monitoring; • Environmental parameters to be monitored; and • How monitoring is to be undertaken, with suggestion for automated computerised monitoring with the ability to flag excess readings. 	<ul style="list-style-type: none"> • Monitoring <ul style="list-style-type: none"> - acknowledges proposed monitoring by proponent but would prefer independent assessment of procedures and outcomes by a responsible government body; - monitoring of all parameters should be independent; - PER should have been prepared by the EPA and paid for by Boral Limited; - self regulation doesn't work and until money can be found to enable independent monitoring, no further licenses should be granted. Jane Brook Catchment Group • Mandatory inclusion of a computerised monitoring system. ...This item must be made a mandatory requirement to this PER and to any proposal for extractive industries in the Susannah Brook Valley. Each site must be compelled to install these monitoring stations at the entry and exit of any waterway from or through their sites. • The EPA statement must include the following clause:- <ul style="list-style-type: none"> - an automatic computerised environmental monitoring system must be installed and maintained at Boral's cost. It can be solar powered at each monitoring site; - the system will monitor all relevant parameters and forward the data via the internet in a fully transparent way so the public and the monitoring authorities can view the values in a common data format like Microsoft excel. - the system shall have set points in the data so any readings exceeding the set point will flag an alarm at Boral and an automatic email to the appropriate authorities, ie the EPA - the system will be audited annually for accuracy by an independent NATA approved company chosen by the EPA, who will administer the monitoring process. The data acquisition shall include a measurement of a "standard" sample of the parameter being measured. This sample measurement shall be included in the data taken every measurement cycle. • the parameters to be measured could include, but are not limited to the following: Water – turbidity, pH, flow, phosphates, blast chemical residue Air – dust quantity, dust particulate size, dust distribution, chemical vapours, sound levels, blast pressures in air Ground – seismic vibration amplitude, seismic vibration frequency, blast timing and sequence, seismic vibration spatial distribution Hydrology – groundwater level of both perched and regional local water levels, monitoring of the east west dykes that contain the aquifers is not breached by the quarry

Pollution - environmental monitoring	Refer to summary on previous page.	<ul style="list-style-type: none"> Site logistics and management – vehicle movements in and out of the main gate, tonnages transported, power consumption and timing, noise levels internally and externally, wind speed and direction (as it may affect accuracy of other measurements) rainfall, barometric pressure (as it may affect accuracy of other measurements), tamper detection and alarms of the monitoring site itself. Local resident(s) # 8
Pollution - Existing environment	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> whether acid sulphate soils are present at the site; accuracy of information regarding contaminated sites in vicinity of quarry; the inclusion of hobby farms and grazing farms as background local dust sources; concern regarding past environmental performance of Boral and others at the clay pits. 	<ul style="list-style-type: none"> Has the proposed quarry site been tested at depth for acid sulphate soils, because if oxidisation does occur through disturbance it will release arsenic and other elements into the groundwater? The statement "A search of DEC's Contaminated Sites Database indicates that there are no contaminated sites within a 5km radius of the site is incorrect! EMRC, the waste disposal facility is a contaminated site..... This is well within five kilometres of Boral's proposed quarry. DEC's database needs updating and this quoted statement above proves that reliance on desk top studies alone by Boral may produce incorrect information. Any area has the potential to create dust but to compare hobby farms and grazing farms to a working quarry ...is incongruous. [re page 47 Item 5.12.1] To include these latter two (50%) is incorrect in this section. <p>Local resident(s) # 6</p> <ul style="list-style-type: none"> The site east of the proposed Quarry is a disaster zone environmentally. It is a pit used by various companies to extract Kaolin clay for brick making since the 1930s. Boral is the current environmental VANDAL that is destroying this part of our backyard. ...It is an unconscionable act against the ecology of the Susannah Brook Valley, and the quality of life for future generations. <p>Local resident(s) # 8</p> <ul style="list-style-type: none"> Boral want to commence business at 5am. There will be an influx of employee vehicles. There will have to be bright lights from 5.00am to 7.00 am in the morning. In the winter this is going to illuminate the sky for miles around. Hours needed to be adjusted in the morning, in winter particularly at weekends. <p>Gidgegannup Progress Association Inc</p> <ul style="list-style-type: none"> In the winter, neighbours will be woken by bright lighting on dark mornings...ambience will be adversely affected by bright lighting , that , like Hanson's will illuminate the sky for miles around. This will be especially noticeable during the winter months when sunrise is later and sunset much earlier. Boral should be required to shorten their working hours during these months to give neighbours peace and quiet that is free from disturbance by high wattage lighting. Boral want to commence business at 5am. There will be an influx of employee vehicles with bright moving beams...Boral PER document does not explain what happens on site between the hours of 5-7am, 6 days a week, and possibly Sundays. Sunday operation should not be permitted under any circumstance. <p>Local resident(s) # 9</p>
Pollution - Light Pollution	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> The impact of lights from the quarry operations, including associated vehicle activity, on nearby residents during early hours of the morning; Lack of clarity around operations on the site between 5am and 7am. <p>There is also a general objection here and in the comments on noise impacts, regarding any operations on a Sunday.</p>	<ul style="list-style-type: none"> Boral want to commence business at 5am. There will be an influx of employee vehicles. There will have to be bright lights from 5.00am to 7.00 am in the morning. In the winter this is going to illuminate the sky for miles around. Hours needed to be adjusted in the morning, in winter particularly at weekends. <p>Gidgegannup Progress Association Inc</p> <ul style="list-style-type: none"> In the winter, neighbours will be woken by bright lighting on dark mornings...ambience will be adversely affected by bright lighting , that , like Hanson's will illuminate the sky for miles around. This will be especially noticeable during the winter months when sunrise is later and sunset much earlier. Boral should be required to shorten their working hours during these months to give neighbours peace and quiet that is free from disturbance by high wattage lighting. Boral want to commence business at 5am. There will be an influx of employee vehicles with bright moving beams...Boral PER document does not explain what happens on site between the hours of 5-7am, 6 days a week, and possibly Sundays. Sunday operation should not be permitted under any circumstance. <p>Local resident(s) # 9</p>

GIDGEGANNUP GRANITE QUARRY
PER Response to Submissions



Pollution - Stockpile management	The submission(s) raised issues regarding the proposal with respect to: <ul style="list-style-type: none"> • Management of stockpiles, particularly dust and how it may impact users of Toodyay Road. 	<ul style="list-style-type: none"> • We have concerns concerning the management of the stockpiles. The heights of these, the proximity to and visibility on Toodyay Road, dust control and drift on to Toodyay Road. What precautions will be taken for the sweeping of Toodyay Road and control of this nuisance? <p>Gidgegannup Progress Association Inc</p>
Pollution	The submission(s) raised issues regarding the proposal with respect to: <ul style="list-style-type: none"> • general dust, noise and contamination of local waterways. 	<ul style="list-style-type: none"> • Further to these concerns are the environmental concerns of dust and noise and downstream contamination of waterways. <p>Local resident(s) # 2</p>
Environmental Factor	Summary of Issues Raised	
Solid waste - Drinking water supply bottles	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • generation of landfill waste through use of water bottles for potable supply <p>In particular, this submitter wants to see Boral's commitment to supply of potable water tank reflected in the conditions of approval.</p>	<ul style="list-style-type: none"> • Re the proposed use of water bottles for potable drinking water, as there is no potable drinking water supply on site. Recommend installation of potable water supply tank on site to eliminate plastic water bottles and packaging being generated and going to waste land-fill. • Boral Resources (WA) have previously responded advising that a potable water supply tank replenished by potable water tanker can be installed onsite. The members of SPAA would like the EPA to include this in any approval to operate as issued by the EPA. <p>Stoneville and Parkerville Progress Association Inc</p>

Environmental Factor	Summary of Issues Raised	Submissions received
Surface water	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • Cumulative impact of pollutants entering the Swan River system via Susannah Brook, Jane Brook and their tributaries; • Contamination of Susannah Brook; • Impacts from existing clay pits and concern that these impacts are not addressed in the PER; • Concern regarding ownership and therefore responsibility of clay pits and any impacts on Susannah Brook; • Monitoring of Susannah Brook and ephemeral streams; • Lack of clarity of impacts on surface and groundwater; • The effectiveness of use of existing clay pits to capture sediment; • Concern that buffer between quarrying activities and the banks of Susannah Brook or other ephemeral streams is insufficient; • Lack of consultation with Swan River Trust. • The effectiveness of use of existing clay pits to capture sediment , particularly in heavy rainfall events; and • Management of discharges to Susannah Brook in severe rainfall / storm events. 	<ul style="list-style-type: none"> • Water: <ul style="list-style-type: none"> - pollutants from quarry will add to the load in the Swan River (via Susannah Brook, Jane Brook and their tributaries) - concern that directing surface water into clay pits will not be sufficient to prevent sediment loss to local creeks in the event of flash flooding; - existence of clay pits is a danger not addressed in the PER. - cumulative changes to quantity and quality of water supply will destroy the viability of the river system <p>Jane Brook Catchment Group</p> <ul style="list-style-type: none"> • Pollution of pristine Susannah Brook (the cleanest tributary to the Swan river; by a Water and Rivers Commission Research Document). <p>Swan Valley Rate Payers and Residents</p> <ul style="list-style-type: none"> • Susannah Brook will be detrimentally impacted by the proposed expansion of quarry works. It is interesting to note that water samples are never taken when the water is looking murky and yellow buy only when it looks clear. • Local resident(s) # 3

Surface water	Refer to summary on previous page.	<ul style="list-style-type: none">• I have serious concern that contamination of Susannah Brook is still a significant future risk. This is focused on sedimentation trap dam described in the report...• Turbidity contamination of Susannah Brook from existing clay pits – must be addressed.• Statement made in Summary of Proposed Management - "Storm water will be diverted to onsite clay pits to contain sediment on site." This is not satisfactory as clay pits have leaked to Susannah Brook in the past.• Page 52 – Impact on Surface Water – talks about 42 hectare quarry impact on surface water – the whole lot is 450 hectares owned by Midland brick has a broader impact including a number of existing clay pits – this needs to be addressed as a whole or any problems will just be bounced from Company to Company even though they are both subsidiaries of Boral.• Page 12 – "other runoff water which does not flow into these dams flows to a constructed sediment trap dam, which has a membrane and filter bed. All final overflow discharges into Susannah Brook." – Query whether this sediment trap dam has overflowed before and confirm it is on the Quarry owned site and not on Midland brick land not covered by this PER.• ...the sediment basin facility north of the proposed quarry area will be maintained to minimize the potential for contaminating Susannah Brook;" – There is no detail on what would be done and how it would be monitored – concern for Susannah Brook.
		<p>Local resident(s) # 4</p> <ul style="list-style-type: none">• re "a pit developed on the Site to extract Kaolin stores water within the pit"...these pits have a settling pond that has a very weak and badly constructed wall. This wall breached in 1996 and flushed kaolin clay down the Susannah Brook for over 5 kilometres. The flush went on for around 2 WEEKS. It killed the ecology of the brook by choking the aquatic flora and fauna. Some species have not returned from this catastrophe. ...To this day the clay pit wall has not been strengthened or greatly improved. No preventative actions have been taken to avoid another occurrence. It remains a disaster waiting for the once in a decade event to make happen again.• What has this got to do with Boral Quarry? The quarry division is trying to dis-associate itself from the actions of "that other section of Boral who dig clay". <p>Local resident(s) # 8</p>

Surface Water	Refer to summary on previous pages.	<ul style="list-style-type: none">• From conclusions: There is no water quality monitoring stations for any of the ephemeral creeks or Susannah Brook.• In 2.1 Geomorphology it is stated that the "Quarry Footprint impacts slightly onto on to the ephemeral streams' however in the long term proposal (clay pits reopening) and that the Hanson's proposal, these streams would be quarried up to 50m (self regulated buffer) from the banks of....Susannah Brook, no provision has been made in regards to the ephemeral streams. Both Boral and Hanson intend to extract product up to this buffer for several hundreds of meters along Susannah Brook.• There is no mention of the Swan River Trust being involved in the consultation process...the reports states that the impact Susanna Brook has on the Swan River is less than .001%, the assumption made for an overarching picture of the complete Swan River system. Whereas, if the footprint of the actual feed flow and seepage into the Swan River in the area of Susannah Brook outlet were assessed, the conclusion may be different when considering settlement contaminants in the restricted area.• The silt or fines that will escape into the ephemeral streams from the surrounding settlement area is most likely to significantly impact on the water quality of the catchment area of Susannah Brook when rains fill ephemeral creeks, drainage areas and land wash areas flow in the main tributary.• From conclusions: Water uses vary between the Hanson (1.5mtpa lower consumption) and Boral (500 000tpa- greater consumption) quarries and needs to be addressed to ascertain actual water consumption.• From conclusions: A study to ascertain definitive clarity of impacts on water (ground and surface) quality into the future. Local resident(s) # 2• Effect of leaching white murky water from existing dams into Susannah Brook. Efforts to control contamination have not worked. Susannah Brook is a very important site in itself. Swan Valley Nyungah Community<ul style="list-style-type: none">• The members of SPPS are very concerned about water/sediment runoff into the Susannah Brook from the proposed quarry development. Questions:<ul style="list-style-type: none">- what provisions have been made for and what protection has been provided for against the effects of severe weather storms/heavy rainfall?- if provisions/protection have been provided for, are they adequate to contain the effects of any severe weather storms/heavy rainfall- how will the Susannah brook be protected against water/sediment runoff in abnormal weather storms/heavy rainfall (100?year flood) <p>Stoneville and Parkerville Progress Association Inc</p>
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Surface water - discharge of excess stormwater	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • management of contaminated areas upon quarry closure; • existing stormwater management at the site with particular questions regarding an existing roadside drain; and • the protection of Susannah Brook. 	<ul style="list-style-type: none"> • ...upon closure of the quarry, how will contaminated areas (workshops, bitumen hardstand, car parking bays with oil deposition – page 54) be monitored to ensure polluted water does not enter local aquifers and streams? Who will empty silt traps to ensure silt does not overflow into the surrounding landscape and water courses? • Driving past the clay pit entrance opposite EMRC entrance on Toodyay Road, there is a large diameter black water pipe exiting their property net to a power pole. It is positioned to discharge into the MRD Toodyay Rd roadside drain. <ul style="list-style-type: none"> - What is this for? - what type of water is being discharged? - why can't the water be contained and treated on site? - where is this pipe coming from? - Could it be impacted by fire? - Was approval granted for the re-routing of discharge? - Are the roadside drains excavated to absorb this extra runoff? - Who pays for the repairs of blocked drains and the consequential hazard to road users if the drains block up (with rubbish) and overflow because of the additional discharge volume? • Water from this drain eventually reaches Susannah Brook. This water is already burdened with rubbish because of the EMRC waste facility. Local resident(s) # 9
Surface water / groundwater - water supply	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • how Boral will meet the quarry's water supply requirement, in particular will bores be used? 	<ul style="list-style-type: none"> • The company says it will be "generally self sufficient on water" (page 8). Generally? This is vague, especially as the capacity of the dams has not been defined. • Is the company proposing to sink a few bores just in case? • Are there existing bores on site? • Do they propose to increase the holding capacity of the existing dams. Local resident(s) # 9 <ul style="list-style-type: none"> • The company says it will be "generally self sufficient on water" (P 8). Generally? This is vague, especially as the capacity of the dams has not been defined. • Is there a proposal to sink bores or are there bores on site? • Do they propose to increase the holding capacity of the existing dams? • What calculations have been made for loss in recycling and evaporation? Gidgegannup Progress Association Inc

Surface water / groundwater	This submission provides the Department of Water comment on the PER.	<ul style="list-style-type: none"> The Department of Water is satisfied that the advice previously given has been incorporated and therefore has no further comment. <p>Department of Water: Regional Management and Water Information</p>
	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> concern that topographic map showing site contours has not been provided despite requests; lack of certainty re impacts on groundwater from quarrying activities; lack of on-site groundwater surveys or follow up of local indigenous knowledge re underground streams; concerns regarding contamination of Susannah Brook from existing clay pits as well as proposed quarry; insufficient detail regarding monitoring of Susannah Brook; The effectiveness of use of existing clay pits to capture sediment , particularly in heavy rainfall events; Management of discharges to Susannah Brook in severe rainfall / storm events; Impacts from existing clay pits and concern that these impacts are not addressed in the PER 	<ul style="list-style-type: none"> The Department of Water is satisfied that the advice previously given has been incorporated and therefore has no further comment. <p>Department of Water: Regional Management and Water Information</p> <ul style="list-style-type: none"> Boral do not believe that surrounding users of groundwater will be impacted by their activity as they believe the perched aquifer is highly localized and separated from surrounding aquifers. Despite numerous requests, we still have not seen a map with topographic lines. If a neighbour is adversely affected, what compensation or remedy is available, if, the deeper rock aquifer does influence the bores of surrounding landholders within a 3km radius? The quarry will intercept the deeper groundwater table p iv). This has the potential for more negative cumulative effects on the environment and soil hydrology that cannot be predicted with any certainty. Boral have done no testing to determine the actual location of small localized perched aquifers on their property. They have related information pertaining to other properties (EMRC and Hanson (page 22)) and sites on their property more than 200m from the proposed pit edge (page ;21) and dismissed the aquifers as "minor, perched, of no regional interconnectivity, and any impacts by quarrying would be much localized" (page 21). The destruction of local aquifers by quarrying or blasting that cracks the bedrock containment would have adverse affect on flora beyond the pit boundary. These assumptions are based on desktop surveys, anecdotal report from Boral staff, and drilling reports from a neighbouring property. The Nyoongar elders have identified this area as containing underground streams (page 22). There is serious concern that contamination of Susannah Brook is still a significant future risk. This is focused on the sedimentation trap dam described in the report and that some of the existing Midland Brick clay pits have the potential to broach in heavy rainfall and the impact of these are not included in this PER....There is no detail on what would be done and how it would be monitored. Discharge of excess stormwater: <ul style="list-style-type: none">we are extremely concerned that stormwater will be diverted to onsite clay pits to contain sediment on site. This is not satisfactory as clay pits have leaked to Susannah Brook in the past. Upon closure of the quarry, how will contaminated areas (workshops, bitumen hardstand, carparking bays with oil deposition P 54) be monitored to ensure polluted water does not enter local aquifers and streams? Who will empty silt traps to ensure silt does not overflow into the surrounding landscape and water courses? <p>Gidgegannup Progress Association Inc</p>

Surface water / groundwater	Refer to summary on previous page.	<ul style="list-style-type: none">• Boral do not believe that surrounding users of groundwater will be impacted by their activity as they believe the perched aquifer is highly localized and separated from surrounding aquifers.• Despite numerous requests, we still have not seen a map with topographic lines.• If a neighbour is adversely affected, what compensation or remedy is available, if, the deeper fractured rock aquifer does influence the bores of surrounding landholders within a 3km radius?• Boral have done no testing to determine the Actual location of small localized perched aquifers on their property. They have related information pertaining to other properties (EMRC and Hanson (page 22)) and sites on their property more than 200m from the proposed pit edge (page 21) and dismissed the aquifers as "minor, perched, of no regional interconnectivity, and any impacts (by quarrying) would be much localized" (page 21).• The destruction of local aquifers by quarrying or blasting that cracks the bedrock containment would have adverse affect on flora beyond the pit boundary. It will destroy small localized "perched aquifers" that are essential to the survival of vegetation during the summer drought. The potential for widespread demise of vegetation is very real.• Boral is making sweeping statements based on personnel of dubious bias and unqualified knowledge, desktop surveys based on information that is decades out of date and drilling surveys from a neighbouring property considerable distance, on the other side of the road and topographically different. This is not responsible information gathering or relevant reporting.• The Nyoongar elders have identified this area as containing underground streams (page 22). But these have not been investigated. <p>Local resident(s) # 9</p>
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Environmental Factor	Summary of Issues Raised	Submissions received
Transport impact	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • Lack of detail on how increased truck traffic on Toodyay Road from this proposal will be managed; • Concern regarding the increase in volume of trucks using Toodyay Road and associated safety hazards; • Cumulative effect of additional truck traffic to vehicles servicing other industries in the area and also using Toodyay Road; • Inability of Toodyay Road to cope with existing traffic loads both in terms of insufficient lanes up hill and down hill as well as road surface quality; • Concern that traffic impact will extend into more hours of the day due to Boral's proposed work hours; • Concern that local roads will be used for haulage by trucks for non local deliveries (ie as "short cuts"); • Diversion of stormwater from entering Toodyay Road; • Concern projected traffic figures are underestimated, and do not take into account light vehicles (eg associated with site personnel) or ad hoc deliveries or traffic associated with the proposed Port Bouvard Gidgegannup townsite development. <p>Summary continued on next page....</p>	<ul style="list-style-type: none"> • Boral estimate of additional 12 trucks per hour. This equates to 24 vehicle movements. This considerably increases the heavy truck traffic on Toodyay Road. Boral base these figures on trucks carrying 30 tonnes at a time. •the real impact is heavy trucks descending Red Hill. This creates a significant bottleneck and safety issues. • Again the cumulative effect of Midland Clay Pit expansion, Hanson Quarry extension and new Boral Quarry will manifest itself by its dangerous consequences on the residential community, whose right to safe travel is being totally ignored. • The combination of accelerating downhill traffic, increased numbers of HEAVY vehicles (minimum 25 % increase depending on truck configuration), single lanes at the bottom of Red Hill, the rapid convergence of 2 lanes into a single lane on a step down hill sharp blind bend, is a recipe for disaster. We cannot believe that the authorities would consent to a significant increase in heavy vehicle movements on a road which is already overloaded, under maintained, constantly breaking down, has frequent serious and fatal accidents, without requiring the companies that cause this situation to make a significant contribution to the upgrade of services. • There is no mention of the entrance being constructed with a diversion drain to prevent stormwater entering Toodyay Road. • What allowance in the statistics has been made for the additional traffic movements attributable to employees and servicing personnel. The number of employees is not defined. • Boral are applying for business hours that commence at 5.00am six days a week. This will mean peak hour traffic volumes will affect the safety of residential Toodyay Road traffic from a very early hour each day. • No mention has been made of controls or instructions that will be given to truck drivers not to use local roads as "cut throughs" to the Great Eastern and Great Northern Highways. This is a significant nuisance to local residents and a danger. • ...Toodyay Road needs to be a four lane highway from Middle Swan to past the Resource area and we would request that Boral lobby the State Government to gain priority funding from Federal Government for this improvement. <p>Gidgegannup Progress Association Inc</p>

Transport impact	<p>From the previous page...</p> <p>A number of these submissions suggest that the Government needs to upgrade Toodyay road, preferably prior to any further development which may contribute additional traffic load, especially truck traffic. The additional issue of the lack of a truck arrestor bed on this road was also raised.</p>	<ul style="list-style-type: none">• Transport impacts - Road Safety<ul style="list-style-type: none">- traffic figures don't take into account the huge increase in vehicle movement planned from the Hanson quarry or from Red Hill Waste Disposal Site. The proposed "4%" increase from this operation will add to traffic problems on an already busy road. <p>Jane Brook Catchment Group</p> <ul style="list-style-type: none">• This section of the PER is short on detail and does not fully address the impacts of the cumulative effects of operating heavy vehicles (mostly long vehicles) along with those already operating to and from neighbouring locations along Toodyay Road, including Hanson Quarries, Midland Brick Clay Pit Operations, EMRC waste trucks and general traffic including other heavy and light transport.• The PER states that the increase in traffic is likely to be about 2% however the PER fails to address the cumulative effects of an increase in movements and traffic density in a short section of Toodyay Road.• The PER also does not provide adequate solutions for:<ul style="list-style-type: none">- crossing Toodyay Road with heavy, long and slow moving trucks & trailers out over Toodyay Road to travel down hill(60/66? Trucks per day)- travelling along Toodyay Road at <40 kph <u>downhill</u> in single file traffic causing impatience with other road users and potential for overtaking accidents/fatalities.- travelling along Toodyay Road at <40 kph <u>uphill</u> in single file traffic causing impatience with other road users and potential for overtaking accidents/fatalities• SPPA Recommendation: The section of Toodyay Road between Red Hill and Roe Highway in Midland requires upgrading to provide four(4) lanes being two (2) lanes up hill and two (2) lanes downhill with entry and exit slip lanes for the existing Hanson Quarry, the ERMC Red Hill Landfill Site and the proposed Boral Resources (WA) Gidgegannup (Red Hill) Quarry site.• Also no provision for a truck arrester bed (downhill) has been provided in the event of any vehicle loosing effective braking.• The PER does not provide adequate solutions for impact of the use of heavy transport (quarry trucks) using local roads as short cuts for quarry product transport & distribution (ie use of Roland Road, Stoneville Road, Bunning Road, not designed for heavy transport). Note at present Hanson Quarry trucks are using local roads and not main arterial roads to transport aggregate products. These local roads are not designed or constructed for heavy vehicle traffic.
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Transport impact	Refer to summary on previous pages.	<ul style="list-style-type: none">• SPAA recommendation: any heavy vehicle operating to or from the Boral Resources (WA) Gidgegannup (Red Hill) Quarry site shall be restricted to using main arterial roads and shall only be permitted to use local roads if making local deliveries. ie no vehicle is to travel through the local communities, but may only use local roads if the specific delivery is destined within that locality. Any breach of this requirement, will result in either substantial fines to both : (a) Boral Resources (WA) and; (b) the driver concerned. In addition, if the driver is found to be in repeated breach of this operation condition, then that person shall be banned from entering the Boral Resources (WA) Gidgegannup (Red Hill) Quarry site. Stoneville and Parkerville Progress Association Inc<ul style="list-style-type: none">• From conclusions: Traffic management of 160 000 truck movements per year of a limited direction and length, including the descent down Red Hill of fully loaded heavy haulage vehicles.• The proposal put forward by Boral Pty Ltd for the transportation of products states that 12 trucks per hour will occur, the days will have a duration of 13 hours for 5.5 days per week....which equates for a 48 week year to 41800 movements per year from the Boral Quarry alone. The Hanson quarry...intends to move three times the product...,combined total movements within the 10km stretch of Toodyay Road to Reid Highway intersection will be greater than 160 000 movements of heavy haulage vehicles, additional movement must also be of concern as the Hanson PER stated no consideration has been given for truck movements from ad hoc sales (private and other contractors) of product.• Currently to gain access to Great Northern Highway, Hanson trucks are using Campersic, Oakover and Hadrill Roads in Middle Swan, Herne Hill and Millendon to shortcut and circumvent heavy traffic and delays at the great Northern/Reid Highway intersection...These roads are not suitable, nor is it sustainable or best practice to transport product without upgrading, widening and resurfacing works to accommodate continual use of heavy haulage vehicles through a rural residential area road design has not taken into consideration for movements of heavy haulage vehicles.• Also Toodyay Road is barely able to cope with traffic at the moment. Increased truck movements on Toodyay Rd will lead to a greater danger for all road users.Local resident(s) # 2<ul style="list-style-type: none">• Extra truck traffic will cause further deterioration of Toodyay Road & increase the risk of head on collision in the single downhill lane section from the escarpment to the coastal plain.• This is a cumulative effect on Toodyay Road, so quoting small percentage increases is meaningless.• ... this Development should not be approved without an undertaking from Main Roads to upgrade Toodyay Road to a suitable standard.• ...issue is cumulative effect – road needs to be fixed now before any further traffic is allowed.Local resident(s) # 4
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Transport impact	Refer to summary on previous pages.	<ul style="list-style-type: none">• The total impact of trucks of 2% based on 2007 figures is irrelevant today. What is important and more concerning is the percentage increase in trucks. ...Do not allow the quarry to proceed until road infrastructure can accommodate another 24% increase in trucks.• The 24%increase of trucks is a major escalation to an already congested haulage road for trucks and passenger vehicles. Local resident(s) # 6• Boral estimate of additional 12 heavy vehicle movements per hour will increase the heavy truck traffic on Toodyay Road by 24%. Boral base these figures on trucks carrying 30 tonnes at a time....a truck towing 2 trailers is required to transport this weight. In effect, although it constitutes "one vehicle" it is a double length vehicle....Note only are the trucks "double length" (the equivalent of 2 single trailer trucks) but these will not be the only configuration of vehicle to transport material from the quarry. Boral will not restrict truck size or length. ...The total forecast hourly movement of 12 (6 each of in and out) is vastly underestimated. The reality will be much worse.• Again the cumulative effect of Midland Clay Pit expansion, Hanson Quarry extension and new Boral Quarry will manifest itself by its dangerous consequences on the residential community, whose right to safe travel is being totally ignored.• The combination of accelerating downhill traffic, increased numbers of HEAVY vehicles (minimum 25 % increase depending on truck configuration), single lanes at the bottom of Red Hill, the rapid convergence of 2 lanes into a single lane on a step down hill sharp blind bend, is a recipe for disaster. We cannot believe that the authorities would consent to a significant increase in heavy vehicle movements on a road which is already overloaded, under maintained, constantly breaking down, has frequent serious and fatal accidents, without requiring the companies that cause this situation to make a significant contribution to the upgrade of services.• A more detailed traffic assessment is required which considers the seasonality of output and specifically considers daily peak vehicle movements. In addition since the site is primarily a clay extraction site...the impact of clay trucks entering and leaving the site should also be considered when assessing the impact of traffic on Toodyay Road.This assessment may reveal that at certain times the capacity of Toodyay road to handle the additional traffic ix exceeded particularly if seasonality factors and clay extraction...are discussed.• ...any increase above 500 000 tonnes per annum will further aggravate traffic congestion on Toodyay Road.• Any development of haulage based industry in this location will cause significant impacts on local traffic due to the immediate proximity to existing hard rock quarry, clay quarries and waste disposal site. This proposal details an increase in heavy vehicle traffic of 25% onto an already overburdened road system. The existing road infrastructure currently struggles to manage the existing traffic loads.• The PER does not appear to have taken into consideration the increase in traffic from the proposed Port Bouvard Gidgegannup townsite development. BGC (Australia) Pty Ltd
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Transport impacts - transport of explosives	The submission(s) raised issues regarding the proposal with respect to: <ul style="list-style-type: none">• the safety of transportation of explosives to both quarries on Toodyay Road as well as storage of explosives on site.	<ul style="list-style-type: none">• From conclusions: Transportation of explosives and societal risk assessment strategies.• Serious consideration must be undertaken with the transportation of explosives to both quarries on Toodyay Road and storage of explosives on site. There is no mention of dialogue with the Department of Mines and Petroleum or Minister for Mines. Local resident(s) # 2
Environmental Factor	Summary of Issues Raised	Submissions received
Visual amenity	The submission(s) raised issues regarding the proposal with respect to: <ul style="list-style-type: none">• Concern regarding visibility of quarry and the "scar" it will leave Darling Scarp when viewed from the Swan Valley;• The proponent has undervalued visual amenity to residents locally and in Swan Valley• Insufficient detail and modelling of visual impacts;• Concern that rehabilitation will be inadequate in screening the quarry long term;• Concern that the quarry will be as visible as existing quarries on the Scarp;• concern regarding how the acoustic relief bund will be vegetated and whether this is permanent;• concerns regarding the visibility of stockpiles from Toodyay Road.	<ul style="list-style-type: none"> • This area is also on the flight path for incoming overseas, interstate visitors, presenting a visual blight. • Boral advises that the initial stages will need a "acoustic relief bund" to be constructed (page iv). Where is the bund to be sited, dimensions, will it be permanent and vegetated for concealment? Page xiii says it will be 8.5m high and be revegetated. Then p 72 (and repeated elsewhere) says it will be removed. Therefore, revegetation is unlikely. Other pages say that the bund could be 5m high if a large excavation was installed to house infrastructure. • The quarry will be significantly visible to residents to the north and northwest of the site. Who, suffering loss of amenity by Hanson activity, now will have their views compromised further (page v). Some of the quarry will be visible to the west. • ...the stockpile will be visible from Toodyay Rd. Levels provided in the absence of topographical maps conflict and indicate that the exposure will be greater than Boral estimates. • As exemplified from Hanson and other Boral re-vegetation efforts, rehabilitation is inadequate as the task of trying to grow plants on near vertical faces in thin soil and extreme weather is difficult at best. The view of neighbouring properties will be forever compromised. • Models are needed to show visibility from all aspects. • Should there not be a revegetation schedule and commitment to revegetate with endemic species. Will Boral be creating their own nursery for this purpose? <p>Gidgegannup Progress Association Inc</p> <ul style="list-style-type: none"> • View destroyed by seeing an ugly gaping hole on the darling Escarpment, caused by an operating quarry, totally at odds with the surrounding bush and vineyard landscape. Local resident(s) # 3 • Visual pollution ruining property values. ...it can be seen that the impact of the quarry will be considerably more than to just reduce property values but actually make some properties worthless in value. • ...visual pollution from a hugely expanded, working quarry. <p>Swan Valley Rate Payers and Residents</p> <ul style="list-style-type: none"> • Given that the site of the proposed quarry is located on the Darling Scarp adjacent to the Swan Valley, the visual amenity of the site is of high importance. • The visual amenity of the site is not considered to be a key factor in the PER, as indicated in the Table of Contents.

Visual amenity	Refer to summary on previous page.	<ul style="list-style-type: none">• The PER contains only four pages of explanation and one figure to document this critical issue and provide no supporting appendices that explain the methodology employed or the limited conclusions presented. Without such documentation it is difficult to thoroughly assess the visual amenity of the proposed operations and it is also difficult to benchmark or measure compliance in the future.• By providing inadequate documentation of the potential visual impacts of the Boral site and dismissing the view of the Scarp as a "background element" when observed from the Swan Valley to the northwest (Seen Area 3 description on page 89 and Figure 10), Boral does a disservice to its neighbours by treating a major issue as less than important.• The view corridor towards the northwest will create a light-coloured scar that will be easily observed from a significant portion of the northern Swan Valley winery/restaurant lands and from hundreds of homes in Avely, Ellenbrook and other town further towards the northwest. None of this is shown in Figure 10, as the western boundary of the figure only extends 7km from the proposed quarry.• The view line towards the north of the proposed development is of major concern, given that the WAPC has recommended western Gidgegannup as a potential site for the future O'Brien Township with more than 4000 people (WAPC, NE Perth Hills Settlement Plan – 2002 and Attachment 2).• The contents of the PER do not contain a thorough study of the visual impact of the proposed Boral quarry development. I recommend that a comprehensive visual impact study be completed and shared with the public, prior to reaching a decision point on a quarry development. Local resident(s) #10 <ul style="list-style-type: none">• Boral advises that the initial stages will need a "acoustic relief bund" to be constructed (page iv). Where, dimensions, permanent and will it be vegetated for concealment? Page xiii says it will be 8.5m high and be revegetated. Then page 72 (and repeated elsewhere) says it will be removed. Therefore, revegetation is unlikely. Therefore, the stark visual impact will continue. Other pages say that the bund could be 5m high if a large excavation was installed to house infrastructure. So what is the real outcome?• The quarry will be significantly visible to residents to the north and northwest of the site, who, suffering loss of amenity by Hanson activity, now will have their views compromised further (page v). Some of the quarry will be visible to the west. This is unacceptable.• ...the stockpile will be visible from Toodyay Rd. Levels provided in the absence of (honest) topographical maps (which have been asked for and not supplied) conflict and indicate that the exposure will be greater than Boral estimates.• As seen from Hanson and other Boral re-vegetation efforts, rehabilitation is inadequate as the task of trying to grow plants on near vertical faces in the soil and extreme weather is all but impossible. The view of neighbouring properties will be forever compromised. Local resident(s) # 9 <ul style="list-style-type: none">• We can see where Boral have been at the Gosnells quarries. The visual impact of those can be seen from the ocean. This proposal will not be any different. It will be blight on the landscape forever. Local resident(s) # 8
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Other Factors	Summary of Issues Raised	Submissions received
Alternative Options	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • preference for Boral to use an alternative existing quarry at Toodyay • preference for a site on already cleared land • preference for a site that can utilise rail instead of road transport 	<ul style="list-style-type: none"> • Flawed basis to be at this site. ...Alternative to avoid this disaster in the Susannah Valley. ...Boral do not have to quarry at this location. ...I suggest West Toodyay as a more environmentally acceptable area to quarry. Boral Quarries already have a quarry at West Toodyay, and have asked the government to engage in developing a rail head at West Toodyay to load the aggregates. • The benefits are that the local truck movements are all short haul and minimise damage to roads that were never envisaged to carry such loads as is the case not. The Darling Scarp will remain pristine for our grandchildren. No trucks are mingled into urban commuters each day. No trucks on Toodyay road or Roe Highway etc. Local resident(s) # 8 • Would prefer Boral's West Toodyay quarry be used instead with government assistance to develop a rail head at West Toodyay to load out material, and in doing so, preserve the natural assets we have in the Darling Scarp. Jane Brook Catchment Group • Suggest move quarrying operations to Toodyay where land is already cleared and where there are no Aboriginal Sites; and utilise rail transport. "This will avoid the damage to our Sites within Boral's Area and within Hanson's area, including the Darling Range itself which is a Site under the Aboriginal Heritage Act. It will protect the Sites, and the Natural Environment – kangaroos, all animals, birdlife, trees and shrubs and plants, all the Rock formations, and water courses and everything created since Time began, all of which is important and significant and Sacred to us. This proposal will also be much less disruptive to the people who use Toodyay Road, and all the roads to Fremantle. Future expansion will then be much less damaging and still supply the people of Western Australia with road-making material and other uses." <p>Swan Valley Nyungah Community</p> <ul style="list-style-type: none"> • My feelings on these projects are they should be carried out on degraded farmland or similar and the granite should be transported by rail. Local resident(s) # 2 • I believe the WA government should increase the area open to granite quarrying in the region and approve sites that do not lie near the Darling Scarp, which are easily seen by local communities. By encouraging materials companies to quarry further towards the East in relatively unpopulated, flat-lying areas surrounded by forest, many issues related to visual impact, dust and noise will be avoided. Local resident(s) #10 • Lack of consideration to alternative resources locations that may be more appropriate for the identified intended markets. • There is no justification provided in the document that adequately explains why Gidgegannup is a more suitable resource than their Morangup...site, which is an existing quarry and has access to rail freight. No mention is made in this document that this resource is currently being utilised. • There is no evidence provided in the document that the proponent has considered alternate resource locations to the north of Perth which would offer a more direct route to its intended market. BGC (Australia)

Other Factors	Summary of Issues Raised	Submissions received
Cumulative impacts of additional quarry	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • concern that Government is considering this proposal in isolation to impacts from existing industry in the area • impact of an additional quarry to the area, particularly re loss of native habitat, visual impact, increased pollution and road traffic • cumulative impacts of existing and future clay extraction at the site alongside the proposed quarry. 	<ul style="list-style-type: none"> • It is my view, that while this PER has been submitted independently in relation to a single mining operation, it should be assessed in consideration of similar operations already approved alongside the intended location. This is because an appreciation of the impact on the surrounding area can only be envisaged when a combined picture is illustrated. This PER is submitted to support the mining of 500 000 tonnes of granite per year. Next door (Hanson's) has just got approval to mine 1,500,000 tonnes (1.5Mt) per year. It could be considered negligent if this application was not considered with that perspective in mind. • Local resident(s) # 5 • Contemporaneous clay extraction from the site and its impact on the proposed hard rock Quarry activities. - The PER also states that clay extraction may occur on the site in the future by Midland Brick Company, the current land owner, however the contribution to dust from either existing clay extraction or future extraction has not been considered. Future clay extraction sites have not been identified and therefore the impact of this activity on the operation of the quarry cannot be assessed nor can the potential impacts of the two activities occurring contemporaneously. BGC (Australia) Pty Ltd • Now is the time to look at all heavy industries in the area, such as Boral, Hanson quarry and Delta Concrete and view them all together and revisit the legitimacy of their operations in their current locations. Now is the time to review and act, not have a piecemeal destruction of our environment bit by bit until there's nothing left to preserve. Local resident(s) # 3 • ...this area is situated on the Darling Scarp and is an environmentally and visually sensitive area with its impact on the Swan Valley and residential areas of Brigadoon and Gidgegannup. The Boral Granite quarry will become the latest of a series of Resource developments in this area, all having cumulative impacts on the Scarp. It is this cumulative impact that needs to be examined carefully. This Quarry together with the Hanson hard rock quarry, the Midland Brick clay pits and the ERMC waste facility will create an enormous contiguous precinct of extractive industry, which will result in Gidgegannup suffering the irreplaceable loss of a significant tract of scarp land bush and landscape. Together with a large footprint of processing infrastructure, it will erase and significantly reroute fauna migration routes. • We ...feel it is important for State Government to look at the development of the Scarp as an entity. Development from quarries and residential development is going to make an indelible imprint. We need to be planning for the future to address this problem, to seek resources away from this area and plan for alternative means of transport to bring the resources to Perth other than road. This is why we should no be approving quarrying for 50 or 100 years. We have no right to sell the future. <p>Gidgegannup Progress Association Inc</p>

Cumulative impacts of additional quarry	Refer to comments on previous page	<ul style="list-style-type: none">• This proposal combined with the expansion of Hanson's quarry will open up a large scar in the Darling Ranges that will be seen from much of Perth. The increase in visual, noise and dust pollution will increase because Hanson's intends to remove the ridge that currently hides their and Boral's quarrying from most of the Swan Valley.• Swan Valley Rate Payers and Residents• I am concerned that another quarry is being considered in the Red Hill/Gidgegannup area. The proposed site largely remnant bushland of a very high standard. This bushland contains significant flora and fauna and both are at high risk if clearing takes place. Areas such as this are becoming less common all over Perth and the Darling Ranges. <p>Local resident(s) # 1: Gidgegannup</p> <p>From conclusions:</p> <ul style="list-style-type: none">• longer term and more stringent criteria for study of endemic species has to be undertaken to correctly assess the impact of the 2 quarry footprints combined as this does have an impact on the area.• scoping comparatives of the 2 PER's to quantify impacts on the complete environment. Local resident(s) #2 <p>• Bora proposed quarry fills the "gap" between Hanson hard rock quarry and Midland clay pits, which together with the EMRC waste facility and Midland clay pit on south side of Toodyay Road, will create an enormous contiguous precinct of extractive industry which will result in Gidgegannup and the Perth area suffering the irreplaceable loss of an enormous tract of quality scarp land bush and landscape. Such a concentration of extractive industry is an unfair burden for a single Council and district to bear.</p> <p>• Except for John Forrest NP, the area being quarried (or proposed) constitutes one of the last pristine undisturbed areas of bushland in the vicinity of Perth. Local resident(s) # 9</p>
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Other Factors	Summary of Issues Raised	Submissions received
General comment	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • concern known conservation value of area is being ignored; and • concern that the local environment, particularly Susannah Brook be protected. <p>The Stoneville and Parkerville Progress Association commented on the constructive nature of the stakeholder consultation process and the opportunity that is available through this process as well as through good planning and resourcing, to ensure operations can exist with minimal / reduced impacts.</p>	<ul style="list-style-type: none"> • Existing and former environmental officers have emphasised the importance of maintaining the Darling Escarpment as a valuable conservation area (EPA Bulletin 510, April 1991). An earlier 1990 proposal by a quarry company drew attention to the fact that quarrying on top of the Escarpment was environmentally unacceptable and noted that in their view the "priority Extraction Area" at Red Hill and Herne Hill would never receive expansion approval. Local resident(s) # 7 • The community consultation phases undertaken by Boral Resources (WA) Pty Ltd, together with their consultants (GHD), have proven to be very open and transparent processes resulting in a great deal of confidence and trust being developed between the company and the local community representatives. • The current proposal to construct and operate a granite stone quarry located at Toodyay Road, Red Hill to produce up to 500 000 tonnes of quarry product per annum for a period of approximately fifty (50) years duration also has similar issues, however with proper consultation, good planning and adequate resourcing, this project should be able to deliver better outcomes acceptable to the whole community. At present a real opportunity exists to ensure that any proposed operations can exist with minimal or reduced impacts. • This review undertaken by the Stoneville & Parkerville Progress Association Inc (SPAA) has carefully considered the potential effects and planned management responses relating to the construction and operation of another Stone Quarry operating in close proximity to other major operations, including, Midland Brick, Hanson Quarries, Easter Metropolitan Regional Council Waste Treatment – Landfill Facility; local communities, transport operators, commuters and other users. This localised region has a unique setting comprising of some of the most delicate and historically significant cultural features enveloped into the surrounding landscape. As well as protecting this area, the water course of the Susanna Brook must also be further protected from all man made threats. Stoneville and Parkerville Progress Association Inc
Other Factors	Summary of Issues Raised	Submissions received
Impact of changes to topography	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • impact on wind and rainfall patterns by altering the top of the escarpment; and • need for independent studies. 	<ul style="list-style-type: none"> • Wind problems (and possible impacts on rainfall distribution) by destroying the top of hill can have a devastating effect on Easterlies wind patterns and affect rainfall; this has happened in other parts of the world. <p>Swan Valley Rate Payers and Residents</p> <ul style="list-style-type: none"> • Nobody can predict the effect on the wind and rain of altering the topography of the top of the escarpment. • If the wind and rainfall patterns change due to the removal of the top of the escarpment, what are the consequences on the local flora and fauna? • We need a thorough in-depth study carried out, no paid for by mining companies but done by an independent body, and no just quick, sketchy look at the surrounding environment as has been done to date. • Local resident(s) # 3

Other Factors	Summary of Issues Raised	Submissions received
Level playing field	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none">ensuring consistency in the application of environmental conditions for like industries. <p>This issue has been raised by one of Boral's local competitors.</p>	<ul style="list-style-type: none">The dust assessment shows that the NEPM 24 hours PM10 may be exceeded at the property boundary and the PER states that the "NEPM standards are not applicable" because the receivers are the Red Hill Disposal Facility and the Hanson Quarry which are both industrial sites and are sources of dust emissions. The BGC Voyager II Quarry has a set level at the boundary which is not allowed to be breached at any time. ...Ambient dust standards should be consistent for all comparable industry...Noise modelling shows that there will be exceedences prior to the plant being 20m below natural ground level. BGC Voyager II Quarry could not operate until the plant was 30m below natural ground level. There should be consistency in conditions imposed on all quarry operations.[re noise measurement]...To ensure consistency with recent quarry approvals there should be the same level of monitoring required of future proposal, therefore similar conditions should be imposed on the Gidgegannup Granite Quarry Proposal.The proposed offsets for the Gidgegannup Granite Quarry proposal are significantly less than they are for the BGC Voyager II Quarry...The PER details strategies for the management of topsoil including that "topsoil will be stockpiled and respread over the batter slopes of the Quarry to encourage rehabilitation after completion of each phase". The condition imposed on the BGC Voyager II Quarry,...details that "the proponent shall not stockpile overburden and topsoil onsite except in exceptional circumstances"...This condition has been imposed in response to the view that stockpiling has the potential to decrease endemic native seed viability. <p>BGC (Australia) Pty Ltd</p>

Other Factors	Summary of Issues Raised	Submissions received
Life of quarry	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • presence of quarry impacting on future planning and development of the surrounding area • concern re approval being granted for 50 years • concern local conditions will change over the life of the approval 	<ul style="list-style-type: none"> • The proposal presented in the PER is of great significance to the local area for a number of reasons. Primarily this is due to its long term nature. If the quarry is approved it will significantly impede further development on neighbouring land holdings, possibly for the next 50 years, due to the restrictive planning guidelines for developments in the vicinity of quarries. <p>BGC (Australia) Pty Ltd</p> <ul style="list-style-type: none"> • It is not entirely clear how many years this application is being made for. ...The GPA would certainly not support an approval for 50 years. We believe that approvals for Quarrying should not be granted for more than 10 years at a time. Who is to say after 10 years, how environmental, residential, climatic conditions will have changed.We only support an approval for 10 years, after which time conditions can be amended if needed. <p>Gidgegannup Progress Association Inc</p> <ul style="list-style-type: none"> • It is simply unacceptable that a license be granted for 50 years. This gives the proponent too much, and makes no provision for changing climate and environmental priorities. There is no incentive to be a good neighbour. Local resident(s) # 9 • 25 million tonnes at half a million per year, works out to be more than 50 years of Quarrying! The first 20 years is a staged increase in production, so it will actually be longer. ...Lets not kid anyone that this is just a short term project. IT is around half of the proposed quarry life of the Hanson PER, but no less of a disaster. Do not permit this proposed quarry. Local resident(s) # 8
Other Factors	Summary of Issues Raised	Submissions received
Lifestyle impacts	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • Impact on the "passive" enjoyment of nearby regional parks; and • Visual, noise and dust impacts on residents and tourists of the Swan Valley. 	<ul style="list-style-type: none"> • Impacts onto CALM Darling Range Regional park, hindering passive enjoyment of the area. • Incompatible with Swan Valley lifestyle. Who wants to drive to the Swan Valley with friends for a leisurely lunch and wander around the various art galleries, wineries, and breweries etc, accompanied by a noise sounds and dust pollution from an operating quarry which is clearly visible from most areas of the Swan Valley? <p>Swan Valley Rate Payers and Residents</p>
Other Factors	Summary of Issues Raised	Submissions received
Location	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • Concern location listed in PER is misleading and as a result public consultation may have missed relevant local residents. 	<ul style="list-style-type: none"> • This location is not at Gidgegannup. Gidgegannup is at least 12km away. The location is in the area of existing Red Hill operations, such as that of Hanson's and the Red Hill landfill site. The location provided in the PER is misleading. This could be a significant point, if the area of public consultation was centred around Gidgegannup as a result of this locale quote in the PER, when in fact those most significantly effected live in the areas Herne Hill and Red Hill. Local resident(s) # 5 • The location of the Gidgegannup proposed granite quarry is no 60km ENE of Perth. This statement is incorrect. The quarry is located, according to UBD Perth 2008, within 30km radius of Perth CBD. Local resident(s) # 6

Other Factors	Summary of Issues Raised	Submissions received
Overall objection to the proposal	<p>Of the 21 submissions received, 8 raised an overall objection to the proposal. This included the traditional owners, a local catchment group, a local rate payers association and 5 local residents.</p> <p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • Environmental impacts of both the individual proposal as well as cumulative impact of another quarry, either not properly defined and/or underestimated; and • Need to protect the natural environment and cultural heritage of both the site itself and the Darling Escarpment. 	<ul style="list-style-type: none"> • General opposition to the proposed Quarry at this location, citing responsibility to Ancestors, current and future generations to protect and look after the Land and all that goes with it....including Susannah Brook...and the area of the proposed Quarry. <p>Swan Valley Nyungah Community</p> <ul style="list-style-type: none"> • Opposed to another quarry in this area of the Darling Range. Proposal cannot be viewed in isolation. Concerned about cumulative impact of industrial activities already existing in the area. <p>Jane Brook Catchment Group</p> <ul style="list-style-type: none"> • The Swan Valley Ratepayers' and Residents' Association is deeply upset by the addition of a new hard rock quarry which will effectively move quarrying back into dominance over the Swan Valley. • So ever increasing quarrying on the Darling Scarp is in conflict with the need to protect Perth's water supply and Perth's reputation as a clean and beautiful city. <p>Swan Valley Rate Payers and Residents</p> <ul style="list-style-type: none"> • I would like to raise objection to the granting of a licence to Boral Resources (WA) Ltd for the extraction of granite and quarry products from their proposed site at Red Hill and partially in the locale of Gidgegannup. • The objection I raise is on the basis that 1 quarry has already "slipped under the radar" with very little community consultation occurring. This proposal will add impacts to the already compounding issues relating to the Hanson Quarry.I believe the combined area on Red Hill mining 2/5mtpa from the escarpment, in an area known to have continual easterly wind conditions, no true analysis of the alpha particulates physical properties, the heavy haulage of product and the use of water for dust suppression and product watering will have major health and societal risk in the future. <p>Local resident(s) # 2</p> <ul style="list-style-type: none"> • The long established tradition of quarrying on the Darling Escarpment has been environmentally unacceptable for decades. • I strongly object to the establishment of any new and/or any expansion of existing quarries on the Darling Escarpment and expect the EPA to advise the Minister that a timeframe should be established to discontinue all quarrying on the Escarpment and establish another timeframe for the acceptable rehabilitation of abandoned quarries to be compatible with surrounding natural vegetation. <p>Local resident(s) # 7</p> <ul style="list-style-type: none"> • This...response to the Boral proposed quarry can be generally put as being against it in many respects. • ...the proposal should be refused on the grounds that the environmental impacts on the area are too great and are unacceptable. • The main real concern I have is a more general and devastating one....Why is the Government continuing to develop extractive industries on an area of high Natural heritage value so close to the Perth Metro area? <p>• Local resident(s) # 8</p>

Overall objection to the proposal	Refer to comments on previous page	<ul style="list-style-type: none"> • We are ratepayers and landowners in Gidgegannup and wish to express our opposition to the proposed Quarry and cite our concerns. • From the conclusion: it is unconscionable that large tracts of pristine bush on the doorstep of Perth be destroyed, along with their fauna populations. This quarry will have significant adverse affect on the residential community, both on their amenity, land value and their right to travel safely on local road. Perth has a precious natural resource at its doorstep. <p>Local resident(s) # 9</p> <ul style="list-style-type: none"> • It is my opinion that the submitted Boral request for approval for the Gidgegannup granite quarry should be denied. This suggestion also reflects my view that the proposed development is located near a growth region earmarked for future population expansion and housing development. • (from the conclusion) Boral's request for the approval of the proposed Gidgegannup quarry should be denied. The submitted PER provides inadequate evidence that the local environment will not be adversely impacted by development. In addition parts of the report are inaccurate and do not provide enough data for the establishment of environmental baselines for future measurement of corporate performance. <p>Local resident(s) #10</p>
Other Factors	Summary of Issues Raised	<p>Submissions received</p> <p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • lack of clarity over ownership within Boral re the various lots; and • who will be responsible for impacts on the local environment and concern no-one will take responsibility. <p>Gidgegannup Progress Association Inc</p> <ul style="list-style-type: none"> • The actual current and proposed ownership of the Lots delineated for the proposed quarry and surrounding area is not clear in this report. • It is not clear who will be the responsible body should there be impact on Susannah Brook. There is already impact on Susannah Brook from the existing Midland Brick area. It needs to be absolutely clear who is the responsible body regarding contamination of this water course, Boral or Midland Brick. <p>Local resident(s) # 4</p>

Other Factors	Summary of Issues Raised	Submissions received
Planning approval	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none">Impact of the proposed quarry on future development earmarked for the area. <p>The City of Swan noted that quarrying is a permitted use within the zoning of the site but will require development approval. The City declined to provide technical comment so as not to prejudice their own approval processes.</p>	<ul style="list-style-type: none">The site is zoned "resource" in the City of Swan Local Planning Scheme 17.The proposed use defined as "industry – extractive" is a permitted use in that zone.The proposal will require planning approval under Clauses 4.3.4 of the Swan Local Planning Scheme 17 and the City will require notice of the development be given in accordance with the requirements set out under Clause 9.4 of the Scheme. Through this process the City will receive input from various stakeholders to consider in its assessment.No technical comment provided as any comment made by the City prior to the finalisation of the above process may prejudice the outcome of the Council's assessment of a future Development Application <p>City of Swan: Manager of Statutory Planning</p> <ul style="list-style-type: none">The Perth metropolitan area is rapidly growing towards the hills. The WAPC has earmarked portions of the Gidgegannup area, near the proposed quarry, for future housing development. The approval the Boral Gidgegannup granite quarry would impact significantly on any future development in the area towards the north and northwest of the Boral site. <p>Local resident(s) #10</p>

Other Factors	Summary of Issues Raised	Submissions received
Quality of PER	<p>Of the 21 submissions raised, 14 raised concerns regarding the quality of the PER document or sections within the document.</p> <p>In particular the submissions raised issues regarding the quality of the document with respect to:</p> <ul style="list-style-type: none"> • Repetitive, inconsistent and contradictory presentation of information; • Technical inadequacy of, and errors within, the fauna report in particular; • The report not being in a format that is easy to read, including language used; • Concern regarding applicability and limitations of desktop studies, especially where data from other sites is used; • Concern reports from other sites are flawed and therefore provide misleading information on which to base assessment; • Concern regarding limited site specific information, eg groundwater; • The need for site specific research; and • Responsibility of proponent to undertake site specific research. <p>Summary continued on next page...</p>	<p>contradictory presentation:</p> <ul style="list-style-type: none"> • Page I, 7 says Boral will operate Monday to Friday 5am to 6pm and on Saturdays "morning to early afternoon" (vague description), but MAY seek consent to work Saturdays to 6pm "under exceptional circumstances" (not defined) and "possibly dispatch on Sundays". Then page xiii ...says the processing plant will work 7am to 7pm Mondays – Saturdays and blasting 7am – 6pm Mondays- Saturdays. The hours are too long , and what are we supposed to believe? • If page v says "overall" traffic impact will be approx 3.9%, then page xiii says it will be a "minor increase 2%. • Page vi says 2 indigenous sites will be directly impacted by the proposed quarry, page xv says 1. The list goes on. Local resident(s) # 9 <ul style="list-style-type: none"> • There is no existing quarry...The PER text gives the impression that the proposal is an expansion of Boral's quarrying operation at the site. THIS IS NOT THE CASE. As described in the PER, there are other division and sections of Boral that are using the site adjacent to the proposed area, but there are no hard rock quarries. I see this as mitigation or cover up of the significance of the proposal. • Flawed report offered in support. ...The use of Hanson report (Appendix D) on habitat is flawed. The report is part of an attempt by Hanson to misrepresent the true nature of their environmental impacts on the ecology of the are of their PER proposal. The area that is reported, is around Strelley brook which is west of the PER area by some distance. The area is about a kilometre from the Boral proposed PER site. The habitat is totally different at the proposed Boral site than the area of the report. Thus this Report is not RELEVANT. It should not be considered as supporting evidence for this PER. It is evidence that Boral is trying to introduce false and misleading data into their PER to create the impression that the quarry will not affect our environment. <p>Local resident(s) # 8</p> <ul style="list-style-type: none"> • The PER is described by the submitter as "repetitive, fragmented and contradictory presentation" and the submitter expresses frustration at the use of "potential" impacts and claim that "it is simply not necessary to make these statements that are nothing more than an attempt to conceal the obvious". • From the conclusion: The PER document is poorly assembled, repetitive and contradictory. It is based on assumptive and generalised desktop information that bears little relevance to on site realities. <p>Local resident(s) # 9</p> <ul style="list-style-type: none"> • This PER document has been presented in a form that is not easy for the reader to comment upon. It is repetitive, inconsistent and contradictory. • There are phrases such as "potential impacts", when it is quite clear they are actual impacts. • Desktop studies and assumptions have been made, together with extensive use of what appears to be unsubstantiated material. • We would suggest that a much more rigorous document and basis for argument needs to be produced before we could support any approval for the quarrying of this area. Gidgegannup Progress Association Inc

Quality of PER	<p>Following from summary on previous page:</p> <p>Site specific aspects for which submitters considered there was limited or no data; inadequate assessment and/or conflicting information include:</p> <ul style="list-style-type: none"> - existing habitat; - flora and fauna; - groundwater; - acid sulphate soils; - dieback; - Carnaby's Cockatoo; - stormwater management; - site location details; and size of resource and rate of extraction. 	<ul style="list-style-type: none"> • Conduct studies specific to the location concerned. • There is heavy reliance upon consultative reports that do not apply to the PER location. • ...there is a distinct lack of reference to current and specific data. In particular, that of climatic wind pattern information and recent findings related to the specific health effects of granite dust; properties such as its physical structure and alpha radioactivity emissivity. • The site deserves its own analysis from which fauna, floral and hydrological information can be ascertained. • An anomaly may exist in the PER when predicted water usage is made....the Boral figures is way in excess of the Hanson usage which is extracting three times as much product. What is the real situation? <p>Local resident(s) # 5</p>
		<ul style="list-style-type: none"> • Considerable repetition of topics in various sections of the report... • Re Stakeholder consultation... Quite a lot of padding out and repetition of events & communications in the way it is recorded and tabulated <p>Local resident(s) # 4</p> <ul style="list-style-type: none"> • A desktop assessment of groundwater resources is limited. One would have expected that ground drilling would have been required to model the aquifer behaviour. Desktop studies are more applicable to concept studies not to full blown PER. • A desktop assessment and a limited field survey verifying the desktop was restrained in assessing flora and vegetation.More field surveys over different seasons throughout a year should be undertaken to obtain a comprehensive study of flora and vegetation. A random two days over two years field study, on in the middle of winter the other middle of spring, is inadequate because there are yearly climate variables with flora and vegetation. Local resident(s) # 6 • A review of the WAPC Planning bulletin No 64 suggests (page 19) that the site proposed for quarrying has no risk of acid sulphate soils. Has there been any on site soil sampling to "confirm this"? No. This is not acceptable. • A desktop survey by GHD to assess hydrology and groundwater resources has been conducted. Has there been any actual on site testing to confirm the veracity of this information? • A desktop survey method was used to assess the flora of the site (page 27) which was then "assessed" according to information dating back to 1980. We query the relevance of this and ask why a comprehensive on site survey covering several seasons was not undertaken to provide up to date information. • Boral have been planning a quarry since...1998 and subsequent new studies in 2004. This more than adequate time to conduct high quality on site surveys but this opportunity was not taken. Rather it appears that only two field flora survey s were undertaken on is spring and on in winter...This overlooks the diversity and spread of plant flowering that occurs throughout the remainder of the year, particularly during summer and autumn.

Quality of PER	Refer to summary on previous pages.	<ul style="list-style-type: none">• A search of the DEC database has led Boral to believe that no Threatened Ecological Communities exist on the site. No on site investigation has been undertaken.• No formal assessment to determine the presence of Dieback on site has been undertaken• A level 1 field survey of indeterminate length by GHD of fauna present on the site was conducted. A more in depth survey was not required as the results of the Hanson survey done in 2007 (which we considered to be inadequate in length and sampling) were considered applicable to the Boral site and therefore a level 1 survey (even briefer) was considered more than adequate (5.9.1). A look at the table of species (pages 38-39) shows the survey to be superficial and the species observed to be indicative of a brief visit only, and perhaps at a time when fewer animals were at large.• As a result of the Hanson survey (based mainly on desktop information) no trapping was considered necessary (page 39) which confirms that the fauna survey undertaken was cursory at best.• Impact on Carnaby's Cockatoo is still a very serious cumulative effect as development increases in the area. The Carnaby's Cockatoo Report in Appendix C only covers the area of the quarry pit and stockpiles. It does not cover at all potential feeding and breeding disruption from noise, excavation and pit operations in the broader surrounding areas to the North owned by Midland Brick.• The safe routing of stormwater and contaminated water is based on the premise that shatter zones and preferred flow paths will not be encountered and are unlikely because this phenomenon did not occur at the Hanson Quarry (page 56). This assumptions sidesteps the responsibility to undertake on site research.• Statement made in Summary or Proposed management – "Stormwater will be diverted to onsite clay pits to contain sediment on site." This is unsatisfactory as clay pits have lead to Susannah Brook in the past.• Gidgegannup Progress Association Inc<ul style="list-style-type: none">• A review of the WAPC Planning bulletin No 64 suggests (page 19) that the site proposed for quarrying has no risk of acid sulphate soils (page 19). Has there been any on site soil sampling to "confirm this"? No. This is not acceptable.• A desktop survey by GHD to assess hydrology and groundwater resources has been conducted (page 19). Has there been any actual on site testing to confirm the veracity of this information?• A desktop survey method was used to assess the flora of the site (page 27) which was then "assessed" according to information dating back to 1980 (nearly 30 years old). We query the relevance of this and ask why a comprehensive on site survey was not done to provide valuable updated information.• Boral have been planning a quarry since...1998 and subsequent new studies in 2004. This more than adequate time to conduct high quality on site surveys that set a benchmark for currency and validity that is based on sound testing practices. It is disappointing that the opportunity for unique on-field research presented by such a significant lead time has been squandered.
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Quality of PER	Refer to summary on previous pages.	<ul style="list-style-type: none">• DEC database (no on site survey) have led Boral to believe that no Threatened Ecological Communities (TECs) exist on the site. Only a thorough investigation on-site would prove this. ...The DEC database is assumptive and generalised.• No formal assessment to determine the presence of Dieback on site has been undertaken• A level 1 field survey of indeterminate length by GHD of fauna present on the site was conducted. A more in depth survey was not required as the results of the Hanson survey done in 2007 (which we considered to be inadequate in length and sampling) were considered applicable to the Boral site and therefore a level 1 survey (even briefer) was considered more than adequate (page 38). ...A look at the table of species (pages 38.39) shows the survey to be superficial and the species observed to be indicative of a brief visit only, and perhaps at a time when fewer animals were at large.• As a result of the Hanson's survey (based mainly on desktop information) no trapping was considered necessary (page 39) which confirms that the fauna survey undertaken, was cursory at best.• The safe routing of stormwater and contaminated water is based on the premise that shatter zones and preferred flow paths will not be encountered and are unlikely because this phenomenon did not occur at the Hanson's Quarry (page 56). Again assumptions made to sidestep the obligation for responsible on-site research.• Local resident(s) # 9• Various studies (in Appendices) are not consistent in the areas studied – varies from the 42 hectare quarry area itself to the broader "proposed Boral Resources (WA) Ltd project footprint" to the full area owned by Midland Brick Ltd which is in the order of 450 hectares. This should be addressed before any approval of the new development requested.• Local resident(s) # 4• From conclusions: Inconsistencies with working hours Executive Summary vs Consultative Report.• ...I have noted inconsistencies and a general bias as to the proposal by Boral to extract .5mtpa of product from the site. Some information is outdated and timing of studies being carried out over the course of a quantified time period of a month rather than a coverage of a full year.• From conclusions: The address of the quarry given on the PER in my opinion is misleading and does not reflect the actual location of the area.• Local resident(s) # 2
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Quality of PER	Refer to summary on previous pages.	<ul style="list-style-type: none">• Lack of clarity, uncertainty or a contradiction regarding the rate of extraction<ul style="list-style-type: none">- The PER describes a proposal consisting of a 28ha quarry to be mined at a maximum rate of 500 00t per year. This is not consistent with information found elsewhere in the document...In appendix A of the PER ...the project is described as a quarry that will reach a depth of 100m below ground level and extract 9M tonnes of rock over 10-12 years (figure 1 – proposed quarry site). This equates to an annual extraction from year on of operations of between 750,000 and 900,000 tonnes. Based on the information contained in the report and as the proposal includes a significant ramp up period during the initial years, following start up, annual output would be significantly more than this at the end of the period. Section 2 of the PER however contradicts this and states that the annual output will ramp up to a maximum of 0.5M tonnes per annum. This inconsistency is highly significant as the EPA has been asked to assess the environmental impact of a quarry operation with an annual output of 0.5M tonnes. Clearly the environmental impacts ...will be significantly less than impacts associated with a quarry producing in excess of 1.0M tpa.• - ...there is an obligation of the proponent to transparently state what are its plans in respect to the trajectory of output levels over time.• Ambiguity regarding the size of the resource<ul style="list-style-type: none">- The inconsistencies in the document are not limited to the rate of extraction; resource volume has also not been clearly defined. ...Section 2 of the PER ...states that the resource is finite and at a consumption rate of 0.5M tpa the quarry will have a 50 year life. This indicates a total resource of 25M tonne... in Appendix A and Section 2 of the PER however describe the quarry as having an area of 28ha and a maximum depth of approximately 100m...Based on this area and depth, the actual available volume of resource, allowing for pit layout is approximately 222M m³ which equates to approximately 50M tonnes, potentially double the yield that is the subject of the PER assessment process.• Insufficient detail regarding the operation of the quarry and seasonality factors which will impact on traffic and air and ground emissions.• BGC (Australia) Pty Ltd• Throughout the PER it is very difficult to ascertain specifics. The language does not seem to give validity to what is being reported on. The non committal terms used when assessing potential risk event outcomes does not provide the reader with the confidence that Boral have understood the consequences of their intended operation. Local resident(s) # 5
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<p>Quality of PER</p> <p>- Fauna report inadequacies and quality of report</p>	<p>Refer to summary on previous page re issues regarding the overall quality of the PER.</p> <p>This submission by the Office of the EPA's Terrestrial Ecosystems Branch provides comments regarding technical information within the fauna report.</p>	<ul style="list-style-type: none">• Please note that TES provided advice on fauna issues in the draft Scoping Document...indicating the poor quality and inadequacy of that document. Some of the errors in the draft Scoping Document which were commented on in that earlier advice have not been corrected and have been included in the current PER. ...Specific comments on fauna issues are provided below. Please note that these comments only address the technical standard of the report and do not consider the likely impact of the proposal if implemented on the fauna of the area.• PER Section 5.9.2 Table 11<ul style="list-style-type: none">- Brown Honeyeater is given both its specific name and that of the Singing Honeyeater- Golden Whistler is given the specific name of the Rufous Whistler plus the name of another unspecified species- Species names should not commence with a capital letter.• PER Section 5.9.2 Table 12<ul style="list-style-type: none">- Species names should not commence with a capital letter.- The White-bellied Sea-Eagle is a coastal marine species and not present in the Darling Scarp – it should be deleted from the list.• PER Section 5.9.4<ul style="list-style-type: none">- Some statements given here in relation to Carnaby's Cockatoo are in variance with statements given in Appendix C particularly in relation to the breeding season of the species. Correct data should be included and incorrect statements amended.- The Black-faced Cuckoo shrike and Straw-necked Ibis are incorrectly ascribed a marine status – they should be deleted from this list of migratory marine species.• PER Section 5.9.8<ul style="list-style-type: none">Statements that habitats are “considered to be well represented in the nearby ”and “considered likely that this habitat occurs” are speculative and do not give any level of certainty. Information needs to be represented to show with certainty that habitats do occur in areas outside the project area.• PER Section 5.9.111 (see comments on Appendix B section 4.5.3 below)• Appendix B Flora & Fauna Report: Section 2.10.2<ul style="list-style-type: none">- ... (the Agreement between Government of Australia and the Republic of Korea on the Protection of Migratory Birds) is missing from the list of agreements<ul style="list-style-type: none">- The White-bellied Sea-Eagle is a coastal marine species and not present in the Darling Scarp – it should be deleted from the list.
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<p>Quality of PER</p> <p>- Fauna report inadequacies and quality of report</p>	<p>Refer to summary on previous pages.</p>	<p>Section 4.5 Table 9</p> <ul style="list-style-type: none">- Black-faced Cuckoo shrike is incorrectly ascribed marine status- Brown Honeyeater is given both its specific name and that of the Singing Honeyeater- Golden Whistler is given the specific name of the Rufous Whistler plus the name of another unspecified species <p>Section 4.5.1</p> <p>Some statements in relation to significant faun species are misleading or incorrect.</p> <ul style="list-style-type: none">- The statement that Baudin's Cockatoo "is unlikely to regularly use the survey area" is not true. This species is a regular seasonal feeding visitor to the area- Black-faced Cuckoo-shrike – is not a marine species- The Straw-necked Ibis is not a migratory species <p>Section 4.5.3</p> <ul style="list-style-type: none">- statements that "This species should be common in the nearby John Forrest National Park" is speculative. Statements need to be based on scientific certainty, not speculation.- The status of the two unidentified millipede species needs to be addressed. Are they unnamed species, and why were they not identified? Their significance in the project area needs to be determined and a clear statement that they occur outside the project area needs to be provided. <ul style="list-style-type: none">- The statement that "No land snails were recorded form the survey area, however, this is considered to be common for areas containing granite outcrops" is not correct. A number of land snail species are known to occur on granite outcrops in the Darling Range... <p>Section 4.5.6 and 4.5.7</p> <ul style="list-style-type: none">- In regard to linkages and impacts on fauna it is stated that the project area is surrounded by continuous vegetation. The tenure of these areas needs to be taken into consideration as it is likely that other proposals may be located in these areas. <p>Appendix C Table 26</p> <ul style="list-style-type: none">- This table is of a very poor professional standard and lacks understanding of both habitat preferences and distributions.- Two of the frog species (Squelching Froglet and Sand Frog) are not know to occur in the Darling Scarp, but are known from sands of the coastal plain. They should be deleted from the list which should only include species that are likely to occur based on known habitat preferences. The Yellow-rumped Pardalote does not occur west of the Fitzgerald River area..., the Antarctic Prion is a marine species, <i>Lerista elegans</i> is a coastal plain sand inhabiting species (in the Darling Range it is replaced by the similar <i>Lerista distinguenda</i>) and should be deleted from the list, <i>Lerista lineopunctulata</i> does not occur in the Darling Range, some explanation needs to be provided for the inclusion of two subspecies of <i>Strophurus spinigerus</i> (it is unusual for two subspecies to occur together).
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Quality of PER - Fauna report inadequacies and quality of report	Refer to summary on previous pages.	<p>- A number of species included in this list (especially birds) lack the inclusion of accepted common names; these should be included. Appendix D</p> <p>This appendix was prepared for a different project to the west of the current project area. Its use here is of questionable value as it has been deemed by the EPA to not provide sufficient clarity and certainty that habitats occur in protected areas outside the project area. The EPA is likely to require proof habitats in the current project are occur in secure areas outside.</p> <p>Appendix E stakeholder Consultation</p> <p>Page 26 The statement that "All surveys are reviewed by the EPA conservation branch to check that the survey complies with appropriate methodologies and procedures" needs to be amended. An EPA conservation branch does not exist.</p> <p>Page 27</p> <p>Why is it inferred that Carnaby's Cockatoo will not roost in trees occupied by other species.</p> <ul style="list-style-type: none"> • Office of the EPA: Strategic Policy and Planning Services Division, Terrestrial Ecosystems Branch
Other Factors	Summary of Issues Raised	Submissions received
Stakeholder consultation	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • some local residents not being aware of proposal or involved in consultation process; and • lack of consultation of local residents. 	<ul style="list-style-type: none"> • Ensure all residents surrounding the affected locale are consulted. • I have been totally unaware of the Boral intentions until brought to my attention through a chance meet while walking the adjoining National Forest. • The PER provides details relating to consultation with local groups and residents, however, these details do not seem consistent with the view of residents that I have talked to in the surrounding area. This is an area well within a 3km radius of the intended location. <p>Local resident(s) # 5</p> <ul style="list-style-type: none"> • ...I have not been able to respond in more detail as I was alerted to this proposal by a neighbour who had concerns in relation to the lack of consultation and how this proposal has immediately followed the Hanson application... <p>Local resident(s) # 2</p>
Other Factors	Summary of Issues Raised	Submissions received
Tourism impacts	<p>The submission(s) raised issues regarding the proposal with respect to:</p> <ul style="list-style-type: none"> • impact of quarry, particularly visual, on Swan Valley tourism 	<ul style="list-style-type: none"> • Negative effect on tourism in the Swan Valley. <p>Swan Valley Rate Payers and Residents</p>

3.0 RESPONSE TO SUBMISSIONS

Boral's response to the issues raised in the submissions is provided in the following sections:

- 3.1 Aboriginal Heritage
- 3.2 Air Quality
- 3.3 Flora and Fauna
 - 3.3.1 Flora and vegetation
 - 3.3.2 Fauna
 - 3.3.3 Fauna – Carnaby's Cockatoo
- 3.4 Noise and vibration
- 3.5 Pollution
 - 3.5.1 Pollution – environmental monitoring
 - 3.5.2 Pollution – existing environment
 - 3.5.3 Pollution – light pollution
 - 3.5.4 Pollution – stockpile management
- 3.6 Solid waste – drinking water supply bottles
- 3.7 Surface and Groundwater water impacts
 - 3.7.1 Groundwater
 - 3.7.2 Surface water impacts – discharge of excess stormwater
 - 3.7.3 Surface water impacts – water supply
- 3.8 Transport impacts
 - 3.8.1 Transport impacts – transport of explosives
- 3.9 Visual amenity
- 3.10 Alternative options
- 3.11 Cumulative impacts of additional quarry
- 3.12 General comments
- 3.13 Impact of changes to topography
- 3.14 Level playing field
- 3.15 Life of quarry
- 3.16 Lifestyle impacts
- 3.17 Location
- 3.18 Overall objection to the proposal
- 3.19 Ownership of the site
- 3.20 Planning approval
- 3.21 Quality of PER
 - 3.21.1 Quality of PER – Fauna report inadequacies and quality of report
- 3.22 Stakeholder consultation
- 3.23 Tourism impacts



3.1 ABORIGINAL HERITAGE

The submissions raised issues regarding the proposal with respect to:

- disturbance and destruction of specific sites;
- protection of spiritual and cultural significance of area
- restricted access to indigenous people
- concern that negotiation between Boral and traditional owners is inequitable

The Swan Valley Nyungah Community acknowledged that “Boral has been a very good company to meet and talk with and be consulted by, and they have taken our concerns seriously”. However they raise an overall objection to the proposal at this location.

With respect to the concerns raised regarding the disturbance of Aboriginal sites, clarification of the Department of Indigenous Affairs (DIA) “Section 18” process is provided below (reference: <http://www.dia.wa.gov.au/en/Section-18-Applications/>):

- If you own a piece of land on which an Aboriginal site is located, and you want to use this land e.g. for development, you need to apply for consent from the Minister for Indigenous Affairs to do so under Section 18 of the *Aboriginal Heritage Act 1972*. This process includes the requirement for Aboriginal heritage surveys, consultation with Aboriginal stakeholders, outcomes of consultation to be provided as well the impact to the Aboriginal site(s) to be detailed.
- The DIA required form is the “NOTICE UNDER SECTION 18 OF THE ABORIGINAL HERITAGE ACT 1972 APPLICATION FOR ‘Consent to certain uses’”. This is referred to throughout the PER and this response as a “section 18 Application”. The term “disturb” is commonly used in a section 18 Application process to refer to various impacts on a site, including in some instances the loss of a site. The full details of the proposed impact are provided in the Application.
- Once the form is submitted to the DIA, the Aboriginal Material Cultural Committee (ACMC) considers applications from landowners to use land on which Aboriginal sites and objects are located. The Committee then recommends to the Minister for Indigenous Affairs whether consent should be given to use the land for the purpose sought. After the Minister considers the ACMC recommendations and also regards the general interest of the community he or she will either grant consent to the use of the land for the purpose sought or refuse to consent. If the Minister consents, conditions may be attached to the use of the land.



3.1 Item	Submissions received	Response
1	<ul style="list-style-type: none"> acknowledge Boral has altered quarry design on two occasions to avoid Ancient Rock Engravings. - claim there are other Sites throughout the Land of the proposed Quarry that will be destroyed. <p>Swan Valley Nyungah Community</p>	<p>Boral has undertaken an ethnographic site avoidance survey of the proposed quarry site (February 2004). Further survey work (archaeological & ethnographic) of the revised quarry footprint was conducted in December 2007.</p> <p>Following consultation and surveys undertaken for the site Boral has submitted a section 18 Application, ie "NOTICE UNDER SECTION 18 OF THE ABORIGINAL HERITAGE ACT 1972 APPLICATION FOR 'Consent to certain uses' ". Boral has received preliminary approval for this application pending the outcome of the PER process with EPA.</p> <p>Boral will continue to work with the Nyungah Community to minimise heritage impacts from the proposed operations.</p>
2	<ul style="list-style-type: none"> Indigenous heritage - little importance is granted to the existence of identified sites in the document. - many sites remain uncovered - agreement of local elders re disturbance of known sites is insincere as it is not a contract between parties on equal footing. <p>Jane Brook Catchment Group</p>	<p>Boral acknowledge the importance of Aboriginal Heritage and have worked closely with the Nyungah Community throughout this process. Boral deliberately chose to withhold the PER application process until it was clear that all Aboriginal Heritage issues had been adequately addressed. The proposed quarry footprint was changed numerous times in order to preserve sites of significance.</p> <p>Refer to comments under item 1 above.</p> <p>Boral has conducted open and engaging consultation with the Central Metropolitan Working Group (CMWG) regarding this project. There is no contract between any parties. The formal process required is that of the Section 18 "Application to Interfere with an Aboriginal Site". This has been undertaken in good faith at all stages between both parties.</p>
3	<ul style="list-style-type: none"> Indigenous people will have their cultural areas disturbed and destroyed and inaccessible by permanent fencing. <p>Gidgegannup Progress Association Inc</p>	<p>Fencing is a requirement under the <i>Mines Safety and Inspection Act 1994</i>. The purpose of fencing is to restrict unauthorised access to mining operations and is a public safety measure. Security fencing only applies to operational areas and will not be applied to the entire Boral landholding. For example, current access to areas along Susannah Brook; the proposed offset area; and north of Susannah Brook will remain.</p>

4	<ul style="list-style-type: none"> The aboriginal people have a very special connection with this area and their ancient spiritual attachment with the land is far more important to our society than the short term gain being sought by multinational companies. <p>Local resident(s) # 2</p>	<p>This is not a short term proposal. The intent is to provide a source of construction materials for the Perth metropolitan area well into the foreseeable future.</p> <p>Boral acknowledge the importance of Aboriginal Heritage and have worked closely with the Nyungah Community throughout this process. Adequate consultation has been undertaken with the relevant Aboriginal groups to ensure protection of indigenous culture and heritage.</p>
5	<ul style="list-style-type: none"> Boral want to "disturb" 2 sites (page vi). "Disturb" appears to mean destroy. Boral state they have protected two other sites by altering the footprint and creating a 50m exclusion buffer zone. It appears to be trade off that only two sites are to be destroyed and the evaluation of the sites to be preserved against those to be destroyed is questionable. Boral is still "seeking permission" to "disturb" these sites. This matter needs to be resolved before any approval is given. Permanent fencing into the foreseeable future will deny indigenous people access to their lands (pxx). Indigenous sites saved will be excluded from access and visitation. Is this "preservation" of value? <p>Gidgegannup Progress Association Inc</p>	<p>It should be noted that only 1 site is proposed to be disturbed. Refer to pvi of the PER:</p> <p><i>"One registered heritage site, the Gidgegannup Gnamma hole and Lizard Trap (Site ID 21080) will be directly impacted by the Quarry."</i></p> <p>As noted above, Boral acknowledge the importance of Aboriginal Heritage and have worked closely with the Nyungah Community throughout this process. Consideration and assessment of heritage site has been undertaken in consultation with the Traditional Owners. Boral has modified the design of the Quarry to minimise impacts on known heritage sites. Refer to the general comments at the start of this section and Items 1 and 2 above for further information regarding the process required to be followed.</p> <p>Refer to Item 3 above regarding fencing.</p>
6	<ul style="list-style-type: none"> Boral want to "disturb" 2 sites (page vi). In this situation "disturb" means destroy. Boral say they have protect 2 other sites by altering the footprint and creating a 50m exclusion buffer zone. Boral clearly believe that offsets of indigenous sites (and environment) should allow them to "disturb" these 2 sites. It is debateable whether they are of equal value....Boral clearly have no respect or understanding of the value of these sites. They are still "seeking permission" to "disturb" these sites. Local resident(s) # 9 	<p>Refer to Item 5 above.</p> <p>Offsets referred to in the PER are provided for the purposes of ecosystem protection and are not related to matters of indigenous heritage.</p> <p>Boral undertakes indigenous consultation regarding a number of metropolitan sites and has a well established relationship with CMWG. This long-standing relationship (reflected in the comments provided in the submission from the Swan Valley Nyungah Community.) demonstrates Boral's respect of, and commitment to, Indigenous culture and heritage.</p>

3.2 AIR QUALITY

The submission(s) raised issues regarding the proposal with respect to:

- Concern that NEPM standards not applicable;
- dust impacts on neighbours;
- cumulative air quality;
- removal of vegetation will limit ability of area to contain dust;
- health issues associated with dust (radiation, crystalline silica);
- the adequacy of the dataset used for air modelling; and
- the need for ongoing dust monitoring.

3.2 Item	Submissions received	Response
1	<ul style="list-style-type: none"> - quarry will add to Perth's air pollution from all phases of its operation - removal of vegetation will further limit the ability of the area to contain the dust problem or capture carbon - Boral's stated position is that dust comes from other sources in the vicinity so a little more doesn't matter - it must be an industrial area, so NEPM standards don't apply. Jane Brook Catchment Group 	<p>Boral acknowledges that quarrying activities do have the potential to impact on local air quality, primarily through dust emissions. This is addressed in the PER in the dust assessment (Appendix H) and proposed dust mitigation measures. The dust assessment has been conducted in line with DEC requirements and is based on the NEPM standard for particulate matter (24-hour PM₁₀), ie respirable dust.</p> <p>The dust assessment is required to consider all possible dust sources in the vicinity of the proposed quarry. Boral has at no time expressed the view that additional dust is acceptable.</p> <p>Boral is committed to meeting the relevant air quality requirements set by the Western Australian Government. Boral aims to achieve NEPM standards for air quality regardless of land-use classification.</p> <p>Boral will continue to monitor dust from the site and work to continually improve dust management. Boral will continue working with the local community to identify areas where improvements in site management will reduce potential off-site impacts.</p>
2	<ul style="list-style-type: none"> • We have concerns that because this area is classified as "industrial", and therefore NEPM standards for air quality are not applicable or enforceable (page v). The cumulative affect in this area is disturbing for residents and for the production of livestock and crops. Gidgegannup Progress Association Inc 	Refer to item 1 above. ⁴¹

3	<ul style="list-style-type: none"> Dust problems – hard to measure a nuisance value eg washing covered in dust as before when Herne Hill Quarry was in operation. The easterlies already reach sever wind speeds throughout the summer months and will easily carry dust particles from the operating quarry to envelop vast areas of the Swan Valley. <p>Swan Valley Rate Payers and Residents</p>	<p>Refer to item 1 above.</p>
4	<ul style="list-style-type: none"> From conclusions: Health issues have not been addressed for local residential areas, workforce, flora and fauna in relation to the air quality and chemical /compound make-up of the crustal alpha particulates being released into the air. Granite is a natural source of radiation,...but its known affects on health is limited as studies into the mining and inhalation of the dust particles are currently limited and available health information is unreliable as no long term formal studies have been undertaken. ...The Boral PER does not take into consideration the radiation hazards connected to alpha particles nor does it provide surety of safety. From conclusions: Although dust mitigation strategy has been completed, it is consistent with the actual prevailing winds, landscape and combination of 2 quarries producing 2/5mtpa. Sensitive receptors are not positioned consistent with wind direction thus being able to give accurate assessment. Inconsistencies with information on wind direction and speed. Actual statistics taken from the area over long term by the Bureau of Meteorology are a more accurate measure was not used in the study. Local resident(s) # 2 	<p>As part of the PER, a dust assessment was undertaken in line with DEC requirements, to ensure that dust emissions will not adversely affect environmental values <u>or</u> the health, welfare and amenity of people and land uses. GHD's Dust Assessment (Appendix H of PER) uses air dispersion modelling to predict likely ground level concentrations of respirable (ie inhalable) dust ("PM₁₀"). Potential health impacts (including those associated with inhalation of crystalline silica) are attributable to the concentration of respirable particles in ambient air.</p> <p>The <i>National Environmental Protection (Ambient Air Quality) Measure</i> (Air NEPM) 24-hour PM₁₀ standard of 50ug/m³ was used to assess the significance of predicted ground level concentrations of dust.</p> <p>The dust assessment predicts levels below the Air NEPM 24-hour PM₁₀ standard at all sensitive receptors (within a 6 km radius) - this includes all local residential properties. The only two sites for which this criterion was exceeded was the Red Hill Disposal Site and Hanson Red Hill Quarry both of whom are potentially large sources of dust in their own right and also considered to be within an 'industrial area' and therefore NEPM standards are not applicable.</p> <p>The meteorological data used is representative of the wind patterns experienced in the area based on observations from the DEC operated monitoring station at Rolling Green. The dispersion modelling is completed for an entire year, that is all wind speeds and directions are considered, not just the average wind speed provided for comparison within the Dust Assessment report. The results of the dispersion modelling,(shown as contours in Figure 5 in Appendix H) represent the highest dust concentration predicted at any point during the year.</p> <p>Any naturally formed rock material has the potential of containing varying</p>

		<p>amounts of naturally occurring radiation. Natural radioactive elements like uranium, radium, and thorium can be present in a wide number of minerals that appear as crystals in granite from around the world. So, it is not unusual for materials such as granite to have some amount of radioactivity. Over time, some of the radioactive elements in granite will decay into radon, a colorless, odorless, radioactive gas which may be released from the granite over time. A known issue is that of radon exposure in homes, particularly those built on granitic ground. It seems that most of the radon inside a home, where the concentration is high, usually gets in through the floor, with the radon diffuses out of the ground and into the home. This can be controlled by appropriate ventilation. If residents are concerned about radon levels in their homes, the Australian Radiation Protection and Nuclear Safety Agency recommend they contact the relevant state radiation health authority, which for WA is the Radiological Council of Western Australia.</p> <p>(References:</p> <p>http://www.arpansa.gov.au/radiationprotection/FactSheets/is_radon.cfm http://www.ansto.gov.au/nuclear_information/what_is_nuclear_science/radiation http://www.epa.gov/rpdweb00/tenorm/granite-countertops.html</p>
5	<ul style="list-style-type: none"> Dust concerns. Local resident(s) # 3 	Refer to Item 1 above.
6	<ul style="list-style-type: none"> Ensure that the scope of studies accommodate the physical properties of granite dust, in particular the radioactivity aspects. I live downwind of the proposed location and therefore considered to be in a location where the propensity for dust deposition and inhalation is high. I would therefore consider myself and neighbours a 'Sensitive Receptor' living in Herne Hill and only 2.45km away from the proposed operation. The PER is void of any consideration to the physical properties of the dust hazard and seems to only consider it as an environmental factor through deposition, compromising foliage and quoting "possible health effects". Only desktop studies and dispersion modelling has been used. In the absence of measuring stations, why were residents downstream of prevailing wind patterns not asked? With respect to meteorological wind pattern data and the propensity for dust pollution , the PER is predicated on data and sources that are either not correct for the proposed location in question or possibly presented in a way that is not consistent 	Refer to Item 1 above.

	<p>with recent data from more accurate sources (ie weather station much closer to the location).</p> <ul style="list-style-type: none"> • Of particular concern is the use of an 'average daytime wind speed'...If a more representative data sources was used, as residents of this area well know, what is of significance is the occurrence and length of prolonged seasonal high wind speeds during specific periods... • The Darling Scarp Granite outcrops are particularly high in radioactivity, being the major source of high background radiation....It is the dust that warrants the closest scrutiny because if its ability to become airborne and be ingested into the sensitive tissue of the lungs.when radioactive granite dust is inhaled into the lung, the alpha radiation is extremely damaging to the delicate lung tissue. • All granite contains large amounts of crystalline silica, which is also harmful to the lungs. It is not appropriate for homeowners to be exposed to the respiratory hazards that are present in granite. <p>Local resident(s) # 5</p>	
7	<ul style="list-style-type: none"> • The Ambient Air Quality standards should be applicable to Boral because their zoning is resource and not, as Boral state, that they are 'within an 'industrial area'....Receivers or regulators should be installed on Boral's land and be monitored and controlled for air quality in a resource area which, to our knowledge , is not the equivalent of an 'industrial area'. Ambient air quality standards should be applicable not retractable. • The report on air quality standards seems to read that the neighbours of Boral create dust so the monitoring is fine because Boral according to the PER, are already in an 'industrial area'. Therefore, Boral relinquish their responsibility for air quality. <p>Local resident(s) # 6</p>	<p>Boral conducted a dust assessment in line with DEC requirements which uses dispersion modelling to predict likely impacts. Land use classifications are consistent with DEC requirements.</p> <p>Refer to Item 1 above.</p>
8	<ul style="list-style-type: none"> • The extractive activity classifies this area as "industrial" and therefore NEPM standards for air quality are not applicable or enforceable (page v)....Therefore there is no incentive to maintain acceptable dust levels. • If everyone is allowed to act in this manner, the cumulative effect is undesirable for Gidgegannup and the surrounding bush environment. <p>Local resident(s) # 9</p>	<p>Refer to Item 1 above.</p>
9	<ul style="list-style-type: none"> • ...there is no mention of whether Boral will be conducting dust monitoring as a proposed management tool. If monitoring is to be conducted then it would also be sensible to conduct directional monitoring to ensure dust emissions are being recorded from the correct quarry and not from neighbouring activities. The combination of potential dust emissions from both sites, particularly if not in 	<p>Boral will develop an environmental management plan for the proposed quarry which will specifically address dust management and monitoring on site.</p> <p>It is anticipated that monitoring requirements will also be specified both</p>

	<p>accordance with relevant standards may only exacerbate the problem, especially in the vicinity of Boral's Lot 51.</p> <ul style="list-style-type: none">• The PER also states that clay extraction may occur on the site in the future by Midland Brick Company, the current land owner, however the contribution to dust from either existing clay extraction or future extraction has not been considered. Future clay extraction sites have not been identified and therefore the impact of this activity on the operation of the quarry cannot be assessed nor can the potential impacts of the two activities occurring contemporaneously. <p>BGC (Australia) Pty Ltd</p>	<p>within the environmental conditions set by the EPA (ie Ministerial Statement) and the DEC Works Approval and Licence.</p> <p>As of 1 July 2010, Boral Resources (WA) Ltd assumed full ownership and operational control of both the clay and granite resources at this site. Any future clay extraction will require Midland Brick to seek all necessary approvals, including provision of any necessary environmental assessments specific to clay extraction.</p>
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3.3 FLORA AND FAUNA

The submission(s) raised issues regarding the proposal with respect to:

- Concern about loss of habitat and impacts on wildlife corridors not just on the site but regionally;
- Concern that flora and fauna research undertaken to date is insufficient and that only limited on-site surveys have been undertaken;
- More in-depth site surveys should have been undertaken over a more representative time period (ie capture all seasons, night and day);
- Concern that rehabilitation will not be undertaken seriously as the area may be subject to further mining of clay reserves in the future; and
- Protection of Susannah Brook.

The following comments are provided with respect to the concerns regarding the perceived limitations of flora and fauna assessments.

The EPA provides clear guidance to proponents and their consultants regarding the information required to be provided within an assessment document to ensure the information is sufficient for the EPA to assess potential impacts. The proponent is required to provide an environmental scoping document and Scope of Works to the EPA. The EPA then advises the proponent on its acceptance (or otherwise) of the scoping document to enable a PER to be prepared consistent with the approach and timetable agreed with the EPA.

As part of this process, there are clear guidelines on the requirements for flora and fauna surveys, including information regarding appropriate timing of site surveys as well as determining the extent and level of survey. This process has been followed by GHD in this instance and has included discussions with relevant DEC and EPA officers regarding suitability of proposed flora and fauna assessment methods. It is Boral's understanding that the flora and fauna surveys and assessments conducted by GHD have been consistent with the Scope of Works agreed with EPA for this proposal.

Reference:

EPA Guide to Preparing an Environmental Scoping Document

EPA Guidance No. 51, June 2004, Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia

EPA Guidance No. 56 June 2004 Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia

3.3 Item	Submissions received	
1	<ul style="list-style-type: none">• Actual flora and fauna visits very limited – majority of very wordy studies are based on desktop work. Further work covering several seasonal exposures should be required for a complete and balanced assessment, before this development is approved.• Very limited actual site fauna and flora surveys conducted. Mostly one or two visits	Refer to the above comments at the start of this section.

	<ul style="list-style-type: none"> only for specific surveys – not covering multiple seasons or times (day/night etc). Just 2 visits listed – one in winter and one in spring – very, very limited actual on the ground flora survey time in limited seasons. The area of the quarry pit to be cleared is pristine bushland looking out towards the coastal plain. Wildlife corridor/s between Hanson quarry are likely to be impacted. Local resident(s) # 4 	
2	<ul style="list-style-type: none"> Local flora and fauna habitats obliterated. ...There are countless species of flora, some of which are endangered, in the nearby Wandoo Heights nature Reserve...Who can say how it will be affected if the quarrying operation disturbs and destroys their habitat. Local resident(s) # 3 	<p>The potential impacts of this proposal on the flora and fauna at the proposed quarry site are well documented within the PER and its appendices. A summary of likely impacts and proposed management measures is provided in the Executive Summary (ppvii to xvi).</p>
3	<ul style="list-style-type: none"> We are concerned by the statement: 'that Midland Brick will likely return to the Site in the future to access remaining clay reserves'. This will have a negative impact on any rehabilitation that Boral may undertake as the company will not spend any money if areas are to be re-used for further extraction. To counteract this scenario more lands need to be vested by Boral for wildlife corridors. A suggestion would be all land within a minimum of 250meters of Susannah Brook be set aside and all Boral's land north of Susannah Brook be classified as protected for fauna and flora. This would at least safeguard two perimeter boundaries for fauna corridors. A desktop assessment and a limited field survey verifying the desktop was restrained in assessing flora and vegetation. ...More field surveys over different seasons throughout a year should be undertaken to obtain a comprehensive study of flora and vegetation. A random two days over two years field study, one in the middle of winter the other middle of spring, is inadequate because there are yearly climate variables with flora and vegetation. Local resident(s) # 6 	<p>As of 1 July 2010, Boral Resources (WA) Ltd assumed full ownership and operational control of both the clay and granite resources at this site. Any future clay extraction will require Midland Brick to seek all necessary approvals, including provision of any necessary environmental assessments specific to clay extraction. Specific impacts associated with any such proposals will be required to be assessed by the relevant government authorities at that time.</p> <p>Boral will continue with progressive rehabilitation of existing disturbed quarry areas (ie clay extraction) as well as for areas disturbed under this proposal.</p> <p>Refer to the above comments at the start of this section regarding suitability of survey methods.</p>

3.3.1 Flora and vegetation

The submission(s) raised issues regarding the proposal with respect to:

- The management and ongoing protection of offset and buffer areas from future mining;
- Adequacy of dieback management measures;
- Rehabilitation of the proposed quarry and the existing clay pit, including concerns re quality of previous rehabilitation attempts in the clay pits;
- Concern re fragmentation and overall loss of habitat, especially migration corridors, food sources, large nesting trees;
- Inadequate surveys of vegetation and groundwater on the site;
- Cumulative impact of development in the area on loss of fauna habitat;
- Impact of quarrying on underlying aquifers and vegetation reliant on this water source and
- Topsoil management.

A number of the submissions also raised general objections to any further clearing in this area, citing the local and regional significance of this vegetation.

In response to the general concerns above, the following information (provided in the PER) is noted:

Boral has identified a 48.35 ha area of remnant bushland which will be conserved (not mined) to provide a 'like for like or better' offset for the flora and vegetation to be cleared for the quarry (ie a total of 31 ha over the life of the project). However, it is recognised that clearing may be at variance with one of the EPA's 10 clearing principles: that is: (c) *Native vegetation should not be cleared if it includes or is necessary for the continued existence of rare flora*. The proposed clearing will result in the removal of approximately 10 plants of a Priority 4 species (*Calothamnus rupestris*). However this is not considered to have a significant impact on this species at a local or regional scale. Vegetation present within the Site is well represented at a local and regional scale, including nearby conservation reserves such as John Forrest National Park (1km to the south of the survey area) and the Darling Range Regional Park. The proposed offset land supports a large range of flora, due to the range of vegetation types present and is expected to adequately preserve vegetation similar to the Quarry area.

Boral will undertake ongoing progressive rehabilitation of existing quarry disturbed areas as well as for areas to be disturbed as part of this proposal. Rehabilitation will be undertaken using endemic native species. In addition, conservation significant flora will be re-established where possible, around the pit and/or in rehabilitated areas.

As of 1 July 2010, the titles for all lots associated with both the quarry and existing clay pits have been transferred to Boral Resources (WA) Limited, providing Boral Resources with full operational control of this land. (This includes all lands previously owned / operated by Midland Brick). The proposed environmental offset area (shown in Figure 8 of the PER) is on Boral property and will be managed by Boral Resources (WA) Ltd.

3.3.1 Item	Submissions received	Response
1	<ul style="list-style-type: none"> - concern regarding fragmentation of habitat and reduced biodiversity caused by further clearing; - little faith in dieback management measures; - disagree with offset areas. None of this area should be available to quarry; Jane Brook Catchment Group 	<p>Refer to the above comments at the start of this section.</p> <p>A comprehensive Dieback survey will be undertaken by a qualified dieback interpreter prior to the commencement of clearing or ground disturbing activities, to determine the presence of Dieback within the Project area. If Dieback is identified, a Dieback management plan will be developed for the Project.</p> <p>General objection to the quarry proposal is noted.</p>
2	<ul style="list-style-type: none"> • Boral have set aside land of "equal" value including some riparian habitat alongside Susannah Brook • -how is this land protected? - Is this land covenanted to the National Park? - Riparian habitat should be quarantined from quarrying and clearing - does this mean that future expansion of the quarry is possible and this land is merely being quarantined for that event? • are the existing Midland Brick clay pits going to be revegetated? These pits have been infested by weeds and have allowed feral vermin to gain a foothold. How is this to be addressed? • Boral have not undertaken on site surveying to determine the presence and extent of aquifers and the effect blasting could have on these aquifers, fracturing them and depriving remnant vegetation of summer waters resources and severely affect their ability to survive the seasonal drought. .. • Table 8 (pp 32, 33) demonstrate the likelihood of considerable populations and species variety of "priority flora". Table 6 (p 29) describes the quarry area as having at least three vegetation types in very good conditions. This demonstrates the inappropriateness of more clearing of irreplaceable scarp land bush. • Figure 6 (next to p34) confirms the presence of widespread populations of Priority 4 	<p>Refer to the above comments at the start of this section.</p> <p>Susannah Brook and its associated riparian habitat is part of the proposed offset area, which is to be conserved and is not intended to be cleared or otherwise mined. As noted above, the proposed offset is located on Boral property and will be managed by Boral Resources (WA) Ltd.</p> <p>The OEPA will consider the adequacy or otherwise of the proposed environmental offset as part of its assessment of this proposal.</p> <p>The flora and fauna survey identified the presence of a number of weed species including Paterson's Curse (a Declared Plant). Boral will develop and implement a weed management plan. Weed control measures for Paterson's Curse will be implemented prior to commencement of any vegetation clearance.</p> <p>Refer to section 3.7 and 3.7.1 of this document regarding groundwater impacts.</p>

	<p>flora and a stand of Kingia exceeding 6m. The loss of unique vegetation such as these should not be permitted.</p> <ul style="list-style-type: none"> • Re the 10 Clearing principles: <ul style="list-style-type: none"> - Principle 1 – native vegetation should not be cleared if it comprises a high level of biological diversity (it does – refer page 2, Table 8 pages 32, 33). Boral reply is that areas of vegetation just as good or better exist in the vicinity. This does not meet the criteria of Principle 1, which simply states native vegetation shall not be cleared if it is biologically diverse. - Clearing Principle 2 relates to the clearing of vegetation necessary for fauna survival (p 59).42 hectares is being cleared and is significant when it comprises a significant portion of the last buffer zone between National Park and rural and residential development. - Clearing Principle 3 relates to clearing impacts on Priority 4/endangered flora. Boral makes the assumption that destroying only 10 plants will not be a “significant impact on the species, either locally or regionally” (p 59) but does not support this statement with data. • P.xiii says acceleration and deceleration lanes will be incorporated into the entrance works. This will mean more clearing of roadside vegetation...Gidgegannup Progress Association Inc 	
3	<ul style="list-style-type: none"> • Boral have set aside land of “equal” value including some riparian habitat alongside Susannah Brook (page iii). <ul style="list-style-type: none"> -how is this land protected? - Is this land covenanted to the National Park? - since when does setting aside land associated with Susannah Brook count as a credit for destruction elsewhere? - Riparian habitat should be automatically quarantined from quarrying and clearing....that exclusion is not meant to compensate or permit clearing elsewhere. - does this mean that future expansion of the quarry is possible and this land is merely being quarantined in the event of that? - which independent/third party, if any, has decreed that this land is adequate value to compensate for that which will be lost forever? • It is far easier to rehabilitate a clay pit than vertical rock faces, yet the existing Midland disused clay pits are infested by weeds, feral vermin has gained a foothold and rehabilitation has not occurred. How does Boral propose to address this? • Midland Brick has a terrible record for revegetation in this area (admitted by Boral). Why should we feel confident that Boral will successfully rehabilitate a quarry, whose vertical hard face walls are much more difficult to remediate than a clay pit? 	<p>Refer to the above comments at the start of this section and Item 2 above.</p>

	<ul style="list-style-type: none"> How can Boral assert that destroying 42 ha of quality bushland not constitute "serious or irreversible damage to the environment" (page 16)? The best efforts of revegetation will never replace what clearing and quarrying has destroyed. Boral have not undertaken on site surveying to determine the presence and extent of aquifers. They have used desktop studies (page 19), "anecdotal evidence by Boral personnel" (of questionable bias and what qualifications) of the movement of water 200m away (page 21) and results of a drilling program at EMRC (in the other side of the road, several km away) it dismiss the possibility of significant aquifers, large and small, to be "isolated, of no regional interconnectivity, minor and any impact (by quarrying /blasting) would be much localized (page 21). ... Blasting activities that fracture the containment structures of these ", minor perched aquifers" will deprive remnant vegetation of summer water resources and severely affect their ability to survive the seasonal drought. It is these aquifers which feed the vegetation above which in turn, support the local fauna population. Destroying localized aquifers by nearby mining activity will widen the extent of vegetation and fauna destruction. Boral have simply not conducted CONTINUOUS 12 month ON SITE surveys of flora species. Desktop surveys are no substitute for on-sites assessment....Their reluctance to do this merely indicates that they are uncaring and do not want to be inconvenienced by findings of rare or endangered species. 	
4	<ul style="list-style-type: none"> Table 8 (pages 32, 33) demonstrate the likelihood of considerable populations and species variety of "priority flora". Table 6 (page 29 describes the quarry area as having at least 3 vegetation types in very good conditions. This demonstrates the inappropriateness of more clearing f irreplaceable scarp land bush. ...The loss of unique vegetation such as these should not be permitted. Re the 10 Clearing principles: <ul style="list-style-type: none"> Principle 1 – native vegetation should not be cleared if it comprises a high level of biological diversity (it does – refer page 27, Table 8 pages 32, 33). Boral reply is that areas of vegetation just as good or better exist in the vicinity. This does not meet the criteria of Principle 1....it does not state that it can be cleared if there is an "offset". Principle 2 relates to the clearing of vegetation necessary for fauna survival (page 59).$.42\text{ha}c=100$ acres. There is an ever shrinking supply quality supply of natural bushland in the scarp area. 100 acres becomes significant when it comprises a significant portion of the last buffer zone between National Park and rural and residential development....It shows the danger of failing to consider the overall impact of numerous applications to clear and develop. Principle 3 relates to the clearing impacts on Priority 4/Endangered Flora. Boral is 	Refer to the above comments at the start of this section.

	Dismissive of the effect of the clearing as destroying "only 10 plants" and makes assumption that this will not be a "significant impact on the species, either locally or regionally" (page 59 but has actually acquired no relevant information to support his arrogant statement. Local resident(s) # 9	
5	<ul style="list-style-type: none"> Buffer zones...will these be on the proponent's property, on the Midland Brick property or on neighbours' property. What undertakings will be made to plant these out with screening vegetation? Gidgegannup Progress Association Inc 	Refer to the above comments at the start of this section.
6	<ul style="list-style-type: none"> Topsoil management: - The PER details strategies for the management of topsoil including that "topsoil will be stockpiled and respread over the batter slopes of the Quarry to encourage rehabilitation after completion of each phase". The condition imposed on the BGC Voyager II Quarry,...details that "the proponent shall not stockpile overburden and topsoil onsite except in exceptional circumstances"...This condition has been imposed in response to the view that stockpiling has the potential to decrease endemic native seed viability. Rehabilitation has been described as to be done after completion of each phase. However, in the case of the proposed Gidgegannup quarry, this would not be able to be achieved until completion of the entire project due to the excavation area being an open pit. BGC (Australia) Pty Ltd 	<p>The EPA is required to assess each proposal on a case by case basis. Development of conditions of any approval will be determined by the Office of the Environmental Protection Authority (OEPA) as appropriate to the project.</p> <p>Progressive rehabilitation will occur and will be detailed in the site Environmental Management Plan (EMP), once environmental conditions have been set as part of the PER process. Any specific variations to standard topsoil stockpiling practices that may be required by the EPA will also be addressed in the site EMP.</p>
7	<p>Offset / conservation area:</p> <ul style="list-style-type: none"> This area extends into lots 198 and 166, which are not owned by the proponent – how will this work – ongoing issue of interaction between Boral Resources and Midland Brick a concern...Local resident(s) # 4 	Refer to the above comments at the start of this section.
8	<p>The members of SPAA are also very concerned regarding the protection of significant trees at the quarry site.</p> <p>The members of SPAA request the EPA require any mature species onsite to be transplanted and maintained rather than be culled before any staged clearing of vegetation is carried out. In this way some of the mature transplanted species may survive. Stoneville and Parkerville Progress Association Inc</p>	<p>It is unlikely that transplantation of the mature native trees will be practical in this instance. Instead a treebox (nesting box) program will be developed in consultation with the Department of Environment and Conservation (DEC) to replace the loss of potential nesting hollows in any habitat trees. Furthermore, Boral will undertake progressive rehabilitation of the site with endemic species, which will in the longer term provide suitable nesting trees.</p>
9	<ul style="list-style-type: none"> No flora and vegetation report is provided in the PER so it is not possible to comment on the validity of the assessment against EPA' requirements....However the absence of a full flora and vegetation assessment is contrary to EPA Guidance Statement 51. The RFA vegetation complexes (Mattiske and Havel 2000) should be included in the vegetation extent and status calculations to enable full assessment of regional 	<p>This statement is incorrect. The Flora and Fauna report was provided as Appendix B in the PER. The EPA Terrestrial Ecosystems Branch in fact refer to this as Appendix B in their comments.</p> <p>GHD used Sheperd <i>et al.</i> extents mapping extents from 2005 data which should be adequate for this purpose and are more up to date than the RFA calculations. GHD also interpreted vegetation complexes with regard to the report 'Mattiske, E.M. and Havel, J.J. (1998) <i>Regional Forest Agreement</i></p>

	<p>significance.</p> <ul style="list-style-type: none">• The “Lithic (granitic) communities on shallow soils” should be assessed against the known values of Priority 4 Ecological Community (PEC) – Central Northern Darling Scarp Granite Shrubland Communities. Several species listed in Appendix B occur within this community, however without the flora and vegetation report it is impossible to determine if the species occur in the same community. <p>Office of the EPA: Strategic Policy and Planning Services Division, Terrestrial Ecosystems Branch</p>	<p><i>Vegetation Complexes. Perth, Western Australia 1:250,000’.</i> Not sure what report Mattiske and Havel 2000 is as it does not come up on a publication search.</p> <p>No Priority Ecological Community (PEC) information was publicly available at the time of the vegetation report (December 2007). PEC information had not been made available for anywhere in the State at that time.</p> <p>There is a description of the lithic community in the quarry area in the PER text (Table 6). None of the species listed in this lithic community match those provided in the Central Northern Darling Scarp Granite Shrubland Community PEC general description (the only information available to us). Our description also states that the community is on ‘shallow soils over granite’ whereas the PEC community is described as occurring on ‘deeper loams and red earths on fragmented granite/quartzite’.</p> <p>Therefore there is no reason so suggest that the lithic community described at the quarry site is that of the PEC.</p>
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3.3.2 Fauna

The submission(s) raised issues regarding the proposal with respect to:

- Disruption to migration routes and food sources;
- Concern that fauna research undertaken to date is insufficient;
- More in-depth site fauna surveys should have been undertaken over a more representative time period (ie capture all seasons, night and day);
- Concern about relevance of Hanson survey to this site;
- Existing information does not correlate to local residents observations regarding fauna in the area;
- Concern re loss of habitat, especially migration corridors, food sources, large nesting trees;
- Impact of quarry noise and vehicles on animals;
- Concern about migration corridor being insufficient;
- Impact on Carnaby's Cockatoo (especially breeding and foraging habitat); and
- Cumulative impact of development in the area on loss of fauna habitat.

In response to the general concerns above, the following information (provided in the PER) is noted:

Fauna was identified as one of the key environmental factors of this proposal requiring assessment in order to identify the potential impacts, and proposed management and mitigation measures. The fauna assessment methodology as described in Appendix B included desktop investigations and a Level 1 field survey (reconnaissance survey) conducted in accordance with EPA guidelines. The desktop investigation included consideration of the Bamford Ecological Consultants 2006 Level 2 fauna survey (which included trapping surveys) undertaken at the neighbouring Hanson's Red Hill Quarry. The reason this survey can be used, is that the habitat assessed within the Hanson quarry is contiguous with the Boral Survey area and therefore the same species can be expected to occur in both areas. In addition to a desktop review of the Bamford Level 2 fauna survey, GHD undertook the following site survey work:

- Level 1 field assessment of the Site, undertaken on 24 October 2007 by a qualified Ecologist (refer to pages 14 & 15 of Appendix B: Flora and Fauna Report, of the PER). The purpose of this assessment was to verify the information gathered from the desk top survey; and
- Field inspection of the Site, undertaken on 2 December 2008 by a qualified GHD Zoologist (refer to page 7 of Appendix C: Carnaby's Cockatoo, of the PER). The purpose of this inspection was to assess the potential usage of the site by Carnaby's Cockatoos.

Refer also to the comments under Section 3.3 of this document regarding flora and fauna assessments.

Habitat in the proposal area is well represented at a local and regional scale, including nearby conservation reserves such as John Forrest National Park (1km to the south). Impacts on fauna will occur on a local scale, ie likely to impact on individual animals, rather than a population or species.

It is recognised in the PER that clearing of the Site may cause some fragmentation of fauna habitat and interruption for the movement of fauna. However the Site is relatively small and there are areas of good quality bushland on all sides of the site that would provide alternate habitat linkages. The Site is linked with Susannah Brook and provides a habitat corridor from the top of the Scarp to the Swan Coastal Plain. Boral has committed to maintaining a fauna corridor along the western boundary of the Site to form part of the proposed offset area (refer to Figure 8 of the PER), which will be protected from further development.

Refer to the comments under Section 3.3.1 above, regarding flora and vegetation impacts.

3.3.2 Item	Submissions received	Response
1	<ul style="list-style-type: none"> • Fauna: <ul style="list-style-type: none"> - very little importance is given to existing wildlife in the proposal; - concern regarding loss of habitat, especially wildlife corridors, large nesting trees; - cumulative impact of noise and vehicle movement from this & other existing noise sources on animals, ie area of disturbance greater than suggested. <p>Jane Brook Catchment Group</p>	<p>Refer to the comments at the start of this section above.</p> <p>While nesting trees will be lost from the area to be cleared (31 ha), nesting trees are represented in the proposed offset area (48.35 ha) as well as the remaining area of the Boral land holding. As stated in section 8.4.3 of the PER, Boral will develop a nesting tree box program in consultation with the DEC to replace the loss of potential nesting hollows in any habitat trees.</p>
2	<ul style="list-style-type: none"> • ...the impact of this quarry will result in depletion of fauna populations, whose migration routes and food sources are disturbed and obliterated and severely confined. • The completion of quarrying activities will see a large area of land excluded from returning fauna by high fencing. The provision of a fauna corridor (page iv) is debateable as to its effectiveness as wild animals will shy away from unnatural noise and vibration. • There is no doubt that populations will be displaced and forced into surrounding areas which are already stressed by groundwater depletion, pollution, erosion, dieback, etc. • Boral will trap and relocate fauna (page ix) prior to commencing works. <ul style="list-style-type: none"> - why not do this earlier so that the information could have been in the PER. - the transportation of species to another area will be providing competition to the species already inhabiting the area, thus causing another problem. • The destruction of this large area of quality bushland means the destruction of habitat. • Migratory corridors are not by inference habitat. These are habitat linkages"(p 45). The inadequacy of this zone for a corridor is clearly described on Figure 8 (next to p 64) which requires fauna to travel along a long narrow fenced raceway (adjacent to 	<p>Refer to the comments at the start of this section regarding impact on fauna populations, habitat linkages and fauna assessments. See also the start of Section 3.3 above and Section 3.21 Item 4 below regarding adequacy of fauna assessments.</p> <p>Refer to the comments in Section 3.1 Item 3 of this document regarding fencing.</p> <p>As stated in section 8.4.3 of the PER, Boral will undertake a fauna trapping and relocation program prior to commencement of clearing to minimise the potential for fauna loss. Fauna will be relocated to suitable areas to be confirmed with the DEC.</p>

	<p>Hanson boundary), only to exit in a concentrated manner on Toodyay Road, putting road users at greater risk.</p> <ul style="list-style-type: none"> • A far better solution would be to remove the Hanson boundary fence, and combine the two corridor areas to create a more sustainable zone of movement and occupancy. • Boral make the...statements based on assumption, hearsay, reports of others based on insignificant local on-site research (Hanson) and desktop surveys. In no way are their findings supported by continuous 12 month surveying of fauna (or flora species). Without such ON SITE survey, the true nature of fauna populations cannot be assessed. <p>Gidgegannup Progress Association Inc</p>	
3	<ul style="list-style-type: none"> • 2 year timeframe and day/night study log for a detailed study of an area adjacent to a "A Class Reserve"; typically the John Forest national Park;: • Some species of frog are not mentioned, there area minimum of eight (8) varieties on my property alone including underground species; • Lizard species including the Bearded Dragon have been spotted on my property and in the adjoining areas, although not threatened, the numbers appear to be declining possibly due to loss of habitat; • Specific studies of water species, western pigmy perch for instance is on the decline, live in this habitat and may move downstream when water quality is low, moving upstream when the flows are of a higher quality. • The Chuditch and dunnart have been identified to habitat the area, however the numbers and the impact of these vulnerable species by introduction of heavy transport, dust and vibration should be studied.; • Carnaby's, Red Tailed Black Cockatoo and Red Capped Parrots do range over this area, in the last five years, they seem to be more prevalent, both species are vulnerable due to the mating of a pair for life, vulnerability to impacts nearby during mating and breeding cycles... • Red Capped Robins and Blue Wrens are also regular nesters on my property. • No allowance has been given in the study area for seasonal changes or endemic underground species such as amphibians (Western Spotted Frog, Turtle Frog...and Water Retaining Frog), some mammals or reptiles. • Local resident(s) # 2 	<p>Refer to the comments at the start of this section regarding impact on fauna populations and Section 3.3.3 below regarding Carnaby's Cockatoo.</p>

4	<ul style="list-style-type: none"> Local flora and fauna habitats obliterated. To name just a few, we have large flocks of Carnaby's cockatoo which forage in the area, as well as a nesting pair of wedge-tailed eagles, whose nest is situated right in the area to be mined. We have countless species of birds including hawks, owls, black-shouldered kites, Australian kestrels, little eagles, a peregrine falcon, sacred kingfishers and rainbow bee eaters. Other animals include echidnas, bandicoots, kangaroos, blue tongue goannas, skinks and black monitors. Local resident(s) # 3 	<p>Refer to the comments at the start of this section regarding impact on fauna populations and Section 3.3.3 below regarding Carnaby's Cockatoo``.</p>
5	<ul style="list-style-type: none"> The Forest Red-tailed Black Cockatoo and Carnaby's Cockatoo are likely to occur within the quarry area – The quarry is yet one more development that will impact on both feeding and potential breeding of both of these species. It can be said that this particular development may have relatively small individual impact, but as part of the ever increasing development around the Perth Metropolitan area, the impact is cumulative and serious. This...comment above applies to most of the fauna surveyed – limited individual impact, but must be considered cumulatively with all development happening in the escarpment area. Local resident(s) # 4 	<p>Refer to Section 3.3.3 below regarding Carnaby's Cockatoo and Section 3.11 below regarding cumulative impacts.</p>
6	<ul style="list-style-type: none"> This level of fauna assessment is insufficient for the region. Data was relied on from Hanson's Red Hill level 2 assessment ...Two field assessments on two days only in two years...is limited and not encompassing. A comprehensive field survey is warranted throughout the year. Boral should commission their own assessment rather than rely on data from neighbours....Hanson's assessment was insufficient and incomplete at the time and Boral's reliance on Hanson's assessment compounds encumbered data. Table 12, page 40 does not include the Wedge-tailed eagle. These predatory birds use kilometres for hunting and a nest is approximately situated within four-seven kilometres north of the proposed quarry. Also...Carnaby and/or Baudini and Forest Red are commonly found /observed in the PER area under review. All fauna are affected by the effect of a working quarry; some species more than others. The quarry area proposed will interfere with the habitat of these cockatoos and could interfere and disrupt the breeding cycle of the population. Human activities interferes with their foraging, they signal distress when human presence is near their nest, and noise from quarry blasting or gun shots disturbs the flock enough to fly away. The removal of any potential trees for nesting could be the death knoll for another breeding pair of cockatoos. 	<p>Refer to the comments at the start of this section and Section 3.3 above, as well as Section 3.21 Item 4 below, regarding fauna assessments.</p> <p>Table 12 as referred to here provides a list of "potentially occurring significant, rare and priority fauna species within the Site with Information Source". The wedge-tailed eagle, while protected under the provisions of the <i>Wildlife Conservation Act 1950</i>, is not classified as either significant, rare or a priority species. In fact, the wedge-tailed eagle is a declared pest of agriculture under the provisions of the <i>Agriculture and Related Resources Protection Act 1976</i>. (Reference: DEC Fauna Notes No 17: Wedge-tailed eagles, June 2009).</p> <p>Refer to Section 3.3.3 below regarding Carnaby's Cockatoo.</p>

	<ul style="list-style-type: none"> ...eight trees were identified as possible suitable trees for nesting' Four out of these eight trees were 'suitable'. ...Can the remaining suitable trees be moved to fauna corridors on Boral's land Or, at least, provide new nesting boxes in existing trees north of the Susannah Brook. An increase in fauna linkage corridors throughout Boral's land would demonstrate and juxtapose that Boral are committed to environment protection and that would set a progressive precedent to other extractive quarries. Local resident(s) # 6 	<p>Refer to Item 1 above regarding nesting trees.</p> <p>Refer to the comments at the start of section 3.3.1 above regarding proposed offsets (which includes land set aside for linkages to the west of the proposed quarry site).</p>
7	<ul style="list-style-type: none"> 31hac (really 42hac) doesn't sound a large area, but when you add it to the activity of Hanson, EMRC and Midland Clay pits, it sums up a fast shrinking scarp land habitat that is being fragmented by noisy vibrating activity that is unnatural and results in an area wide depletion of fauna populations, whose migration routes and food sources are disturbed and obliterated and severely confined. Fauna is moved on, inconveniencing neighbouring farmers and intensive agricultural/viticultural enterprises. The completion of quarrying activities will see vast tracts of land excluded from returning fauna by permanently locked gates and high fences. The provision of a fauna corridor (page iv) is debateable as to its effectiveness as wild animals will shy away from unnatural noise and vibration. There is no doubt that populations will be displaced from their territories by the unnatural activity and forced into surrounding areas which are already stressed by groundwater depletion, pollution, erosion, dieback, unbalanced native fauna populations (excessive kangaroos) and the activities of trespassers. Boral misses the point when they say "no species uses the area exclusively"...Boral haven't even conducted property on site surveying or trapping, so how can they say what does or doesn't inhabit the site? 	<p>Refer to the comments at the start of this section regarding impact on fauna populations.</p> <p>Refer to the comments in Section 3.1 Item 3 of this document regarding fencing.</p> <p>Refer to the comments at the start of this section and Section 3.3 above, as well as Section 3.21 Item 4 below, regarding fauna assessments.</p> <p>Section 3.11 below regarding cumulative impacts.</p>
8	<ul style="list-style-type: none"> A common message is that Boral's 31/42 hac of clearing will not have significant impact (page iv) on fauna and its habitat, but add it to the widespread clearing by Midland Brick, Hanson and EMRC, and the picture looks very different....EVERYONE with their won small scale activity is collectively eroding the environment and the quality and quantity of habitat available for fauna species. Boral will trap and relocate fauna (page ix) prior to commencing works. <ul style="list-style-type: none"> - where? - how long will they trap? - for what species? - if they can do the trapping before commencing quarrying, then why can't they extensively trap for PER research? 	<p>Comments as for Item 7 above.</p> <p>As stated in section 8.4.3 of the PER, Boral will undertake a fauna trapping and relocation program prior to commencement of clearing to minimise the potential for fauna loss. Fauna will be relocated to suitable areas to be confirmed with the DEC.</p>

	<ul style="list-style-type: none"> - who will do the trapping? - will there be third party monitoring to ensure transparency and protection in case an endangered species is "inconveniently" caught? - where will the animals be released? To overload another area and be exposed to its predator profile?...You cannot simply translocate animals elsewhere to compensate them for the destruction of their own territory and food source. • The destruction of this large area of quality bushland means the destruction of habitat. • Migratory corridors are NOT habitat. ...Boral preservation of migration areas to the west and east is nothing more than "habitat linkages" (page 45) that force native animals to travel further for food and suffer greater exposure to predators. The inadequacy of this zone for a corridor (certainly NOT as a habitat) is clearly described on Figure 8 (next to page 64) which requires fauna to travel along a long narrow fenced raceway (adjacent to Hanson boundary), only to exit in a concentrated manner on Toodyay Road, putting road users at greater risk. • There will be increase incident of "lost" animals meandering along roadside verges trying to find the narrow entry to the migratory corridor. A far better solution would be to remove the Hanson boundary fence, and combine the 2 corridor areas (they've shared research data, so why can't they combine a wildlife corridor) to create a more sustainable zone of movement and occupancy. • Boral make the...statements based on assumption, hearsay, reports of others based on insignificant local on-site research (Hanson) and desktop surveys. In no way are their findings supported by continuous 12 month surveying of fauna (or flora species). Without such ON SITE survey, the true nature of fauna populations cannot be assessed. Local resident(s) # 9 	
9	If both the requests of Boral and Hanson are approved and quarrying is allowed to commence in the manner forecasted by each company, then the combined zone of deforestation/land destruction, including the existing Red Hill waste treatment facility, will create a 4km wide (E-W) zone of restricted access for N-S faunal movement. In the best case scenario...there will exist only a 300m gap between Hanson and Boral operations.Boral states that there is a 705 gap between its proposed operations and the existing operations of Hanson. The statement in Appendix E is misleading. What studies have been undertaken as to the possible effect of restricting faunal movement along such a wide zone across the Darling Scarp? Boral states that it is committed to maintaining a fauna corridor along the western margin of the site (page 45 and Figure 8 in the Per). However, the width of the proposed offset that would allow for such a corridor is only 50m wide in this area (Figure 8). Local resident(s) #10	Refer to the comments at the start of this section above regarding fauna habitat and linkages.

3.3.3 Fauna – Carnaby's Cockatoo

The submission(s) raised issues regarding the proposal with respect to:

- Concern that the Carnaby Cockatoo assessment not sufficient ;
- offset areas would need to include appropriate nesting and foraging habitat; and
- cumulative impact of this proposal and existing operations on loss of Carnaby's habitat.

3.3.3 Item	Submissions received	Response
1	<ul style="list-style-type: none"> • Significant fauna ...The Report for Gidgegannup Quarry, Referral under EPBC Act (December 2009) states that field inspection was undertaken on the 2nd December 2008..."to assess the potential usage of the site by Carnaby's Cockatoos. No birds were seen on the site and the trees assessed for usage." Birds Australia WA ...state that "Carnaby's Cockatoos are believed to breed mostly in the wheatbelt, returning to coastal and near coastal areas from late December to July". If this is the case then the timing of the field assessment may not have been at the most opportune time for sightings of Carnaby's Cockatoos and the assessment should have been conducted later in December or more preferably in late January to February. BGC (Australia) Pty Ltd 	The flora and fauna assessment undertaken by GHD in December 2007 highlighted the possible usage of the site by Carnaby's Cockatoo. As a result a targeted survey of the site was commissioned to provide information to determine what impact clearing of the proposed area will have on the status of this endangered species and whether assessment will be required by the Department of the Environment, Water Heritage and the Arts (DEWHA). The timing of this survey was targeted to a period when birds could be either at the end of the breeding season with fledgelings or returning to the area for foraging following a breeding cycle further inland.
2	<p>Offsets:</p> <ul style="list-style-type: none"> • ...just because black (Carnabys) cockatoos do not use a site over a particular period of time, there is the potential for the black cockatoos to return to this site in the future. Any offset area to be set aside would need to include appropriate nesting and foraging habitat for the Carnaby's. • DEWHA would also need certainty that the land would be secure in tenure and not mined in the future. • DEWHA notes that 48.35 ha are proposed to be set aside for offset. Below is guidance on recent offset ratios that have been approved by the Minister... Each project is assessed on a case by case basis. However, the Minister expects projects that involve black cockatoo habitat to achieve similar standards to previous approved projects. As a guide the following are some ratios which are indicative of the outcomes recent projects affecting black cockatoo habitat have achieved through a combination of mitigation strategies. 	<p>In order for Carnaby's to successfully breed it requires suitable nesting hollows and adequate food resources. The ground survey found the habitat on the site to have limited tree availability and few feeding possibilities to support breeding birds. However, the potential for Carnaby's to use this site for opportunistic foraging is recognised in both the GHD flora and fauna assessment (Appendix B of the PER) as well as the targeted Carnaby's assessment (Appendix C of the PER).</p> <p>DEWHA Guidance regarding offsets is noted.</p>

	<p>4:1 or higher has been achieved for the creation of foraging habitat – ie for every hectare of cleared habitat, 4ha were created through new plantings of foraging species. The department seeks to create new foraging habitat because we understand that there is not enough foraging habitat to support current black cockatoo populations.</p> <p>6:1 or higher has been achieved for protection of foraging habitat – protecting existing habitat that is under threat can also assist black cockatoos, but his needs to be a higher ratio than creating new habitat because this measure does not add new habitat to existing resources.</p> <p>6:1 or higher has been achieved for protection of breeding habitat – the department prefers protecting existing breeding habitat because of the time it takes for new breeding habitat (seedlings) to become viable (more than 230 years). Given this length of time, the ratio for creating new breeding habitat needs to be higher (above 10:1).</p> <p>DEWHA</p>	
3	<ul style="list-style-type: none"> • Impact on Carnaby's Cockatoo is still a very serious cumulative effect as more and more developments occur in the area. • The Carnaby's Cockatoo Report in Appendix C only covers the area of the quarry pit and stockpiles – it does not cover at all potential feeding and breeding disruption from noise, excavation and pit operations in the broader surrounding areas to the North owned by Midland Brick....A more detailed study on the whole area is required for a meaningful report, • A properly researched and executed study of impact of the whole 450 hectare Midland Brick Ltd owned site is required before this development could be approved. Otherwise the impact on the Cockatoo can not be reasonably determined. • Nesting box proposal for any trees removed as potential Carnaby's Cockatoo breeding sites – issue is noise and clearing disturbance over the whole Midland Brick Site. <p>Local resident(s) # 4</p>	<p>Refer to Item 1 and 2 above.</p> <p>The conservation significance of the Carnaby's Cockatoo and consideration of cumulative impacts of clearing on this species is recognised and was the trigger for referral of this proposal to DEWHA for assessment under the Commonwealth <i>Environment Protection and Biodiversity Act 1999</i> (EPBC Act) . DEWHA have determined that the proposal is a Controlled Action, and as such will be assessed under the EPBC Act. Such issues will be considered as part of this assessment.</p>
4	<p>significant impact thresholds</p> <ul style="list-style-type: none"> • DEWHA notes that 48.35 ha are proposed to be set aside for offset. Below is guidance ... recent significant impact threshold criteria that has been developed. • Significant impact thresholds <p>The Department considers that an action is likely have a significant impact on one or more of the three black cockatoo species if there is a real chance or possibility that it will result in one or more of the following:</p> <ul style="list-style-type: none"> - Any clearing of breeding habitat in woodland stands of 0.5ha or more that contains 3 or more breeding trees of suitable size (ie a DBH greater than 500 mm); 	<p>DEWHA Guidance is noted.</p>

	<ul style="list-style-type: none">- any clearing of known breeding trees of suitable size (ie a DBH greater than 500mm);- Clearing of more than 1 ha of foraging habitat;	
5	<ul style="list-style-type: none">- Creation of a new gap of more than 4 kilometres between patches of black cockatoo habitat;- Clearing of a known roosting site (including individual trees used for roosting);- Shooting of birds or taking of eggs or chicks from the wild;- Introduction of invasive species such as honey bees that creates competition for hollows;- Spreading of known plant diseases such as Phytophthora; or- Altering hydrology or fire regimes so that black cockatoo habitat of more than 1 ha would become degraded or destroyed. <p>DEWHA</p>	DEWHA Guidance is noted.

3.4 NOISE AND VIBRATION

The submission(s) raised issues regarding the proposal with respect to:

- Impacts of planned out-of hours construction work and the need for noise management plan 7 days before hand;
- Management of construction noise; including the need for a specific management plan demonstrating how noise from bund construction will be minimised;
- Noise levels during stage 1, with specific questions raised;
- Concern about noise management for temporary infrastructure, ie mobile crushing, screening;
- Working hours and the impact of noise outside of "normal" working hours, especially early mornings and weekends;
- Noise from other vehicles accessing the site – will they also have quiet alarms? and
- Blast management including specific questions regarding exclusion zones and traffic management as well as relevant noise, vibration and dust limits.
- Impact of quarry noise on lifestyle

There is also a general objection here and in the comments on light impacts, regarding any operations on a Sunday.

Clarification of Quarry Operating hours is provided below for consideration with the following responses regarding noise and vibration and for other responses throughout this document.

<u>Days of operation:</u>	Monday to Saturday
<u>Hours of operation</u>	<u>Nature of operations</u>
0500 – 0700 hrs	personnel arrive to site to commence equipment pre-start, refuelling and other checks as well as complete any necessary safety documentation (eg permits). No trucks arriving on site before 6am. Aggregate load-out to commence after 6am.
0700 – 1800hrs	crushing and screening operations; general quarry operations. Typically on a Saturday operations would be completed early afternoon, however consent will be sought to work until 6pm on Saturdays for eventual issues.

Boral may also in the future seek approval to dispatch (ie load-out) on Sundays, however this would be unusual and would require community notification. The process plant would not be running and no blasting would take place on Sundays.

There is opportunity both within the Department of Environment and Conservation (DEC) operating Licence and the City of Swan Extractive Industry Licence for hours of operation to be stipulated.

3.4 Item	Submissions received	Response
1	<ul style="list-style-type: none"> • Most noise issues raised previously have been adequately addressed; • Noise control measures proposed should be able to bring the noise emissions into compliance at closest residence, if properly implemented; • Regarding out-of-hours planned construction work, the proponent needs to revise their management measures to ensure compliance with noise regulation 13(3), ie to submit a noise management plan and obtain an approval from the City of Swan at least 7 days before the planned out-of-hours construction work. • The proponent has not responded to the recommendation of developing a construction noise management plan for the proposed noise bund construction work, clearly distinct from quarry operations. It is necessary that the proponent can demonstrate that the noise impact from bund construction will be minimised. <p>Department of Environment and Conservation: Noise Regulation Branch</p>	Boral will prepare an Environmental Management Plan as part of the project development. This will include a Construction Noise Management Plan addressing the details outlined in the DEC submission.
2	<ul style="list-style-type: none"> • It is noted in the PER that during Stage 1, for approximately the first five (5) years of operation (depending on demand volumes) that the operation will be unable to comply with Noise Limit Regulations. Questions: <ul style="list-style-type: none"> - what are the estimated noise levels of the operations during stage 1? -what noise level limits will be acceptable to the EPA for a five year stage 1 duration? - what more can be done to reduce the impact of any mobile crushing, screening and handling plant situated in the start-up pit until the fixed plant can be installed and commissioned. <p>Stoneville and Parkerville Progress Association Inc</p>	<p>The predicted noise levels are provided in Table 4.1 of the Noise Impact Assessment (Appendix F). Assessment of the predicted noise levels against the daytime (0700 to 1900 hours) assigned levels under the <i>Environmental Protection (Noise) Regulations 1997</i> (the Regulations) are provided in Table 5.1 and Table 5.3. The noise levels acceptable to the EPA would be the daytime assigned levels under the Regulations, as outlined in Table 2.3.</p> <p>The Noise Impact Assessment recommends to construct a noise bund on the north and east side of the process area. Construction of such a bund will reduce noise levels such that they are predicted to comply with the daytime assigned levels.</p> <p>The submission from the Department of Environment and Conservation: Noise Regulation Branch indicated they were satisfied with the noise assessment provided in the PER. Potential noise impacts have been detailed in the PER. Noise mitigation will be a key issue in the planning and development of the quarry and Boral will consider a number of strategies, including the types of plant (equipment) used on site, in minimising noise impacts at all phases of operation.</p>

3	<ul style="list-style-type: none"> • Boral admits noise levels will exceed regulatory guidelines during the initial construction and operational phases until permanent infrastructure is installed (page iv) e into the pit. This could be anything from 10 to 20 years of adverse noise impact on neighbours. • Boral admit that the construction of the noise bund (above ground) will generate the greater noise impacts to surrounding areas (page iv) than allowed by regulation, greater than the initial construction phase of the pit. How long is this to impact on neighbours? The bund may be removed...Therefore it will be an ongoing source of excessive noise. • Noise will be an issue as Boral are requesting some very long working hours 5am-6pm Mondays to Saturdays (not that elsewhere in the PER they are requesting a 7pm closure) and possibly Sundays....the early hours will be disturbed by heavy haulage vehicles and on site loading and transport vehicles. At that time of the day, noise travels a long way in the stillness of the early morning. • "Quiet alarms such as Smart alarms that emit a noise only 5dB above ambient noise and/or low frequency 'croaker' alarms will be used;" To be meaningful this also needs to apply to all trucks visiting the site. • Page 21 of the Noise Impact Assessment ...says that noise will exceed assigned daytime levels – at 5.00am! 	<p>Boral has committed to implement noise amelioration measures to ensure compliance with the Regulations (page iv).</p> <p>Construction of the noise bund will be required to comply with requirements for noise during construction (Regulation 13) (as outlined in the Noise Impact Assessment report – Appendix C) and as such will not represent a significant noise source. The submission from the Department of Environment and Conservation: Noise Regulation Branch indicated they were satisfied with the noise assessment provided in the PER.</p> <p>If construction activities are required outside the hours of 0700 to 1900 hours Monday to Saturday, Boral will have to comply with the requirements under Regulation 13 (as outlined in the Noise Impact Assessment report – Appendix C). Refer to clarification of quarry operating hours in the discussion at the start of this section.</p> <p>Smart alarms will be fitted to site mobile equipment (eg haul trucks, loaders). The site layout and traffic management plan, is such that trucks carting to and from the quarry will not be required to reverse into loading position and as such smart alarms are not required on these vehicles.</p> <p>Page 21 of the Noise impact assessment by Lloyd George Acoustics states:</p> <p><i>"The noise modelling indicates that at both start-up and figure operations, noise levels may exceed the assigned daytime levels."</i></p> <p>The report then goes on to provide a number of recommendations to ensure daytime levels will comply. These recommendations will form the basis of noise management measures to be specified in the Environmental Management Plan to be prepared for the site.</p> <p>Refer also to Items 1 and 2 above</p>
4	<ul style="list-style-type: none"> • Construction activities may occur outside the assigned hours of 7.00am-7.00pm. ...Boral is not required to give advance notice of this. It is merely required to explain itself "the next business day". (page 72) This is unacceptable. 	<p>Following advice provided in the DEC Noise Regulation Branch submission, Boral will be required, under noise regulation 13(3) to submit a noise management plan and obtain an approval from the City of Swan</p>

	<ul style="list-style-type: none"> Independent noise studies need to be carried out at various points around the proposed site on neighbouring properties to measure impact. <p>Gidgegannup Progress Association Inc</p>	<p>at least 7 days before the planned out-of-hours construction work.</p> <p>The submission from the DEC Noise Regulation Branch indicated they were satisfied with the noise assessment provided in the PER.</p>
5	<ul style="list-style-type: none"> Noise interrupting passive enjoyment of the tranquil Swan Valley. No pleasure to be gained from walking or horse riding in an area accompanied by vibrations, blasting and noise of trucks backing up and filling up their trays. <p>Local resident(s) # 3</p>	<p>The Lloyd George Acoustics Noise Impact Assessment provided in Appendix F of the PER, includes an assessment of background noise. It was found that, at the nearest residence some 900m away: "...the dominant noise source in the area was road traffic and then rustling of leaves in trees, with some wildlife. On some occasions, noise from the Hanson Quarry was considered to be audible. These were intermittent thumping noises and mobile equipment reversing alarms, however neither were at a level that was considered to contribute to background noise".</p> <p>Given that the existing quarry is not contributing to background noise impact on the local area, and the proposed Boral quarry is required to operate to the same assigned noise levels, it is not anticipated that quarry noise will be discernible within the Swan Valley over and above existing background levels.</p>
6	<ul style="list-style-type: none"> Boral admits noise levels will exceed regulatory guidelines during the initial construction and operational phases (how long?) until permanent infrastructure is installed (page iv) e into the pit. This will be many years of adverse noise impact on neighbours, as Boral pit will be considerably closer than the one proposed by Hanson Boral admit that the construction of the noise bund (above ground) will generate the greater noise impacts to surrounding areas (page iv) than allowed by regulation, greater than the initial construction phase of the pit. How long will this impact neighbours? The bund may be removed...Therefore it will be an ongoing source of excessive noise and aggravation for neighbours. Noise will be an issue as Boral are requesting some very long working hours: 5am-6pm Mondays to Saturdays (not that elsewhere in the Per they are requesting a 7pm closure) and possibly Sundays....the early hours will be disturbed by heavy haulage vehicles and on site loading and transport vehicles.... It is not right that they request such extended working hours without consideration of neighbours' right to peace and quite after working hours. Page 21 of the Noise Impact Assessment ...says that noise will exceed assigned daytime levels. ...Boral are arrogant and inconsiderate by expecting the community 	<p>Noise levels will only be exceeded during the period of construction of the noise mitigation bund, which is anticipated to take 3 months. Once this bund is completed, the site will comply with the Noise Regulations, as discussed in Section 8.5 and Appendix F of the PER.</p> <p>Refer also to Item 3 above and the discussion at the start of this section regarding hours of operation.</p>

	<p>to put up with this.</p> <ul style="list-style-type: none"> Construction activities may occur outside the assigned hours of 7am-7pm. Boral is not required to give advance notice of this. It is merely required to explain itself "the next business day". (page 72) This is unacceptable. <p>Local resident(s) # 9</p>	<p>Re construction activities outside of normal operation hours, refer to Item 4 above.</p>
7	<ul style="list-style-type: none"> Noise problems with primary crushing, secondary crushing, screening and truck movements. Noise pollution from a hugely expanded, working quarry. Blasting vibrations causing possible damage to homes and buildings. <p>Swan Valley Rate Payers and Residents</p>	<p>Boral has committed to implement noise amelioration measures to ensure compliance with the Environmental Protection (Noise) Regulations (page iv). Construction of the noise bund will be required to comply with requirements for noise during construction (Regulation 13) (as outlined in the Noise Impact Assessment report – Appendix C) and as such will not represent a significant noise source.</p> <p>In order to comply with the Regulations, Boral will be required to only operate the quarry between 0700 to 1900 hours. Early morning (0500 to 0700 hours) operation will not be permitted.</p> <p>If construction activities are required outside the hours of 0700 to 1900 hours Monday to Saturday, Boral will have to comply with the requirements under Regulation 13 (as outlined in the Noise Impact Assessment report – Appendix C).</p>
8	<ul style="list-style-type: none"> "Quiet" alarms such as Smart Alarms that emit a noise only 5 dB above ambient noise and/or low frequency 'croaker' alarms will be used" – to be meaningful this also needs to apply to all trucks visiting the site. Re Impacts of Blasting - ...very technical & comprehensive report. Risk assessment covered very clearly. Appears to be acceptable risk to surrounding infrastructure. <p>Local resident(s) # 4</p>	<p>Refer to Item 3.</p>
9	<ul style="list-style-type: none"> We are concerned about the staging of temporary mobile crushing equipment by the 5th year. There will be a noise issue with temporary infrastructure, in particular, the mobile crushing equipment. As well the quarry is proposing a slow 'ramp up' so why are they proposing extended and flexible hours of operation. The hours need to be fixed. 5am-6pm hours of operation are too early in the morning and too late in the evening. The noise factor with mobile equipment is a major deterrent by itself, let alone the noise impact for immediate residential neighbours. ...Boral will not be housing its jaw crusher as it is mobile equipment. Therefore, we suggest 6am to 6pm Monday to Friday for sales, however, crushing operations to be from 7am to 4pm. Monday to Friday only. 	<p>Refer to Item 3 and the discussion at the start of this section regarding operating hours.</p>

10	<ul style="list-style-type: none"> • ...we oppose operations on Saturday afternoons and no crushing whatsoever on Saturdays. Neighbours need to have some respite from quarrying operations. As well, vehicular traffic can flow freely again as the trucks congest the roads... • ...we oppose all operations on Sundays. It is the only day of the week that peace and quiet resumes in the valley. ...Moreover, according to Lloyd George Acoustics, I "is recommended that the site only operate between 7am to 7pm Mondays to Saturdays...". • There needs to be fixed hours and agreement with stakeholders to the hours of operation of Boral. • Local resident(s) # 6 	<p>Refer to Item 3 and the discussion at the start of this section regarding operating hours.</p>
11	<ul style="list-style-type: none"> • The control and management of blasting is of major concern to the members of SPAAC, many of whom travel past the proposed quarry site on daily basis. • Specific questions raised: <ul style="list-style-type: none"> - will blasting more frequently (eg once/week) provide smaller blasts resulting in less impact on the environment, wildlife, less noise, vibration and potential for fly-rock damage/injury - what are maximum allowable limits for noise? - what are maximum allowable limits for vibration? - what are maximum allowable limits for blast overpressure? - what are maximum allowable limits for dust emissions? - who will take measurements and how will the results be made public? 	<p>The following information has previously been provided in stakeholder communication and is provided on pages 19-20 of Appendix E of the PER:</p> <ul style="list-style-type: none"> • When the quarry is running at peak capacity (500 000 tonnes per annum), it is anticipated that there will be 1 to 2 blasts per month on average. • Modern blasting techniques result in relatively low impacts. Boral's blasting contractor will design the blast size, firing pattern and sequence to minimise any adverse effects. All blasts area also measured for pressure and vibration to ensure levels are kept within regulatory requirements. • Blast size does not generally influence blast impact proportionally. It is preferable to have fewer blasts than more frequent blasts. • Maximum allowable limits for noise: <i>Environmental Protection Act 1986, Environmental Protection (Noise) Regulations 1997 Regulation 11</i> No air blast level resulting from blasting on any premises or public place, when received at any other premises, may exceed – (a) 125 dB_L Linear peak between 0700 hours and 1800 hours on Monday to Saturday inclusive; or (b) 120dB_L Linear peak between 0700 hours and 1800 hours on a Sunday or public holiday. • Maximum allowable limits for vibration: <i>Australian Standards (AS2187.2 - 2006)</i> 5 mm/s for 95% blasts per year 10 mm/s maximum unless agreement is reached with the occupier that a higher limit may apply.

		<ul style="list-style-type: none"> • Maximum allowable limits for blast overpressure: Australian Standards (AS2187.2 -2006) 115 dBBL for 95% blasts per year. 120 dBBL maximum unless agreement is reached with occupier that a higher limit may apply. • Dust Emissions: National Environment Protection (Ambient Air Quality) Measure (Air NEPM) Air NEPM 24hour PM10 standard of 50 µg/m3 (PM10 = particulate matter with an aerodynamic diameter of less than 10 micrometres) • Measurements will be taken by the blast service provided and reported to the Stakeholder Reference Group.
12	<ul style="list-style-type: none"> • the PER document advises that there should be at least 250 metres clearance from Toodyay Road to reduce the risk of flyrock. It also advises that allowances for fly-rock should be 40 metres behind the blast and 100 metres in front. The power lines and road edge are only 100 metres from the centre of the starter pit. - how is flyrock to be prevented from penetrating Toodyay Road during the start up phase of the quarry development ? - what traffic management plans are there for advising motorists of the date and time of blasting (ie roadside warning signs/permanent warning signs) - how will the local community be given adequate notice and advised of the date and time of blasting? (ie letterbox drop/phone calls, email, SMS, to close neighbours; adverts in local papers, email, SMS to surrounding closures). - what traffic management plans are there for controlling traffic during a blast? (ie manned traffic controllers/road closures?) -given the close proximity to Toodyay Road from the starter pit, what are the likely effects of blast pressure upon passing traffic along Toodyay Road? • Stoneville and Parkerville Progress Association Inc 	<p>A comprehensive assessment of the impacts of blasting is provided in Appendix G of the PER. This assessment provides a number of recommendations, specifically:</p> <ul style="list-style-type: none"> • Before the commencement of drilling and blasting, Boral will be required to develop a Blast Management Plan, which may include the blasting contractor's processes and procedures. • Due to the close proximity of neighbours and the general public conservative blast designs are to be used initially. The initial 3 blast results will be used to calibrate blast parameters to ensure flyrock control, airblast overpressure control, blast vibration control and ensure productive fragmentation. • Airblast overpressure at Toodyay Road could startle drivers and therefore the airblast overpressure would have to be kept below 125dBBL. As per Item 11 above, the maximum allowable limit is less than this at 120 dBBL. • ... using the correct design parameters, surveying and shotfiring services it would be expected that no flyrock would move further than 100m directly in front of the face and no more than 40m behind a shot. <p>In summary, there will be no traffic impacts on Toodyay Road as blasts will be conducted well away from the road so blast pressure and fly-rock will be travelling away from the road.</p> <p>If neighbours wish to be informed ahead of blasting, Boral will provide an email and SMS service, notifying of blast dates and times well in advance of any blast activity.</p>

13	<ul style="list-style-type: none">• The risk assessment blasting Operations...states that the "proposed quarry starter pit is designed to be at a distance of approximately 100m from the Toodyay Road and associated services that are within the road reserve". Theoretical flyrock on a 102mm hole is 655m and on an 89mm hole is 598m...With this in mind, will the usual 600m exclusion zone still apply?• Air blast overpressure has been calculated to be of a maximum of 125 dBl at sensitive sites. This may have an impact on unsuspecting drivers along Toodyay Road. BGC (Australia) Pty Ltd	Refer to Item 12 above.
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3.5 POLLUTION

There were a number of submissions which raised issues related to pollution management which are addressed in the sections below. There was one generic comment (from Local Resident #2) about "...concerns of dust and noise and downstream contamination of waterways"

3.5 Item	Submissions received	Response
1	<ul style="list-style-type: none"> Further to these concerns are the environmental concerns of dust and noise and downstream contamination of waterways <p>Local resident(s) # 2</p>	<p>Boral will prepare an Environmental Management Plan as part of the project development, which will include dust, noise and water quality management.</p> <p>Refer to the discussions under sections 3.2 (Air Quality); 3.5 (Groundwater); 3.6 (Noise); and 3.9 (Surface water) for further information.</p>

3.5.1 Pollution – environmental monitoring

The submission(s) raised issues regarding the proposal with respect to:

- Concerns regarding the success of self regulation and the need for independent monitoring;
- Environmental parameters to be monitored; and
- How monitoring is to be undertaken, with suggestion for automated computerised monitoring with the ability to flag excess readings.

3.5.1 Item	Submissions received	Response
1	<ul style="list-style-type: none"> Monitoring <ul style="list-style-type: none"> - acknowledges proposed monitoring by proponent but would prefer independent assessment of procedures and outcomes by a responsible government body; - monitoring of all parameters should be independent; - PER should have been prepared by the EPA and paid for by Boral Limited; - self regulation doesn't work and until money can be found to enable independent monitoring, no further licenses should be granted. Jane Brook Catchment Group 	<p>Ongoing monitoring, while undertaken by Boral or qualified consultants, will be required to be performed to standards stipulated by relevant regulatory authorities. Furthermore, it is anticipated that there will be ongoing reporting requirements under the environmental conditions set for this project.</p> <p>The PER has been prepared as required by the Office of the Environmental Protection Authority (OEPA) by suitably qualified consultants</p>

2	<ul style="list-style-type: none"> • Mandatory inclusion of a computerised monitoring system. ...This item must be made a mandatory requirement to this PER and to any proposal for extractive industries in the Susannah Brook Valley. Each site must be compelled to install these monitoring stations at the entry and exit of any waterway from or through their sites. • The EPA statement must include the following clause:- <ul style="list-style-type: none"> - an automatic computerised environmental monitoring system must be installed and maintained at Boral's cost. It can be solar powered at each monitoring site; - the system will monitor all relevant parameters and forward the data via the internet in a fully transparent way so the public and the monitoring authorities can view the values in a common data format like Microsoft excel. - the system shall have set points in the data so any readings exceeding the set point will flag an alarm at Boral and an automatic email to the appropriate authorities, ie the EPA - the system will be audited annually for accuracy by an independent NATA approved company chosen by the EPA, who will administer the monitoring process. The data acquisition shall include a measurement of a "standard" sample of the parameter being measured. This sample measurement shall be included in the data taken every measurement cycle. • the parameters to be measured could include, but are not limited to the following: Water – turbidity, pH, flow, phosphates, blast chemical residue Air – dust quantity, dust particulate size, dust distribution, chemical vapours, sound levels, blast pressures in air Ground – seismic vibration amplitude, seismic vibration frequency, blast timing and sequence, seismic vibration spatial distribution Hydrology – groundwater level of both perched and regional local water levels, monitoring of the east west dykes that contain the aquifers is not breached by the quarry Site logistics and management – vehicle movements in and out of the main gate, tonnages transported, power consumption and timing, noise levels internally and externally, wind speed and direction (as it may affect accuracy of other measurements) rainfall, barometric pressure (as it may affect accuracy of other measurements), tamper detection and alarms of the monitoring site itself. Local resident(s) # 8 	<p>As part of the OEPA Assessment it is expected that outcome based management objectives and monitoring requirements will be detailed. Boral will comply with the monitoring requirements stipulated under environmental conditions set for this project.</p> <p>A detailed environmental monitoring programme will be specified within the Environmental Management Plan to be prepared for the site, following the outcomes of the PER assessment process.</p>
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3.5.2 Pollution – existing environment

The submission(s) raised issues regarding the proposal with respect to:

- whether acid sulphate soils are present at the site;
- accuracy of information regarding contaminated sites in vicinity of quarry;
- the inclusion of hobby farms and grazing farms as background local dust sources;
- concern regarding past environmental performance of Boral and others at the clay pits.

3.5.2 Item	Submissions received	Response
1	<ul style="list-style-type: none"> • Has the proposed quarry site been tested at depth for acid sulphate soils, because if oxidisation does occur through disturbance it will release arsenic and other elements into the groundwater? • The statement "A search of DEC's Contaminated Sites Database indicates that there are no contaminated sites within a 5km radius of the site is incorrect! EMRC, the waste disposal facility is a contaminated site..... This is well within five kilometres of Boral's proposed quarry. DEC's database needs updating and this quoted statement above proves that reliance on desk top studies alone by Boral may produce incorrect information. • Any area has the potential to create dust but to compare hobby farms and grazing farms to a working quarry ...is incongruous. [re page 47 Item 5.12.1] To include these latter two (50%) is incorrect in this section. <p>Local resident(s) # 6</p>	<p>As stated in section 5.3 of the PER, a review of the Western Australian Planning Commission's Planning bulletin No 64 (2003, Acid Sulphate Soil Risk mapping, suggests that the Site is located within an area of Class 3 ASS risk, with no known risk of ASS occurring within 3m of the natural soil surface (or deeper).</p> <p>According to the Department of Environment and Conservation (DEC) fact sheets, acid sulfate soils in Western Australia commonly occur in low lying wetlands, back-swamps, estuaries, salt marshes and tidal flats, though are not constrained to coastal regions. There are inland forms of acid sulfate soils not associated with coastal soils and sediments commonly occurring in agricultural areas well inland from the coast. These soils appear to be forming in response to rising water tables and land salinisation in southern WA.</p> <p>Given the low risk, it is consistent with the DEC guidelines <i>Identification and Investigation of Acid Sulfate Soils and Acidic Landscapes</i> (May 2009) that no further site investigation is considered necessary at this stage.</p> <p>The EMRC facility was not listed on the DEC Contaminated Sites Database at the time of preparation of the PER.</p> <p>Section 5.12.1 simply identifies existing land-uses with a potential to generate dust and effect ambient air quality. No comparison between farming practices and quarrying has been made.</p>

2	<ul style="list-style-type: none"> The site east of the proposed Quarry is a disaster zone environmentally. It is a pit used by various companies to extract Kaolin clay for brick making since the 1930s. Boral is the current environmental VANDAL that is destroying this part of our backyard. ...It is an unconscionable act against the ecology of the Susannah Brook Valley, and the quality of life for future generations. <p>Local resident(s) # 8</p>	Boral is progressively rehabilitating areas on the site previously mined for clay that are not earmarked for future extraction. Boral also monitors water quality at various locations within the site as well as in Susannah Brook, both upstream and downstream of existing operations.
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3.5.3 Pollution – light pollution

The submission(s) raised issues regarding the proposal with respect to:

- The impact of lights from the quarry operations, including associated vehicle activity, on nearby residents during early hours of the morning;
- Lack of clarity around operations on the site between 5am and 7am.

There is also a general objection here and in the comments on noise impacts, regarding any operations on a Sunday. A clarification of proposed operating hours is provided in Section 3.4 of this document.

3.5.3 Item	Submissions received	Response
1	<ul style="list-style-type: none"> Boral want to commence business at 5am. There will be an influx of employee vehicles. There will have to be bright lights from 5.00am to 7.00 am in the morning. In the winter this is going to illuminate the sky for miles around. Hours needed to be adjusted in the morning, in winter particularly at weekends. <p>Gidgegannup Progress Association Inc</p>	Lighting will be positioned in such a way as to allow safe operations on site. Typically such lighting will be placed on the perimeter of operational areas, directed onto, and limited to, the immediate work areas. Lighting may be a combination of mobile light towers and fixed structures to achieve this.
2	<ul style="list-style-type: none"> In the winter, neighbours will be woken by bright lighting on dark mornings...ambience will be adversely affected by bright lighting , that , like Hanson's will illuminate the sky for miles around. This will be especially noticeable during the winter months when sunrise is later and sunset much earlier. Boral should be required to shorten their working hours during these months to give neighbours peace and quiet that is free from disturbance by high wattage lighting. Boral want to commence business at 5am. There will be an influx of employee vehicles with bright moving beams...Boral PER document does not explain what happens on site between the hours of 5-7am, 6 days a week, and possibly Sundays. Sunday operation should not be permitted under any circumstance. <p>Local resident(s) # 9</p>	Refer to Item 1 above re lighting as well Section 3.4 re clarification of operating hours.

3.5.4 Pollution – stockpile management

The submission(s) raised issues regarding the proposal with respect to the management of stockpiles, particularly dust and how it may impact users of Toodyay Road.

3.5.4 Item	Submissions received	Response
1	<ul style="list-style-type: none">We have concerns concerning the management of the stockpiles. The heights of these, the proximity to and visibility on Toodyay Road, dust control and drift on to Toodyay Road. What precautions will be taken for the sweeping of Toodyay Road and control of this nuisance? <p>Gidgegannup Progress Association Inc</p>	<p>An area of approximately 4.2 hectares will be utilised for stockpiling crushed rock. The maximum height is not expected to be higher than 5 metres. This site is located approximately 80 metres from Toodyay road at the nearest point , with a vegetated buffer between the road and the stockpile area.</p> <p>Dust control on stockpiles will be achieved using water canons. In addition a wheel wash will be installed at the entrance to the site through which all exiting vehicles will be required to drive through.</p>

3.6 SOLID WASTE – DRINKING WATER SUPPLY BOTTLES

The submission(s) raised issues regarding the proposal with respect to the generation of landfill waste through use of water bottles for potable supply. In particular, this submitter wants to see Boral's commitment to supply of potable water tank reflected in the conditions of approval.

3.6 Item	Submissions received	Response
1	<ul style="list-style-type: none">• Re the proposed use of water bottles for potable drinking water, as there is no potable drinking water supply on site. Recommend installation of potable water supply tank on site to eliminate plastic water bottles and packaging being generated and going to waste land-fill.• Boral Resources (WA) have previously responded advising that a potable water supply tank replenished by potable water tanker can be installed onsite. The members of SPAA would like the EPA to include this in any approval to operate as issued by the EPA. Stoneville and Parkerville Progress Association Inc	As stated in section 2.7.2 of the PER, Boral has committed to the installation of a potable water supply tank at the Site to be serviced by a tanker as required.

3.7 SURFACE WATER AND GROUNDWATER IMPACTS

The submission(s) raised issues regarding the proposal with respect to:

- concern that topographic map showing site contours has not been provided despite requests;
- lack of certainty re impacts on groundwater from quarrying activities;
- lack of on-site groundwater surveys or follow up of local indigenous knowledge re underground streams;
- concerns regarding contamination of Susannah Brook from existing clay pits as well as proposed quarry;
- insufficient detail regarding monitoring of Susannah Brook;
- The effectiveness of use of existing clay pits to capture sediment , particularly in heavy rainfall events;
- Management of discharges to Susannah Brook in severe rainfall / storm events;
- Impacts from existing clay pits and concern that these impacts are not addressed in the PER

It should be noted here that The Department of Water (Regional Management and Water Information section) commented that they are "satisfied that the advice previously given has been incorporated and therefore has no further comment".

3.7 Item	Submissions received	Response
1	<ul style="list-style-type: none">• Boral do not believe that surrounding users of groundwater will be impacted by their activity as they believe the perched aquifer is highly localized and separated from surrounding aquifers.• Despite numerous requests, we still have not seen a map with topographic lines.• If a neighbour is adversely affected, what compensation or remedy is available, if, the deeper rock aquifer does influence the bores of surrounding landholders within a 3km radius?• The quarry will intercept the deeper groundwater table p iv). This has the potential for more negative cumulative effects on the environment and soil hydrology that cannot be predicted with any certainty.• Boral have done no testing to determine the actual location of small localized perched aquifers on their property. They have related information pertaining to other properties (EMRC and Hanson (page 22)) and sites on their property more than 200m from the proposed pit edge (page ;21) and dismissed the aquifers as "minor, perched, of no regional interconnectivity, and any impacts by quarrying would be much localized" (page 21).	<p>In the absence of sufficient local (site specific) hydrogeology information, it is appropriate to consider local hydrogeological data from adjacent sites within the same regional geology to determine likely groundwater behaviour.</p> <p>An assessment of groundwater reports for the adjacent Red Hill Landfill Site and the neighbouring Hanson Quarry indicate that groundwater levels broadly correlate to topographic surface levels being approximately 60m below surface level. Topographic maps are available.</p> <p>Section 1.2.1 of the GHD Surface and Groundwater Report (Appendix A of the PER) assessed the water supply bores in an area within 3km of the quarry site and found that the depth of groundwater in the abstraction bores are generally shallow (<10m depth) and that water yield decreases substantially after the winter rainfall period. This is consistent with these bores being located in local perched aquifers and not the deeper (ie</p>

	<ul style="list-style-type: none"> • The destruction of local aquifers by quarrying or blasting that cracks the bedrock containment would have adverse affect on flora beyond the pit boundary. • These assumptions are based on desktop surveys, anecdotal report from Boral staff, and drilling reports from a neighbouring property. • The Nyoongar elders have identified this area as containing underground streams (page 22). • There is serious concern that contamination of Susannah Brook is still a significant future risk. This is focused on the sedimentation trap dam described in the report and that some of the existing Midland Brick clay pits have the potential to broach in heavy rainfall and the impact of these are not included in this PER....There is no detail on what would be done and how it would be monitored. • Discharge of excess stormwater: <ul style="list-style-type: none"> - ...we are extremely concerned that stormwater will be diverted to onsite clay pits to contain sediment on site. This is not satisfactory as clay pits have leaked to Susannah Brook in the past. - Upon closure of the quarry, how will contaminated areas (workshops, bitumen hardstand, carparking bays with oil deposition P 54) be monitored to ensure polluted water does not enter local aquifers and streams? Who will empty silt traps to ensure silt does not overflow into the surrounding landscape and water courses? <p>Gidgegannup Progress Association Inc</p>	<p><60m depth) groundwater aquifer.</p> <p>With the perched aquifers and Susannah Brook being some 60m above the deep groundwater table, these will contribute to the groundwater through infiltration rather than the deep aquifer contributing to either shallow bores or the stream. Any intersection of the deeper groundwater table by the quarry pit will therefore not impact on the shallow bores or Susannah Brook.</p> <p>For the purposes of managing site specific groundwater issues and impacts, as stated in section 8.2.3 of the PER, Boral will</p> <ul style="list-style-type: none"> • install groundwater monitoring bores to ensure groundwater depth and quality is well understood in the area of the proposal and prior to the development of each cell; • develop a groundwater management plan; and • provide contingency measures in the event that the Quarry encounters a preferred groundwater flow path or shatter zone (this is about managing safety within the pit than risk of impacts on local groundwater). <p>Surface runoff will be managed to ensure that the quality of water within Susannah Brook is not impacted by the proposal. This will be verified by a water quality monitoring programme, which will include monitoring locations within and adjacent to existing clay pits and within Susannah Brook upstream and downstream of the quarrying operations. Refer also to responses provided in Section 3.9.</p> <p>Refer to Section 3.9.1 Item 1 for response regarding management of the quarry post closure.</p>
2	<ul style="list-style-type: none"> • Boral do not believe that surrounding users of groundwater will be impacted by their activity as they believe the perched aquifer is highly localized and separated from surrounding aquifers. • Despite numerous requests, we still have not seen a map with topographic lines. • If a neighbour is adversely affected, what compensation or remedy is available, if, the deeper fractured rock aquifer does influence the bores of surrounding landholders within a 3km radius? • Boral have done no testing to determine the Actual location of small localized 	<p>Refer to Item 1 above.</p>

	<p>perched aquifers on their property. They have related information pertaining to other properties (EMRC and Hanson (page 22)) and sites on their property more than 200m from the proposed pit edge (page 21) and dismissed the aquifers as "minor, perched, of no regional interconnectivity, and any impacts (by quarrying) would be much localized" (page 21).</p> <ul style="list-style-type: none">• The destruction of local aquifers by quarrying or blasting that cracks the bedrock containment would have adverse affect on flora beyond the pit boundary. It will destroy small localized "perched aquifers" that are essential to the survival of vegetation during the summer drought. The potential for widespread demise of vegetation is very real.• Boral is making sweeping statements based on personnel of dubious bias and unqualified knowledge, desktop surveys based on information that is decades out of date and drilling surveys from a neighbouring property considerable distance, on the other side of the road and topographically different. This is not responsible information gathering or relevant reporting.• The Nyoongar elders have identified this area as containing underground streams (page 22). But these have not been investigated. <p>Local resident(s) # 9</p>	
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3.7.1 Groundwater

The submission(s) raised issues regarding the proposal with respect to:

- impacts of the quarry pit on local groundwater and therefore on bores on nearby properties;
- concern that no on-site groundwater surveys have been done;
- concern that proponent has not demonstrated an understanding of local geology which directly affects groundwater hydrology; and
- concern there is insufficient information to assess impact of quarrying on local groundwater.

3.7.1 Item	Submissions received	Response
1	<ul style="list-style-type: none"> • Groundwater: <ul style="list-style-type: none"> - new pit could intersect the deep water table and this will have long term irreversible effects. - destruction of a potential potable water source is unacceptable. <p>Jane Brook Catchment Group</p>	<p>Boral is committed to installing groundwater monitoring bores in line with the recommendations in Appendix A (page 6).</p> <p>If groundwater is intersected within the pit, this water will be retained within the pit for use within quarry operations.</p> <p>Boral believe it is relevant to reference groundwater observations from neighbouring properties, particularly the Hanson operations, given the similarities to those proposed for this site and the local geology and hydrogeology.</p>
2	<ul style="list-style-type: none"> • The PER also states that groundwater may be affected up to 3km radius from the quarry footprint, there are many properties that fall within that area, reliant on groundwater and will be impacted by the loss of this resource. <p>Local resident(s) # 2</p>	<p>This comment is incorrect. The PER actually states that: "<i>an assessment of the water supply bores took place in an area within 3km of the quarry site</i>" and does not make inference to any potential impacts of quarrying operations on shallow perched groundwater resources.</p>
3	<ul style="list-style-type: none"> • Section 4.7 Hydrogeology – desktop study only with surface visits to Boral and Hanson Sites – extrapolations from EMRC site, but more recent EMRC monitoring info submitted to DEC, including groundwater contamination at SW margins of EMRC property not included. Local resident(s) # 4 	<p>The EMRC results were not available to Boral at the time the PER was prepared.</p>
4	<ul style="list-style-type: none"> • Conduct specific hydrological studies in order that definitive conclusions can be made. • ...reference to a major source from which to draw conclusions, is made to a report conducted on a site 1km away, upstream of man-made diversion mechanisms, for a land-fill waste area....it seems negligent to use this report as a major source when qualifying effect on ground, sub-surface and local aquifers. It would be far more 	<p>Refer to Item 1 above.</p>

	<p>responsible to conduct a survey in the proposed project area. Observations relating to water tables, flow paths and surface drainage would be heavily influenced by the fact that Toodyay Rd cuts right between the two sites where man-made drainage and water diversion techniques have been deployed. Local resident(s) # 5</p>	
5	<ul style="list-style-type: none"> • The PER does not contain enough facts upon which to form the conclusion that the local groundwater table will not be drawn-down or effected by quarrying. The concern is that any draw-down of the local groundwater table could adversely affect the flow-rates in the bore holes of the local residents. • Most of the data cited in the Hanson AquaTerra report, upon which the Boral PER draws heavily, is not based on data collected by Hanson and refers to the results of the Red Hill waste treatment facility bore hole and 5 other holes in Achaean granitic terrain that lie within 5km of the Red Hill quarry. Hence, many of the conclusions with regards to groundwater hydrology in the proposed Boral quarry area are based on the limited data of others and a bore hole that is located about 1km away at Red Hill. This bore may not be representative of the groundwater hydrology of Boral's intended quarry site. • The company has not completed any of their own bore holes in the proposed quarry outline to measure depth to groundwater or inflow-rates within the fractured rock aquifer but rely on the limited data of other. This seems remiss and as for the lack of documentation concerning visual amenity, may indicate that Boral is reluctant to perform the adequate baseline work to assist in future measurement of the company's ability to operate in a sensitive environment. • The PER does not provide a geological map of the area to demonstrate knowledge of the location of dolerite/diorite dikes and fracture/damage zones, which may focus groundwater flow paths and localize draw-down of the local groundwater table. • Boral could be in error with regards to the inferred northerly trend of the diorite dikes on their property and have not demonstrated local geological evidence, such as an accurate geological map, to support their claim that "the compartmentalized groundwater system caused by the north-south trending dikes...would tend to limit east-west groundwater drawdown impacts" (page 20 in the PER). • I would give more credence to the forward looking statements made in the PER concerning the lack of impact on the groundwater table and the bore water supply in nearby properties if the company collected and provided more data from their own site and indicated an understanding of the local geology, which directly effects groundwater hydrology. Local resident(s) #10 	Refer to Item 1 above.

3.7.2 Surface Water Impacts

The submission(s) raised issues regarding the proposal with respect to:

- Cumulative impact of pollutants entering the Swan River system via Susannah Brook, Jane Brook and their tributaries;
- Contamination of Susannah Brook;
- Impacts from existing clay pits and concern that these impacts are not addressed in the PER;
- Concern regarding ownership and therefore responsibility of clay pits and any impacts on Susannah Brook;
- Monitoring of Susannah Brook and ephemeral streams;
- Lack of clarity of impacts on surface and groundwater;
- The effectiveness of use of existing clay pits to capture sediment;
- Concern that buffer between quarrying activities and the banks of Susannah Brook or other ephemeral streams is insufficient;
- Lack of consultation with Swan River Trust.
- The effectiveness of use of existing clay pits to capture sediment , particularly in heavy rainfall events; and
- Management of discharges to Susannah Brook in severe rainfall / storm events.

Surface runoff will be managed to ensure that the quality of water within Susannah is not impacted by the proposal. This will be verified by a water quality monitoring program, which will be incorporated into the Environmental Management Plan to be developed for the site upon completion of the PER process. The water quality monitoring program will include monitoring locations within Susannah Brook upstream and downstream of the quarrying operations (Stations 1 and 4 ,7 and 8 respectively in Figure 1 below). Water quality within existing water catchment dams (ie previously Midland Brick dams) on the property will also be monitored (Stations 2, 3, 5 and 6 in Figure 1 below). Surface water monitoring commenced in the winter of 2009, to provide baseline water quality information.

Manual sampling will be undertaken by Boral personnel on a monthly basis, commencing from first flow in Susannah Brook until flow ceases (approx June through to October) each year. Physical conditions encountered at each monitoring station will be recorded for each sample taken as well as photographs being taken at each station. Sample bottles will be provided by the relevant testing laboratory. On the same day of sampling, the samples will then be transported to a NATA accredited laboratory for analysis.

A sampling register will be maintained with information collected at the time of sampling (including sample date, time, site ID, sample ID and name of sampler, conditions at the site) as well as the analytical results and any resultant commentary. The primary focus of quarry water management is to prevent sedimentation impacts on Susannah Brook. This will largely be achieved by drainage of water away from Susannah Brook and back to existing pits, particularly during initial clearing and ground breaking. These pits will act not only as a capture point (for subsequent water use on site) but also as sedimentation basins, ensuring any overflow is free from suspended particles. The key indicator for water monitoring will therefore be total suspended solids ("TSS"). Other water quality parameters to be monitored and proposed trigger levels and mitigation measures are included in Table 3 below.

Monitoring results will be evaluated with consideration given to the trigger values in columns 2 and 3, as well as baseline monitoring data (pre-quarry development) and seasonal factors (eg low flow or unusually heavy rainfall etc). Where a trigger value is exceeded (or in the case of pH falling below the lower limit) an investigation into the likely cause will be undertaken. This will include a visual inspection of the monitoring location and any upstream water catchment structures to ensure continued integrity.

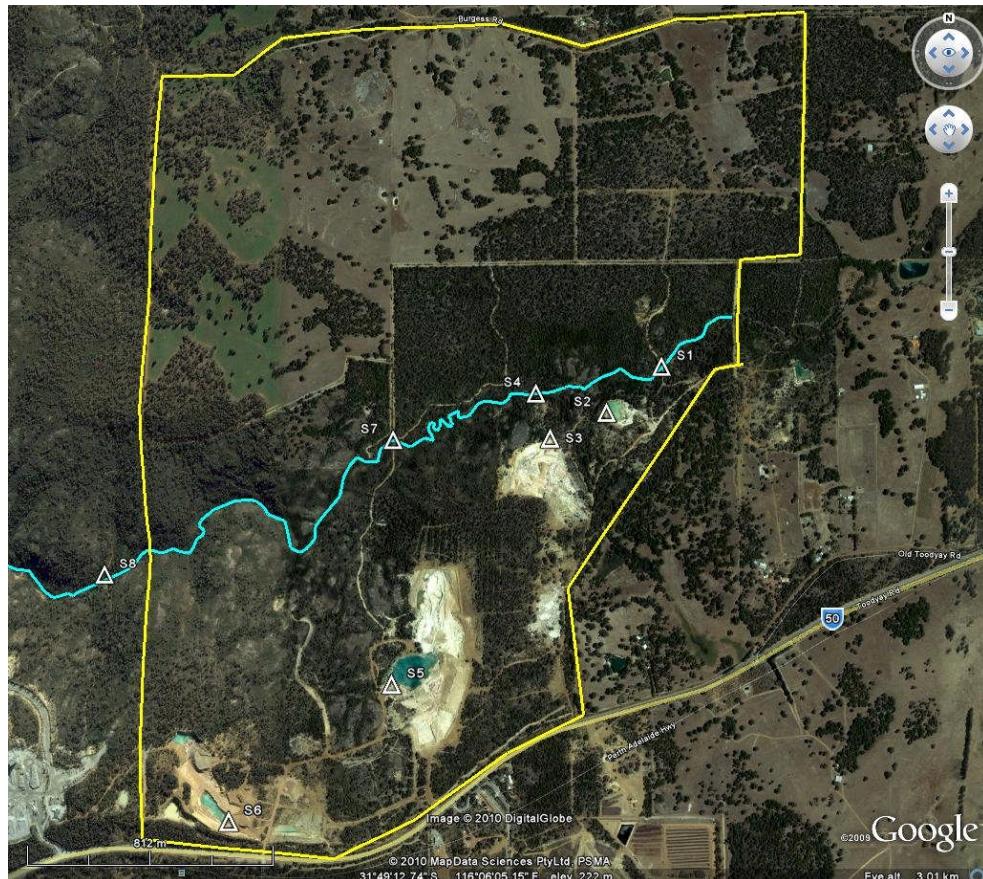
Further sampling may also be undertaken. In the event that excessive levels are found to be caused by site activities, immediate remedial action relevant to the cause, will be undertaken.

Table 3 Water Quality Monitoring Parameters

Water Quality Parameter	Range of Trigger Values *	Values for evaluation and reporting **	Evaluation Comments*
pH	6.5 – 8.0	acidic: <6.5 Neutral: 6.5-8 High: >8.0	*** Old clay pits may tend to be slightly alkaline. High pH values may indicate runoff from these areas.
salinity as measured by electrical conductivity (EC) uS/cm	120-300 (0.12-0.3mS/cm)	mS/cm Fresh: <0.965 Marginal: 0.965 to 1.952 Brackish: 1.953 to 8.835 Saline: >8.835	*Conductivity will vary depending on catchment geology. Lower conductivity values are often observed following seasonal rainfall. ***May be impacted by off-site agricultural clearing in catchment.
turbidity NTU	10-20	Low: <5 Moderate: 6 to 10 High: 11 to 24 Very High: >25	*Turbidity and suspended particulate matter are highly variable and dependant on seasonal rainfall runoff. *** Turbidity related to stream flow, typically flowing stream – higher turbidity or still water = lower turbidity.
total suspended solids (TSS) mg/L	not provided	Low: <5 Moderate: 6 to 10 High: 11 to 25 Very High: >25	*** Impact may be evident following release of water following heavy rainfall periods, especially if near disturbed ground or old MBC dams.
Notes:			
* These are the default trigger values for southern Western Australia for "upland & lowland rivers" in "slightly disturbed ecosystems", as defined by the <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality (revised 2000)</i> , and are used where regional trigger guidelines have not been developed.			
** These values correspond to those developed for the Department of Water's Swan Region Water Quality Monitoring and Evaluation Reporting .			
*** Boral evaluation commentary.			



Figure 1: Water Quality Monitoring Locations



MONITORING LOCATIONS:

Upstream Susannah Brook

S1 – inflow to Boral property

Discharge point to Susannah Brook

S4 – final discharge from S3

Existing dams or 'containment areas'

S2 – containment area 1

S3 – overflow pipe from containment area 2

S5 – containment area 3

S6 – containment area 4

Downstream – Susannah Brook,

S7 – Midway point of Susannah Brook through property

S8 – boundary of Boral and Hanson property.

3.7.2 Item	Submissions received	Response
1	<ul style="list-style-type: none"> • Water: <ul style="list-style-type: none"> - pollutants from quarry will add to the load in the Swan River (via Susannah Brook, Jane Brook and their tributaries) - concern that directing surface water into clay pits will not be sufficient to prevent sediment loss to local creeks in the event of flash flooding; - existence of clay pits is a danger not addressed in the PER. - cumulative changes to quantity and quality of water supply will destroy the viability of the river system <p>Jane Brook Catchment Group</p>	<p>The footprint of the quarry area falls within the Susannah and Jane Brook Catchments, with the quarry footprint impacting slightly on one of the ephemeral streams that drain into Susannah Brook. To ensure these catchments are protected, all runoff from the quarry site (quarry pit, stockpiles and plant areas) will be directed to one of the following, depending on direction of flow:</p> <ul style="list-style-type: none"> - the existing western dams (ie old clay pits) - the existing sediment trap dam, which has a membrane and filter bed; or - retained within the quarry pit itself (once the pit is established). <p>These various ponds and dams allow the sediment to be captured and retained and therefore not released to watercourses, and the water to be reused within the quarry operations.</p> <p>Based on the Department of Water's Water Quality Protection Guidelines No 6 <i>Water quality management in mining and mineral processing : minesite stormwater</i> and requirements of the Australian Standard 3500.3, surface water structures will be designed for a 1 in 20 year flood event. Overflow structures will be sized based on risk, but will be in excess of the 20 year flood.</p> <p>Surface runoff will be managed to ensure that the quality of water within Susannah and Jane Brook is not impacted by the proposal. This will be verified by a water quality monitoring programme, which will include monitoring locations within Susannah Brook upstream and downstream of the quarrying operations.</p>
2	<ul style="list-style-type: none"> • Pollution of pristine Susannah Brook (the cleanest tributary to the Swan river; by a Water and Rivers Commission Research Document). <p>Swan Valley Rate Payers and Residents</p>	Refer to Item 1 above.
3	<ul style="list-style-type: none"> • Susannah Brook will be detrimentally impacted by the proposed expansion of quarry works. It is interesting to note that water samples are never taken when the water is looking murky and yellow buy only when it looks clear. • Local resident(s) # 3 	Refer to Item 1 above.

4	<ul style="list-style-type: none">• I have serious concern that contamination of Susannah Brook is still a significant future risk. This is focused on sedimentation trap dam described in the report...• Turbidity contamination of Susannah Brook from existing clay pits – must be addressed.• Statement made in Summary of Proposed Management - "Storm water will be diverted to onsite clay pits to contain sediment on site." This is not satisfactory as clay pits have leaked to Susannah Brook in the past.• Page 52 – Impact on Surface Water – talks about 42 hectare quarry impact on surface water – the whole lot is 450 hectares owned by Midland brick has a broader impact including a number of existing clay pits – this needs to be addressed as a whole or any problems will just be bounced from Company to Company even though they are both subsidiaries of Boral.• Page 12 – "other runoff water which does not flow into these dams flows to a constructed sediment trap dam, which has a membrane and filter bed. All final overflow discharges into Susannah Brook." – Query whether this sediment trap dam has overflowed before and confirm it is on the Quarry owned site and not on Midland brick land not covered by this PER.• ...the sediment basin facility north of the proposed quarry area will be maintained to minimize the potential for contaminating Susannah Brook;" – There is no detail on what would be done and how it would be monitored – concern for Susannah Brook. Local resident(s) # 4	<p>Refer to Item 1 above.</p> <p>As noted in Section 3.2, Item 9, Boral Resources (WA) Ltd has full ownership of the entire site, including the quarry pit and land previously used for clay extraction.</p> <p>With respect to the management of the existing constructed sediment basin, the membrane will remain and the existing filter bed will be excavated of sediment build-up and replanted with reeds; and the spillway from filter bed will be repaired. Sediment levels will be observed and maintained as required, to prevent discharge of sediment to Susannah Brook. Monitoring of water quality within Susannah Brook up and downstream of this point has already commenced.</p>
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5	<ul style="list-style-type: none"> re "a pit developed on the Site to extract Kaolin stores water within the pit"...these pits have a settling pond that has a very weak and badly constructed wall. This wall breached in 1996 and flushed kaolin clay down the Susannah Brook for over 5 kilometres. The flush went on for around 2 WEEKS. It killed the ecology of the brook by choking the aquatic flora and fauna. Some species have not returned from this catastrophe. ...To this day the clay pit wall has not been strengthened or greatly improved. No preventative actions have been taken to avoid another occurrence. It remains a disaster waiting for the once in a decade event to make happen again. What has this got to do with Boral Quarry? The quarry division is trying to dis-associate itself from the actions of "that other section of Boral who dig clay". <p>Local resident(s) # 8</p>	<p>Boral is committed to managing surface water runoff on the site to prevent adverse impacts on Susannah Brook. Refer to Item 1 above.</p> <p>The dam referenced in this submission (on Lot 151) lies to the east of the quarry pit and is not proposed to be used for catchment of surface runoff from proposed quarrying operations and is therefore outside of the scope of the PER.</p> <p>However, as Boral Resources (WA) Ltd has now assumed full ownership and operational control of both the clay and granite resources at this site, monitoring of any discharges from this dam will be undertaken and included in the water quality monitoring programme for the site.</p>
6	<ul style="list-style-type: none"> From conclusions: There is no water quality monitoring stations for any of the ephemeral creeks or Susannah Brook. In 2.1 Geomorphology it is stated that the "Quarry Footprint impacts slightly onto one of the ephemeral streams' however in the long term proposal (clay pits reopening) and that the Hanson's proposal, these streams would be quarried up to 50m (self regulated buffer) from the banks of....Susannah Brook, no provision has been made in regards to the ephemeral streams. Both Boral and Hanson intend to extract product up to this buffer for several hundreds of meters along Susannah Brook. There is no mention of the Swan River Trust being involved in the consultation process...the reports states that the impact Susanna Brook has on the Swan River is less than .001%, the assumption made for an overarching picture of the complete Swan River system. Whereas, if the footprint of the actual feed flow and seepage into the Swan River in the area of Susannah Brook outlet were assessed, the conclusion may be different when considering settlement contaminants in the restricted area. The silt or fines that will escape into the ephemeral streams from the surrounding 	<p>Boral has already established a number of monitoring points upstream and downstream of proposed quarrying operations both within the site and within Susannah Brook. A water quality monitoring programme will be incorporated into the Environmental Management Plan for the site.</p> <p>The PER indicates that the proposed quarry pit at its nearest point is well over 150m south of Susannah Brook (refer to Figure 8). This comment appears to be more relevant to previous Hanson documentation and not this PER document.</p> <p>Comment on the PER has been provided by the Department of Water.</p>

	<p>settlement area is most likely to significantly impact on the water quality of the catchment area of Susannah Brook when rains fill ephemeral creeks, drainage areas and land wash areas flow in the main tributary.</p> <ul style="list-style-type: none"> • From conclusions: Water uses vary between the Hanson (1.5mtpa lower consumption) and Boral (500 000tpa- greater consumption) quarries and needs to be addressed to ascertain actual water consumption. • From conclusions: A study to ascertain definitive clarity of impacts on water (ground and surface) quality into the future. Local resident(s) # 2 	<p>Refer to Item 1 above. A condition of approval may include waterway protection and the implementation of stormwater management plans, both during construction and operation. A key function will be to control transport of silts and fines off site.</p> <p>Water consumption for the Boral quarry is calculated on basis on likely requirements for dust control and site amenities. Usage at Hanson quarry is not relevant to this proposal.</p> <p>See comments above regarding proposed monitoring programme.</p>
7	<ul style="list-style-type: none"> • Effect of leaching white murky water from existing dams into Susannah Brook. Efforts to control contamination have not worked. Susannah Brook is a very important site in itself. Swan Valley Nyungah Community 	<p>Refer to Item 1 above.</p> <p>Boral acknowledge the importance of Susannah Brook and is currently working with members of the Swan Valley Nyungah Community to improve the reed bank filtration system</p> <p>Surface runoff will be managed to ensure that the quality of water within Susannah is not impacted by the proposal. This will be verified by a water quality monitoring programme, which will include monitoring locations within Susannah Brook upstream and downstream of the quarrying operations. A condition of approval may include waterway protection and the implementation of stormwater management plans, both during construction and operation. A key function will be to control transport of silts and fines off site.</p>
8	<ul style="list-style-type: none"> • The members of SPPA are very concerned about water/sediment runoff into the Susannah Brook from the proposed quarry development. Questions: <ul style="list-style-type: none"> - what provisions have been made for and what protection has been provided for against the effects of severe weather storms/heavy rainfall? - if provisions/protection have been provided for, are they adequate to contain the effects of any severe weather storms/heavy rainfall - how will the Susannah brook be protected against water/sediment runoff in abnormal weather storms/heavy rainfall (100?year flood) <p>Stoneville and Parkerville Progress Association Inc</p>	<p>Refer to Item 1 above regarding design to 1 in 20 year flood event.</p> <p>It is unlikely that any of the dams on site or any others in the local community could accommodate a 100 year flood, which would be considered a catastrophic event.</p>

3.7.3 Surface water impacts – discharge of excess stormwater

The submission(s) raised issues regarding the proposal with respect to:

- management of contaminated areas upon quarry closure;
- existing stormwater management at the site with particular questions regarding an existing roadside drain; and
- the protection of Susannah Brook.

3.7.3 Item	Submissions received	Response
1	<ul style="list-style-type: none"> • ...upon closure of the quarry, how will contaminated areas (workshops, bitumen hardstand, car parking bays with oil deposition – page 54) be monitored to ensure polluted water does not enter local aquifers and streams? Who will empty silt traps to ensure silt does not overflow into the surrounding landscape and water courses? • Driving past the clay pit entrance opposite EMRC entrance on Toodyay Road, there is a large diameter black water pipe exiting their property next to a power pole. It is positioned to discharge into the MRD Toodyay Rd roadside drain. <ul style="list-style-type: none"> - What is this for? - what type of water is being discharged? - why can't the water be contained and treated on site? - where is this pipe coming from? - Could it be impacted by fire? - Was approval granted for the re-routing of discharge? - Are the roadside drains excavated to absorb this extra runoff? - Who pays for the repairs of blocked drains and the consequential hazard to road users if the drains block up (with rubbish) and overflow because of the additional discharge volume? • Water from this drain eventually reaches Susannah Brook. This water is already burdened with rubbish because of the EMRC waste facility. Local resident(s) # 9 	<p>Upon closure of the quarry, workshops will be removed and any oily water traps will be emptied. Ongoing management of silt traps and water quality monitoring will form part of site rehabilitation plans. Final end use planning and rehabilitation plans will be submitted for any necessary approvals by relevant regulatory bodies.</p> <p>The EMRC currently draw water from the Boral catchment dams when required, this water is not discharged into roadside drains. When Quarry operations commence, it is envisaged this supply to EMRC will cease. Environmental matters relating to EMRC outside the scope of this proposal and the PER.</p> <p>As discussion in Section 3.9, stormwater runoff will be diverted into existing on-site clay pits for use within the quarry. Special attention will be given to the design of stormwater structures to limit runoff into Toodyay Road.</p> <p>Surface runoff will be managed to ensure that the quality of water within Susannah and Jane Brook is not impacted by the proposal. This will be verified by a water quality monitoring programme (which will be incorporated into the Environmental Management Plan for the site) and will include monitoring locations within Susannah Brook upstream and downstream of the quarrying operations.</p>

3.7.4 Surface water impacts - water supply

The submission(s) raised issues regarding the proposal with respect to:

- The source of water supply for the quarry ;
- Whether groundwater will be required; and
- Whether existing dams require increase in capacity.

3.7.4 Item	Submissions received	Response
1	<ul style="list-style-type: none"> • The company says it will be "generally self sufficient on water" (page 8). Generally? This is vague, especially as the capacity of the dams has not been defined. • Is the company proposing to sink a few bores just in case? • Are there existing bores on site? • Do they propose to increase the holding capacity of the existing dams. <p>Local resident(s) # 9</p>	<p>Water requirements at the proposed quarry will be met using water harvested from the extensive onsite network of water filled dams and clay pits. The onsite clay pits will be recharged in winter months by groundwater and rainfall storm water flows from the quarry site. Drinking water will be supplied via a potable water tank to be installed at site, serviced by a tanker as required.</p> <p>There are no existing bores onsite, nor is there any intention to install bores for groundwater extraction. The only bores to be drilled will be for the purposes of groundwater monitoring. As stated in section 8.2.3 of the PER, groundwater monitoring will be undertaken to ensure that the groundwater depth and quality is well understood in the area of the proposal, prior to development of each cell.</p>
2	<ul style="list-style-type: none"> • The company says it will be "generally self sufficient on water" (P 8). Generally? This is vague, especially as the capacity of the dams has not been defined. • Is there a proposal to sink bores or are there bores on site? • Do they propose to increase the holding capacity of the existing dams? • What calculations have been made for loss in recycling and evaporation? <p>Gidgegannup Progress Association Inc</p>	Refer to Item 1 above.

3.8 TRANSPORT IMPACT

The submission(s) raised issues regarding the proposal with respect to:

- Lack of detail on how increased truck traffic on Toodyay Road from this proposal will be managed;
- Concern regarding the increase in volume of trucks using Toodyay Road and associated safety hazards;
- Cumulative effect of additional truck traffic to vehicles servicing other industries in the area and also using Toodyay Road;
- Inability of Toodyay Road to cope with existing traffic loads both in terms of insufficient lanes up hill and down hill as well as road surface quality;
- Concern that traffic impact will extend into more hours of the day due to Boral's proposed work hours;
- Concern that local roads will be used for haulage by trucks for non local deliveries (ie as "short cuts");
- Diversion of stormwater from entering Toodyay Road;
- Concern projected traffic figures are underestimated, and do not take into account light vehicles (eg associated with site personnel) or ad hoc deliveries or traffic associated with the proposed Port Bouvard Gidgegannup townsite development.

A number of these submissions suggest that the Government needs to upgrade Toodyay road, preferably prior to any further development which may contribute additional traffic load, especially truck traffic. The additional issue of the lack of a truck arrestor bed on this road was also raised.

In response to the general concerns above, the following information (provided in the PER) is noted:

Boral recognises the community concerns regarding road safety on Toodyay Road and has engaged and offered to work with other organisations to address the issue of improving traffic conditions on Toodyay Road. However, apart from issues relating to the Boral Quarry entry, this problem is beyond Boral's control and outside of the scope of this PER.

Boral is responsible for ensuring safe traffic movements in and out of the quarry. To this end, as stated in section 9.3.3 of the PER, Boral will design a new entrance to the Quarry in consultation with, and to the standards of, Main Roads WA to allow for acceptable sighting distances looking both east and west. The entrance design will also incorporate acceleration and deceleration lanes in both directions of Toodyay Road, and will be designed to minimise stormwater running across the intersection. Parking space will be provided within the entrance gate to prevent queuing of truck on Toodyay Road and Boral will coordinate its transport vehicles with staggered starts to eliminate the requirement for excessive wait times inside the quarry.

Note there is an inconsistency in the PER with the reported total percentage increase in traffic from 2007 data, ie in the executive summary 3.9% is quoted while in section 9.3, 2% is quoted. Based on the figures provided in the executive summary, a 3.9% increase will be used in the responses below (as opposed to the 2% referred to in Section 9.3 of the PER). This matter is also discussed in Section 3.21 Item 1 of this document below.

3.8 Item	Submissions received	Response
1	<ul style="list-style-type: none"> Boral estimate of additional 12 trucks per hour. This equates to 24 vehicle movements. This considerably increases the heavy truck traffic on Toodyay Road. Boral base these figures on trucks carrying 30 tonnes at a time.the real impact is heavy trucks descending Red Hill. This creates a significant bottleneck and safety issues. Again the cumulative effect of Midland Clay Pit expansion, Hanson Quarry extension and new Boral Quarry will manifest itself by its dangerous consequences on the residential community, whose right to safe travel is being totally ignored. The combination of accelerating downhill traffic, increased numbers of HEAVY vehicles (minimum 25 % increase depending on truck configuration), single lanes at the bottom of Red Hill, the rapid convergence of 2 lanes into a single lane on a step down hill sharp blind bend, is a recipe for disaster. We cannot believe that the authorities would consent to a significant increase in heavy vehicle movements on a road which is already overloaded, under maintained, constantly breaking down, has frequent serious and fatal accidents, without requiring the companies that cause this situation to make a significant contribution to the upgrade of services. There is no mention of the entrance being constructed with a diversion drain to prevent stormwater entering Toodyay Road. What allowance in the statistics has been made for the additional traffic movements attributable to employees and servicing personnel. The number of employees is not defined. Boral are applying for business hours that commence at 5.00am six days a week. This will mean peak hour traffic volumes will affect the safety of residential Toodyay Road traffic from a very early hour each day. No mention has been made of controls or instructions that will be given to truck drivers not to use local roads as "cut throughs" to the Great Eastern and Great Northern Highways. This is a significant nuisance to local residents and a danger. ...Toodyay Road needs to be a four lane highway from Middle Swan to past the Resource area and we would request that Boral lobby the State Government to gain priority funding from Federal Government for this improvement. <p>Gidgegannup Progress Association Inc</p>	<p>The statement in this submission re 24 vehicle movements is incorrect. The estimated number of trucks per hour is 6 trucks coming and 6 trucks going , which is only 12 vehicle movements. This estimate is for peak production levels (500 000 tpa), at which time, the operations will result in approximately a 3.9% increase in traffic on Toodyay Road. (</p> <p>Refer to the comments at the start of this section above regarding road safety and Toodyay Road.</p> <p>As noted in the comments at the start of this section, stormwater management will be incorporated into the quarry entrance design (section 9.3.3 of the PER). Stormwater will be diverted to onsite clay pits and reused within quarry operations.</p> <p>Refer to the comments at the start of Section 3.4 regarding clarification of operation hours. No trucks will be arriving on site before 6am.</p> <p>All trucks and contractors regularly accessing the proposed operation will be subject to a comprehensive induction, which clearly sets out Boral's expectations in terms of driver behaviour and performance. Boral operates a "three strikes" policy whereby repeat offenders are denied entry to our operations. Boral owned and controlled trucks are fitted with a satellite tracking devices, which monitor the truck's position, speed and general driving behaviour. In the event that these vehicles are found to be behaving inappropriately, immediate disciplinary action can be taken to correct driver behaviour. Trucks not under Boral's control are less easily managed, however, we encourage, the local community to report inappropriate driver behaviour both to Boral and to local law enforcement officers.</p> <p>As stated in Section 9.3.3 of the PER, Trucks will not be permitted to use local roads for through access.</p>
2	<ul style="list-style-type: none"> Transport impacts - Road Safety - traffic figures don't take into account the huge increase in vehicle movement 	Refer to the comments at the start of this section above.

	<p>planned from the Hanson quarry or from Red Hill Waste Disposal Site. The proposed "4%" increase from this operation will add to traffic problems on an already busy road.</p> <p>Jane Brook Catchment Group</p>	
3	<ul style="list-style-type: none"> • This section of the PER is short on detail and does not fully address the impacts of the cumulative effects of operating heavy vehicles (mostly long vehicles) along with those already operating to and from neighbouring locations along Toodyay Road, including Hanson Quarries, Midland Brick Clay Pit Operations, EMRC waste trucks and general traffic including other heavy and light transport. • The PER states that the increase in traffic is likely to be about 2% however the PER fails to address the cumulative effects of an increase in movements and traffic density in a short section of Toodyay Road. • The PER also does not provide adequate solutions for: <ul style="list-style-type: none"> - crossing Toodyay Road with heavy, long and slow moving trucks & trailers out over Toodyay Road to travel down hill(60/66? Trucks per day) - travelling along Toodyay Road at <40 kph <u>downhill</u> in single file traffic causing impatience with other road users and potential for overtaking accidents/fatalities. - travelling along Toodyay Road at <40 kph <u>uphill</u> in single file traffic causing impatience with other road users and potential for overtaking accidents/fatalities • SPPA Recommendation: The section of Toodyay Road between Red Hill and Roe Highway in Midland requires upgrading to provide four(4) lanes being two (2) lanes up hill and two (2) lanes downhill with entry and exit slip lanes for the existing Hanson Quarry, the ERMC Red Hill Landfill Site and the proposed Boral Resources (WA) Gidgegannup (Red Hill) Quarry site. • Also no provision for a truck arrester bed (downhill) has been provided in the event of any vehicle loosing effective braking. • The PER does not provide adequate solutions for impact of the use of heavy transport (quarry trucks) using local roads as short cuts for quarry product transport & distribution (ie use of Roland Road, Stoneville Road, Bunning Road, not designed for heavy transport). Note at present Hanson Quarry trucks are using local roads and not main arterial roads to transport aggregate products. These local roads are not designed or constructed for heavy vehicle traffic. • SPAA recommendation: any heavy vehicle operating to or from the Boral Resources (WA) Gidgegannup (Red Hill) Quarry site shall be restricted to using main arterial roads and shall only be permitted to use local roads if making local deliveries. ie no vehicle is to travel through the local communities, but may only use local roads if the specific delivery is destined within that locality. Any breach of this requirement, will 	<p>Refer to the comments at the start of this section above.</p> <p>As noted in Item 1 above, trucks will not be permitted to use local roads for through access.</p>

	<p>result in either substantial fines to both : (a) Boral Resources (WA) and; (b) the driver concerned. In addition, if the driver is found to be in repeated breach of this operation condition, then that person shall be banned from entering the Boral Resources (WA) Gidgegannup (Red Hill) Quarry site.</p> <p>Stoneville and Parkerville Progress Association Inc</p>	
4	<ul style="list-style-type: none"> • From conclusions: Traffic management of 160 000 truck movements per year of a limited direction and length, including the descent down Red Hill of fully loaded heavy haulage vehicles. • The proposal put forward by Boral Pty Ltd for the transportation of products states that 12 trucks per hour will occur, the days will have a duration of 13 hours for 5.5 days per week....which equates for a 48 week year to 41800 movements per year from the Boral Quarry alone. The Hanson quarry...intends to move three times the product...,combined total movements within the 10km stretch of Toodyay Road to Reid Highway intersection will be greater than 160 000 movements of heavy haulage vehicles, additional movement must also be of concern as the Hanson PER stated no consideration has been given for truck movements from ad hoc sales (private and other contractors) of product. • Currently to gain access to Great Northern Highway, Hanson trucks are using Campersic, Oakover and Hadill Roads in Middle Swan, Herne Hill and Millendon to shortcut and circumvent heavy traffic and delays at the great Northern/Reid Highway intersection...These roads are not suitable, nor is it sustainable or best practice to transport product without upgrading, widening and resurfacing works to accommodate continual use of heavy haulage vehicles through a rural residential area road design has not taken into consideration for movements of heavy haulage vehicles. • Also Toodyay Road is barely able to cope with traffic at the moment. Increased truck movements on Toodyay Rd will lead to a greater danger for all road users. <p>Local resident(s) # 2</p>	Refer to the comments at the start of this section above.
5	<ul style="list-style-type: none"> • Extra truck traffic will cause further deterioration of Toodyay Road & increase the risk of head on collision in the single downhill lane section from the escarpment to the coastal plain. • This is a cumulative effect on Toodyay Road, so quoting small percentage increases is meaningless. • ... this Development should not be approved without an undertaking from Main Roads to upgrade Toodyay Road to a suitable standard. • ...issue is cumulative effect – road needs to be fixed now before any further traffic is allowed. Local resident(s) # 4 	Refer to the comments at the start of this section above.

6	<ul style="list-style-type: none"> The total impact of trucks of 2% based on 2007 figures is irrelevant today. What is important and more concerning is the percentage increase in trucks. ...Do not allow the quarry to proceed until road infrastructure can accommodate another 24% increase in trucks. The 24%increase of trucks is a major escalation to an already congested haulage road for trucks and passenger vehicles. Local resident(s) # 6 	<p>Refer to the comments at the start of this section above.</p>
7	<ul style="list-style-type: none"> Boral estimate of additional 12 heavy vehicle movements per hour will increase the heavy truck traffic on Toodyay Road by 24%. Boral base these figures on trucks carrying 30 tonnes at a time....a truck towing 2 trailers is required to transport this weight. In effect, although it constitutes "one vehicle" it is a double length vehicle....Note only are the trucks "double length" (the equivalent of 2 single trailer trucks) but these will not be the only configuration of vehicle to transport material from the quarry. Boral will not restrict truck size or length. ...The total forecast hourly movement of 12 (6 each of in and out) is vastly underestimated. The reality will be much worse. Again the cumulative effect of Midland Clay Pit expansion, Hanson Quarry extension and new Boral Quarry will manifest itself by its dangerous consequences on the residential community, whose right to safe travel is being totally ignored. The combination of accelerating downhill traffic, increased numbers of HEAVY vehicles (minimum 25 % increase depending on truck configuration), single lanes at the bottom of Red Hill, the rapid convergence of 2 lanes into a single lane on a step down hill sharp blind bend, is a recipe for disaster. We cannot believe that the authorities would consent to a significant increase in heavy vehicle movements on a road which is already overloaded, under maintained, constantly breaking down, has frequent serious and fatal accidents, without requiring the companies that cause this situation to make a significant contribution to the upgrade of services. Local resident(s) #9 	<p>Refer to the comments at the start of this section above.</p> <p>The PER states that at the peak of quarrying operations there will be an additional 12 truck movements per hour using Toodyay Road, which will effectively increase the traffic on Toodyay Road by 3.9% based on 2007 data.</p> <p>.</p>
8	<ul style="list-style-type: none"> A more detailed traffic assessment is required which considers the seasonality of output and specifically considers daily peak vehicle movements. In addition since the site is primarily a clay extraction site...the impact of clay trucks entering and leaving the site should also be considered when assessing the impact of traffic on Toodyay Road.This assessment may reveal that at certain times the capacity of Toodyay road to handle the additional traffic is exceeded particularly if seasonality factors and clay extraction...are discussed. ...any increase above 500 000 tonnes per annum will further aggravate traffic congestion on Toodyay Road. Any development of haulage based industry in this location will cause significant 	<p>Refer to the comments at the start of this section above.</p>

	<p>impacts on local traffic due to the immediate proximity to existing hard rock quarry, clay quarries and waste disposal site. This proposal details an increase in heavy vehicle traffic of 25% onto an already overburdened road system. The existing road infrastructure currently struggles to manage the existing traffic loads.</p> <ul style="list-style-type: none"> The PER does not appear to have taken into consideration the increase in traffic from the proposed Port Bouvard Gidgegannup townsite development. BGC (Australia) Pty Ltd 	
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3.8.1 Transport impacts - transport of explosives

The submission(s) raised issues regarding the proposal with respect to the safety of transportation of explosives to both quarries on Toodyay Road as well as storage of explosives on site.

3.8.1 Item	Submissions received	Response
1	<ul style="list-style-type: none"> From conclusions: Transportation of explosives and societal risk assessment strategies. Serious consideration must be undertaken with the transportation of explosives to both quarries on Toodyay Road and storage of explosives on site. There is no mention of dialogue with the Department of Mines and Petroleum or Minister for Mines. Local resident(s) # 2 	<p>Explosives will not be stored onsite, but transported to and from the quarry on the day of blasting in appropriately licensed vehicle(s) and managed by licensed blasting operators.</p> <p>The transportation and storage of explosives is regulated by the Mines Safety and Inspection Act 1994 and Regulations and the Dangerous Goods Safety Act 2004 and Regulations.</p>

3.9 VISUAL AMENITY

The submission(s) raised issues regarding the proposal with respect to:

- Concern regarding visibility of quarry and the "scar" it will leave Darling Scarp when viewed from the Swan Valley;
- The proponent has undervalued visual amenity to residents locally and in Swan Valley
- Insufficient detail and modelling of visual impacts;
- Concern that rehabilitation will be inadequate in screening the quarry long term;
- Concern that the quarry will be as visible as existing quarries on the Scarp;
- Concern regarding how the acoustic relief bund will be vegetated and whether this is permanent;
- Concerns regarding the visibility of stockpiles from Toodyay Road.

In response to the general concerns above, the following information (provided in section 9.4 of the PER) is noted:

A landscape and visual assessment of the proposed quarry was undertaken as part of the preparation of the PER. This included modelling for viewshed ('seen area') to assess visibility or non visibility of the quarry. Seen areas (Figure 10 of PER) identified through modelling were then verified by field reconnaissance to assess potential visual impacts taking into consideration factors such as land-use and accessibility, landscape character, vegetation cover and other visual barriers. This assessment found that the quarry will be visible from a number of residences, particularly to the north and north-west. The upper portion of the east wall of the quarry will most likely be visible from a variety of viewing places within the Swan Valley, however this forms part of the background viewsheds (approximately 5 to 10km distance), where the views are heavily dominated by the foreground and midground landscape detail. Given the scale of the project and distances to most of the locations from which the site will be visible, impacts are not expected to be significant.

Boral will prioritize rehabilitation of exposed faces visible from the north and, to a lesser extent the west. Upper benches of the quarry will be progressively rehabilitated and landscaped to reduce visible impacts. Where practicable, existing exposed faces of the clay extraction area will be rehabilitated and planted to reduce visual impact. Earth bunds or vegetation screens will be utilized to limit visibility if considered necessary.

Rehabilitation of work areas and progressive development of the quarry will mean that the visual impact of the proposal will not occur over the site at one time. This will assist in the mitigation of visual impact over the life of the project.

3.9 Item	Submissions received	Response
1	<ul style="list-style-type: none"> This area is also on the flight path for incoming overseas, interstate visitors, presenting a visual blight. Boral advises that the initial stages will need a “acoustic relief bund” to be constructed (page iv). Where is the bund to be sited, dimensions, will it be permanent and vegetated for concealment? Page xiii says it will be 8.5m high and be revegetated. Then p 72 (and repeated elsewhere) says it will be removed. Therefore, revegetation is unlikely. Other pages say that the bund could be 5m high if a large excavation was installed to house infrastructure. The quarry will be significantly visible to residents to the north and northwest of the site. Who, suffering loss of amenity by Hanson activity, now will have their views compromised further (page v). Some of the quarry will be visible to the west. ...the stockpile will be visible from Toodyay Rd. Levels provided in the absence of topographical maps conflict and indicate that the exposure will be greater than Boral estimates. As exemplified from Hanson and other Boral re-vegetation efforts, rehabilitation is inadequate as the task of trying to grow plants on near vertical faces in thin soil and extreme weather is difficult at best. The view of neighbouring properties will be forever compromised. Models are needed to show visibility from all aspects. Should there not be a revegetation schedule and commitment to revegetate with endemic species. Will Boral be creating their own nursery for this purpose? <p>Gidgegannup Progress Association Inc</p>	<p>Refer to the comments at the start of this section above, regarding visibility of the quarry.</p> <p>As stated in Section 8.5, an 8.5 m effective height bund or equivalent configuration, will be constructed on the northern and eastern sides of the processing plant area (refer to Figure 2 of the PER for location of this plant area). An alternative development strategy is also discussed which excavates 5m and constructs a 5m bund wall to give similar attenuation with a lower construction footprint. Either way, this bund will be vegetated for visual amenity and to stabilise the wall.</p> <p>Section 8.5 of the PER also notes that once the process plant area has been excavated to 10m below ground level noise levels will be compliant with the noise regulations and as such the bund will no longer be required. In section 8.5.3 of the PER (page 72) it is noted that once this occurs, the bund <i>may</i> be removed if required. An assessment on the retention or otherwise of the bund wall will be made based on maximising visual and noise attenuation.</p> <p>An area of approximately 4.2 hectares adjacent to Toodyay Road will be utilised for stockpiling crushed rock. The maximum height is not expected to be higher than 5 metres. This site is located approximately 80 metres from Toodyay road at the nearest point, with a vegetated buffer between the road and the stockpile area.</p> <p>Boral's practice is to undertake rehabilitation with endemic native species. Rehabilitation requirements will be addressed in the site Environmental Management Plan to be prepared for the Site.</p>
2	<ul style="list-style-type: none"> View destroyed by seeing an ugly gaping hole on the darling Escarpment, caused by an operating quarry, totally at odds with the surrounding bush and vineyard landscape. Local resident(s) # 3 	<p>Refer to the discussion at the start of this section above.</p> <p>Much of the area to the north and east of the Site has been extensively cleared for agricultural use already. Ground surveys and aerial photography show much of the existing forested landscape in the vicinity is in the control of the 2 existing quarry operations (Hanson and Boral).</p>

3	<ul style="list-style-type: none"> Visual pollution ruining property values. ...it can be seen that the impact of the quarry will be considerably more than to just reduce property values but actually make some properties worthless in value. ...visual pollution from a hugely expanded, working quarry. <p>Swan Valley Rate Payers and Residents</p>	<p>Refer to the discussion at the start of this section above.</p> <p>Impact on property values is a common concern of residents adjacent to quarries. The proposed quarry is located well clear of sensitive land uses and therefore adverse impacts are unlikely. There is no evidence to suggest that there will be any adverse impact on local property values.</p>
4	<ul style="list-style-type: none"> Given that the site of the proposed quarry is located on the Darling Scarp adjacent to the Swan Valley, the visual amenity of the site is of high importance. The visual amenity of the site is not considered to be a key factor in the PER, as indicated in the Table of Contents. 	<p>Refer to the discussion at the start of this section above.</p> <p>The list of key and other environmental factors is identified at the scoping stage of the PER process and is subject to acceptance by the EPA prior to the PER document being prepared. Boral is required to ensure visual amenity is considered and measures adopted to reduce adverse visual impacts on the surrounding environment, regardless of whether it is identified as a 'key' or 'other' environmental factor.</p>
5	<ul style="list-style-type: none"> The PER contains only four pages of explanation and one figure to document this critical issue and provide no supporting appendices that explain the methodology employed or the limited conclusions presented. Without such documentation it is difficult to thoroughly assess the visual amenity of the proposed operations and it is also difficult to benchmark or measure compliance in the future. By providing inadequate documentation of the potential visual impacts of the Boral site and dismissing the view of the Scarp as a "background element" when observed from the Swan Valley to the northwest (Seen Area 3 description on page 89 and Figure 10), Boral does a disservice to its neighbours by treating a major issue as less than important. The view corridor towards the northwest will create a light-coloured scar that will be easily observed from a significant portion of the northern Swan Valley winery/restaurant lands and from hundreds of homes in Avely, Ellenbrook and other town further towards the northwest. None of this is shown in Figure 10, as the western boundary of the figure only extends 7km from the proposed quarry. The view line towards the north of the proposed development is of major concern, given that the WAPC has recommended western Gidgegannup as a potential site for the future O'Brien Township with more than 4000 people (WAPC, NE Perth Hills Settlement Plan – 2002 and Attachment 2). The contents of the PER do not contain a thorough study of the visual impact of the proposed Boral quarry development. I recommend that a comprehensive visual impact study be completed and shared with the public, prior to reaching a decision point on a quarry development. Local resident(s) #10 	<p>Refer to the discussion at the start of this section above.</p> <p>Section 9.4 of the PER does in fact discuss the methodology employed and provides interpretive commentary including a discussion of limiting factors. In fact, based on all considered factors, the PER notes (p89) that, particularly in relation to the visibility to the north, "the viewshed modelling appears to significantly over-estimate the 'real' visibility.</p> <p>With respect to the view of the quarry from the Swan Valley, these are considered to be "background viewsheds (approximately 5 to 10km distance) and indicate visibility in the form of a narrow wedge across the upper Swan Valley, from Hardwick and Campersic Roads (in the east) to West Swan road (in the west). At this distance and greater, (ie towards Ellenbrook), the quarry while visible in this wedge, is not dominant in the landscape. This is not dismissive, but recognises generally accepted distance bands that affect visibility that are used in this assessment.</p> <p>With respect to views to the north of the proposed quarry, refer to the discussion in Section 9.4 of the PER which addresses the issues of proposed development in the area.</p> <p>Refer to the comments at the start of this section regarding proposed measures to reduce this visual impact.</p>

6	<ul style="list-style-type: none"> Boral advises that the initial stages will need a “acoustic relief bund” to be constructed (page iv). Where, dimensions, permanent and will it be vegetated for concealment? Page xiii says it will be 8.5m high and be revegetated. Then page 72 (and repeated elsewhere) says it will be removed. Therefore, revegetation is unlikely. Therefore, the stark visual impact will continue. Other pages say that the bund could be 5m high if a large excavation was installed to house infrastructure. So what is the real outcome? The quarry will be significantly visible to residents to the north and northwest of the site, who, suffering loss of amenity by Hanson activity, now will have their views compromised further (page v). Some of the quarry will be visible to the west. This is unacceptable. ...the stockpile will be visible from Toodyay Rd. Levels provided in the absence of (honest) topographical maps (which have been asked for and not supplied) conflict and indicate that the exposure will be greater than Boral estimates. As seen from Hanson and other Boral re-vegetation efforts, rehabilitation is inadequate as the task of trying to grow plants on near vertical faces in the in soil and extreme weather is all but impossible. The view of neighbouring properties will be forever compromised. Local resident(s) # 9 	<p>Refer to Item 1 above regarding the acoustic relief bund.</p> <p>Refer to the discussion at the start of this section regarding visual impact and proposed mitigation measures.</p> <p>Boral has a strong commitment to revegetation and has invited Gidgegannup residents to inspect rehabilitation programs at other Boral metro quarries. Faces are backfilled to allow a medium for plant growth, and extreme weather is not expected for the Gidgegannup area.</p>
7	<ul style="list-style-type: none"> We can see where Boral have been at the Gosnells quarries. The visual impact of those can be seen from the ocean. This proposal will not be any different. It will be blight on the landscape forever. <p>Local resident(s) # 8</p>	<p>This proposal refers only to the Gidgegannup site and is required to be assessed on its own merits.</p> <p>A similar PER process was required for the current Stage 3 of Boral's Orange Grove Quarry and long term plans are in place to reduce visual scarring. Mining and rehabilitation practices and planning have improved since the early 1960's when this site was first opened.</p>

3.10 ALTERNATIVE OPTIONS

The submission(s) raised issues regarding the proposal with respect to:

- preference for Boral to use an alternative existing quarry at Toodyay;
- preference for a site on already cleared land; and
- preference for a site that can utilise rail instead of road transport.

3.10 Item	Submissions received	Response
1	<ul style="list-style-type: none"> • Flawed basis to be at this site. ...Alternative to avoid this disaster in the Susannah Valley. ...Boral do not have to quarry at this location. ...I suggest West Toodyay as a more environmentally acceptable area to quarry. Boral Quarries already have a quarry at West Toodyay, and have asked the government to engage in developing a rail head at West Toodyay to load the aggregates. • The benefits are that the local truck movements are all short haul and minimise damage to roads that were never envisaged to carry such loads as is the case now. The Darling Scarp will remain pristine for our grandchildren. No trucks are mingled into urban commuters each day. No trucks on Toodyay road or Roe Highway etc. Local resident(s) # 8 	Toodyay Quarry was decommissioned in the 1980's due to market conditions and the distance from Perth Metropolitan area. With long cartage distances the site is still not viable for the Perth construction material market. Any future operations at this site will be campaign style operations specific to a particular market on an as-needs basis.
2	<ul style="list-style-type: none"> • Would prefer Boral's West Toodyay quarry be used instead with government assistance to develop a rail head at West Toodyay to load out material, and in doing so, preserve the natural assets we have in the Darling Scarp. Jane Brook Catchment Group 	Refer to Item 1 above.
3	<ul style="list-style-type: none"> • Suggest move quarrying operations to Toodyay where land is already cleared and where there are no Aboriginal Sites; and utilise rail transport. "This will avoid the damage to our Sites within Boral's Area and within Hanson's area, including the Darling Range itself which is a Site under the Aboriginal Heritage Act. It will protect the Sites, and the Natural Environment – kangaroos, all animals, birdlife, trees and shrubs and plants, all the Rock formations, and water courses and everything created since Time began, all of which is important and significant and Sacred to us. This proposal will also be much less disruptive to the people who use Toodyay Road, and all the roads to Fremantle. Future expansion will then be much less damaging and still supply the people of Western Australia with road-making material and other uses." Swan Valley Nyungah Community 	Refer to Item 1 above. The Toodyay site also has registered Aboriginal sites.

4	<ul style="list-style-type: none"> • My feelings on these projects are they should be carried out on degraded farmland or similar and the granite should be transported by rail. Local resident(s) # 2 	<p>Part of the Site has previously been subject to over 60 years of quarrying for clay and brick manufacture. A large portion of the Boral landholding remains uncleared. As noted in Section 3.9, Item 2, above, much of the area outside of Boral ownership to the north and east of the Site has been extensively cleared for agricultural use already. Ground surveys and aerial photography show much of the existing forested landscape in the vicinity of the Site is in the control of the 2 existing quarry operations (Hanson and Boral). The proposed Quarry is planned in such a way as to preserve much of the site vegetation for future generations.</p> <p>Furthermore, the Site is located within an area zoned "Resource" under the City of Swan, Local Planning Scheme No 17, the objectives of which, are to:</p> <ul style="list-style-type: none"> (a) provide for the extraction of basic raw materials with proper environmental safeguards; and (b) protect resources of basic raw materials from inappropriate development.
5	<ul style="list-style-type: none"> • I believe the WA government should increase the area open to granite quarrying in the region and approve sites that do not lie near the Darling Scarp, which are easily seen by local communities. By encouraging materials companies to quarry further towards the East in relatively unpopulated, flat-lying areas surrounded by forest, many issues related to visual impact, dust and noise will be avoided. Local resident(s) #10 	<p>Refer to Item 4 above regarding zoning of this site.</p> <p>Planning and zoning of appropriate resource areas is outside of the scope of this PER and is the responsibility of the relevant local and State government authorities.</p>
6	<ul style="list-style-type: none"> • Lack of consideration to alternative resources locations that may be more appropriate for the identified intended markets. • There is no justification provided in the document that adequately explains why Gidgegannup is a more suitable resource than their Morangup...site, which is an existing quarry and has access to rail freight. No mention is made in this document that this resource is currently being utilised. • There is no evidence provided in the document that the proponent has considered alternate resource locations to the north of Perth which would offer a more direct route to its intended market. BGC (Australia) 	<p>Refer to Item 1 above, regarding the suitability of the Toodyay site (Morangup as referred to in this submission).</p> <p>Boral has reviewed available sites within its ownership, and within appropriately zoned locations accessible to current markets.</p>

3.11 CUMULATIVE IMPACTS OF ADDITIONAL QUARRY

The submission(s) raised issues regarding the proposal with respect to:

- concern that Government is considering this proposal in isolation to impacts from existing industry in the area
- impact of an additional quarry to the area, particularly re loss of native habitat, visual impact, increased pollution and road traffic
- cumulative impacts of existing and future clay extraction at the site alongside the proposed quarry.

In response to the general concerns above, the following information (provided in section 4.3 of the PER) is noted:

In their assessment of a proposal, the EPA are required to consider the object and principles of the *Environmental Protection Act 1986*, which are provided in section 4A of that Act, ie:

- 1 The precautionary principle;
- 2 Principle of intergenerational equity;
- 3 Principle of conservation of biological diversity and ecological integrity;
- 4 Principles relating to improved valuation, pricing, and incentive mechanisms; and
- 5 Principles of waste minimisation.

Boral is required to demonstrate that these principles have been taken into consideration during the planning and design of the proposal. A summary of the relevance and consideration of each of these principles is provided in Section 4.3 Table 3 of the PER (pp16 to 17).

3.11 Item	Submissions received	Response
1	<ul style="list-style-type: none"> • It is my view, that while this PER has been submitted independently in relation to a single mining operation, it should be assessed in consideration of similar operations already approved alongside the intended location. This is because an appreciation of the impact on the surrounding area can only be envisaged when a combined picture is illustrated. This PER is submitted to support the mining of 500 000 tonnes of granite per year. Next door (Hanson's) has just got approval to mine 1,500,000 tonnes (1.5Mt) per year. It could be considered negligent if this application was not considered with that perspective in mind. • Local resident(s) # 5 	<p>The cumulative impact of additional resource extraction within this area is a planning consideration outside of the scope of this PER.</p> <p>Designation or “zoning” of appropriate areas for resource extraction is a matter for local and State government planning authorities.</p> <p>However, the principle of intergenerational equity noted above, will be considered by the EPA as part of their assessment. As defined under the <i>Environmental Protection Act 1986</i>, this principle states that “the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations”.</p>
2	<ul style="list-style-type: none"> • Contemporaneous clay extraction from the site and its impact on the proposed hard rock Quarry activities. 	<p>As noted in Section 3.9 Item 2 of this document, as of 1 July 2010, Boral Resources (WA) Ltd assumed full ownership and operational control of</p>

	<p>- The PER also states that clay extraction may occur on the site in the future by Midland Brick Company, the current land owner, however the contribution to dust from either existing clay extraction or future extraction has not been considered. Future clay extraction sites have not been identified and therefore the impact of this activity on the operation of the quarry cannot be assessed nor can the potential impacts of the two activities occurring contemporaneously. BGC (Australia) Pty Ltd</p>	<p>both the clay and granite resources at this site. Any future clay extraction will require Midland Brick to seek all necessary approvals, including provision of any necessary environmental assessments specific to clay extraction</p>
3	<ul style="list-style-type: none"> Now is the time to look at all heavy industries in the area, such as Boral, Hanson quarry and Delta Concrete and view them all together and revisit the legitimacy of their operations in their current locations. Now is the time to review and act, not have a piecemeal destruction of our environment bit by bit until there's nothing left to preserve. Local resident(s) # 3 	Refer to Item 1 above.
4	<ul style="list-style-type: none"> ...this area is situated on the Darling Scarp and is an environmentally and visually sensitive area with its impact on the Swan Valley and residential areas of Brigadoon and Gidgegannup. The Boral Granite quarry will become the latest of a series of Resource developments in this area, all having cumulative impacts on the Scarp. It is this cumulative impact that needs to be examined carefully. This Quarry together with the Hanson hard rock quarry, the Midland Brick clay pits and the ERMC waste facility will create an enormous contiguous precinct of extractive industry, which will result in Gidgegannup suffering the irreplaceable loss of a significant tract of scarp land bush and landscape. Together with a large footprint of processing infrastructure, it will erase and significantly reroute fauna migration routes. We ...feel it is important for State Government to look at the development of the Scarp as an entity. Development from quarries and residential development is going to make an indelible imprint. We need to be planning for the future to address this problem, to seek resources away from this area and plan for alternative means of transport to bring the resources to Perth other than road. This is why we should no be approving quarrying for 50 or 100 years. We have no right to sell the future. Gidgegannup Progress Association Inc 	Refer to Item 1 above.
5	<ul style="list-style-type: none"> This proposal combined with the expansion of Hanson's quarry will open up a large scar in the Darling Ranges that will be seen from much of Perth. The increase in visual, noise and dust pollution will increase because Hanson's intends to remove the ridge that currently hides their and Boral's quarrying from most of the Swan Valley. Swan Valley Rate Payers and Residents 	<p>Refer to Item 1 above regarding consideration of cumulative impacts.</p> <p>Refer to Section 3.9 of this document regarding visual amenity.</p>
6	<ul style="list-style-type: none"> I am concerned that another quarry is being considered in the Red Hill/Gidgegannup area. The proposed site largely remnant bushland of a very high standard. This bushland contains significant flora and fauna and both are at high risk if clearing takes place. Areas such as this are becoming less common all over Perth and the 	<p>Refer to Item 1 above regarding consideration of cumulative impacts.</p> <p>Refer to Section 3.3 of this document regarding flora and fauna.</p>

	Darling Ranges. Local resident(s) # 1: Gidgegannup	
7	<p>From conclusions:</p> <ul style="list-style-type: none"> • longer term and more stringent criteria for study of endemic species has to be undertaken to correctly assess the impact of the 2 quarry footprints combined as this does have an impact on the area. • scoping comparatives of the 2 PER's to quantify impacts on the complete environment. Local resident(s) #2 	Refer to Item 1 above regarding consideration of cumulative impacts.
8	<ul style="list-style-type: none"> • Bora proposed quarry fills the “gap” between Hanson hard rock quarry and Midland clay pits, which together with the EMRC waste facility and Midland clay pit on south side of Toodyay Road, will create an enormous contiguous precinct of extractive industry which will result in Gidgegannup and the Perth area suffering the irreplaceable loss of an enormous tract of quality scarp land bush and landscape. Such a concentration of extractive industry is an unfair burden for a single Council and district to bear. • Except for John Forrest NP, the area being quarried (or proposed) constitutes one of the last pristine undisturbed areas of bushland in the vicinity of Perth. Local resident(s) # 9 	Refer to Item 1 above regarding consideration of cumulative impacts.

3.12 GENERAL COMMENT

The submission(s) raised issues regarding the proposal with respect to:

- concern known conservation value of area is being ignored; and
- concern that the local environment, particularly Susannah Brook be protected.

The Stoneville and Parkerville Progress Association commented on the constructive nature of the stakeholder consultation process and the opportunity that is available through this process as well as through good planning and resourcing, to ensure operations can exist with minimal / reduced impacts. These comments, while not requiring any formal response, have been reproduced for information and acknowledgement below.

3.12 Item	Submissions received	Response
1	<ul style="list-style-type: none">• Existing and former environmental officers have emphasised the importance of maintaining the Darling Escarpment as a valuable conservation area (EPA Bulletin 510, April 1991). An earlier 1990 proposal by a quarry company drew attention to the fact that quarrying on top of the Escarpment was environmentally unacceptable and noted that in their view the "priority Extraction Area" at Red Hill and Herne Hill would never receive expansion approval. Local resident(s) # 7	Comments noted.
2	<ul style="list-style-type: none">• The community consultation phases undertaken by Boral Resources (WA) Pty Ltd, together with their consultants (GHD), have proven to be very open and transparent processes resulting in a great deal of confidence and trust being developed between the company and the local community representatives.• The current proposal to construct and operate a granite stone quarry located at Toodyay Road, Red Hill to produce up to 500 000 tonnes of quarry product per annum for a period of approximately fifty (50) years duration also has similar issues, however with proper consultation, good planning and adequate resourcing, this project should be able to deliver better outcomes acceptable to the whole community. At present a real opportunity exists to ensure that any proposed operations can exist with minimal or reduced impacts.• This review undertaken by the Stoneville & Parkerville Progress Association Inc (SPAA) has carefully considered the potential effects and planned management responses relating to the construction and operation of another Stone Quarry operating in close proximity to other major operations, including, Midland Brick, Hanson Quarries, Easter Metropolitan Regional Council Waste Treatment – Landfill Facility; local communities, transport operators, commuters and other users. This localised region has a unique setting comprising of some of the most	Comments noted.

	delicate and historically significant cultural features enveloped into the surrounding landscape. As well as protecting this area, the water course of the Susanna Brook must also be further protected from all man made threats. Stoneville and Parkerville Progress Association Inc	
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3.13 IMPACT OF CHANGES TO TOPOGRAPHY

The submission(s) raised issues regarding the proposal with respect to:

- impact on wind and rainfall patterns by altering the top of the escarpment; and
- need for independent studies.

3.13 Item	Submissions received	
1	<ul style="list-style-type: none"> • Wind problems (and possible impacts on rainfall distribution) by destroying the top of hill can have a devastating effect on Easterlies wind patterns and affect rainfall; this has happened in other parts of the world. Swan Valley Rate Payers and Residents 	<p>This proposal refers to the clearing of 31 ha in total from part of the escarpment within an area zoned for resource extraction.</p> <p>When viewed from an aerial perspective (such as is freely available on Google Earth), this level of clearing is negligible even at a local level in terms of the quantity of escarpment removed.</p> <p>Refer to the comments under section 3.11 of this document regarding cumulative impacts of additional quarry.</p>
2	<ul style="list-style-type: none"> • Nobody can predict the affect on the wind and rain of altering the topography of the top of the escarpment. • If the wind and rainfall patterns change due to the removal of the top of the escarpment, what are the consequences on the local flora and fauna? • We need a thorough in-depth study carried out, no paid for by mining companies but done by an independent body, and no just quick, sketchy look at the surrounding environment as has been done to date. • Local resident(s) # 3 	Refer to Item 1 above.

3.14 LEVEL PLAYING FIELD

The submission(s) raised issues regarding the proposal with respect to:

- ensuring consistency in the application of environmental conditions for like industries.

This issue has been raised by one of Boral's local competitors.

3.14 Item	Submissions received	Response
1	<ul style="list-style-type: none">The dust assessment shows that the NEPM 24 hours PM10 may be exceeded at the property boundary and the PER states that the "NEPM standards are not applicable" because the receivers are the Red Hill Disposal Facility and the Hanson Quarry which are both industrial sites and are sources of dust emissions. The BGH Voyager II Quarry has a set level at the boundary which is not allowed to be breached at any time. ...Ambient dust standards should be consistent for all comparable industry...Noise modelling shows that there will be exceedences prior to the plant being 20m below natural ground level. BGC Voyager II Quarry could not operate until the plant was 30m below natural ground level. There should be consistency in conditions imposed on all quarry operations.[re noise measurement]...To ensure consistency with recent quarry approvals there should be the same level of monitoring required of future proposal, therefore similar conditions should be imposed on the Gidgegannup Granite Quarry Proposal.The proposed offsets for the Gidgegannup Granite Quarry proposal are significantly less than they are for the BGH Voyager II Quarry...The PER details strategies for the management of topsoil including that "topsoil will be stockpiled and respread over the batter slopes of the Quarry to encourage rehabilitation after completion of each phase". The condition imposed on the BGH Voyager II Quarry,...details that "the proponent shall not stockpile overburden and topsoil onsite except in exceptional circumstances" ...This condition has been imposed in response to the view that stockpiling has the potential to decrease endemic native seed viability. <p>BGC (Australia) Pty Ltd</p>	<p>Refer to the following sections of this document for appropriate responses regarding topics listed:</p> <ul style="list-style-type: none">- Section 3.2 Air quality- Section 3.4: Noise and vibration impacts- Section 3.3.1 Flora and vegetation, in particular offsets. <p>Development of conditions of any approval will be determined by the Office of the Environmental Protection Authority (OEPA) as appropriate to the Proposal, taking into consideration current legislative requirements, policy positions as well as issues specific to this proposal.</p>

3.15 LIFE OF QUARRY

The submission(s) raised issues regarding the proposal with respect to:

- presence of quarry impacting on future planning and development of the surrounding area;
- concern re approval being granted for 50 years; and
- concern local conditions will change over the life of the approval.

3.15 item	Submissions received	Response
1	<ul style="list-style-type: none"> • The proposal presented in the PER is of great significance to the local area for a number of reasons. Primarily this is due to its long term nature. If the quarry is approved it will significantly impede further development on neighbouring land holdings, possibly for the next 50 years, due to the restrictive planning guidelines for developments in the vicinity of quarries. BGC (Australia) Pty Ltd 	<p>The proposed quarry is in a location that has been subject to quarrying (for clay extraction) for over 60 years.</p> <p>Furthermore, as noted in section 3.10 Item 5 of this document, , the Site is located within an area zoned "Resource" under the City of Swan, Local Planning Scheme No 17, the objectives of which, are to:</p> <p>(a) provide for the extraction of basic raw materials with proper environmental safeguards; and</p> <p>(b) protect resources of basic raw materials from inappropriate development</p>
2	<ul style="list-style-type: none"> • It is not entirely clear how many years this application is being made for. ...The GPA would certainly not support an approval for 50 years. We believe that approvals for Quarrying should not be granted for more than 10 years at a time. Who is to say after 10 years, how environmental, residential, climatic conditions will have changed.We only support an approval for 10 years, after which time conditions can be amended if needed. Gidgegannup Progress Association Inc 	<p>The PER document is provided to enable the assessment of environmental impacts associated with a hard rock quarry development for which the life is not expected to extend beyond 50 years based on the forecast extraction. If the forecast annual volumes are not achieved, the life of the quarry is effectively prolonged until the resource is exhausted.</p> <p>As noted by the City of Swan in their submission (see section 3.20 of this document) this proposal will require planning approval under Clauses 4.3.4 of the Swan Local Planning Scheme 17 and the City will require notice of the development be given in accordance with the requirements set out under Clause 9.4 of the Scheme. Through this process the City will receive input from various stakeholders to consider in its assessment. The City of Swan may in their planning approval, define the period of time for which the approval is valid.</p>

3	<ul style="list-style-type: none"> It is simply unacceptable that a license be granted for 50 years. This gives the proponent too much, and makes no provision for changing climate and environmental priorities. There is no incentive to be a good neighbour. Local resident(s) # 9 	Refer to Item 2 above.
4	<ul style="list-style-type: none"> 25 million tonnes at half a million per year, works out to be more than 50 years of Quarrying! The first 20 years is a staged increase in production, so it will actually be longer. ...Lets not kid anyone that this is just a short term project. IT is around half of the proposed quarry life of the Hanson PER, but no less of a disaster. Do not permit this proposed quarry. Local resident(s) # 8 	Refer to Item 2 above.

3.16 LIFESTYLE IMPACTS

The submission(s) raised issues regarding the proposal with respect to:

- Impact on the “passive” enjoyment of nearby regional parks; and
- Visual, noise and dust impacts on residents and tourists of the Swan Valley.

3.16 Item	Submissions received	
1	<ul style="list-style-type: none"> Impacts onto CALM Darling Range Regional park, hindering passive enjoyment of the area. Incompatible with Swan Valley lifestyle. Who wants to drive to the Swan Valley with friends for a leisurely lunch and wander around the various art galleries, wineries, and breweries etc, accompanied by a noise sounds and dust pollution from an operating quarry which is clearly visible from most areas of the Swan Valley? <p>Swan Valley Rate Payers and Residents</p>	<p>Refer to section 3.9 of this document regarding visual impact of the quarry, in particular Item 5 regarding impacts on the Swan Valley.</p> <p>The Darling Scarp is an important feature in this overall landscape, however when viewed from most places, including the Swan Valley, the Scarp is primarily a background element. As noted in Section 9.4 of the PER (visual amenity), while an extensive area is apparently within the viewshed of Seen Area 3 (ie Swan Valley), any claim that the proposed Quarry would greatly impact on the landscape quality of the Swan Valley (i.e. in terms of the scenic integrity of the Darling Scarp backdrop) should be considered in the context of the very dominating visual and landscape qualities of the immediate foreground and midground (i.e. up to 4 km distance) scenic attributes of the Swan Valley itself. Additionally, the high content and detailed visual texture of the Swan Valley landscapes is ‘visually intense’ and most observers, particular motorists on</p>

	<p>both the busy main roads and minor side-roads, will tend to have their attention significantly confined to immediate views and vistas.</p> <p>Refer to sections 3.2 and 3.4 regarding air quality and noise impacts respectively. In particular, note that noise and dust emissions from the quarry will be required to meet regulatory and other conditions of approval set by regulatory authorities specific to the proposal; which in effect require these emissions to be confined to the site.</p>
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3.17 LOCATION

The submission(s) raised issues regarding the proposal with respect to concern location listed in PER is misleading and as a result public consultation may have missed relevant local residents.

3.17 Item	Submissions received	Response
1	<ul style="list-style-type: none"> This location is not at Gidgegannup. Gidgegannup is at least 12km away. The location is in the area of existing Red Hill operations, such as that of Hanson's and the Red Hill landfill site. The location provided in the PER is misleading. This could be a significant point, if the area of public consultation was centred around Gidgegannup as a result of this locale quote in the PER, when in fact those most significantly effected live in the areas Herne Hill and Red Hill. Local resident(s) # 5 	<p>Boral refer to the Site as Gidgegannup, even though it is on the border of Red Hill and Gidgegannup, as it is actually situated within the locality of Gidgegannup, as shown in Figure 1 of the PER.</p> <p>The Stakeholder Consultation program initiated for this Proposal included identification of a comprehensive list of stakeholders. A full list is provided in Appendix E of the PER along with details of the stakeholder consultation program. Key stakeholders, immediate residents of the Site (approximately 3 km radius) and the broader community were invited to participate in various information sessions to learn about the proposed development, ask questions and share feedback and concerns.</p> <p>For example, the Stakeholder information session held on 23-7-2008 had members from:</p> <ul style="list-style-type: none"> • Gidgegannup Progress Association; • Save Perth Hills Group; • B&J Catalano; • EMRC;

		<ul style="list-style-type: none"> • Shire of Mundaring; • Stoneville & Parkerville Progress Association; • Strategen-Hanson; and • Nyoongar Native Title Holders.
2	<ul style="list-style-type: none"> • The location of the Gidgegannup proposed granite quarry is no 60km ENE of Perth. This statement is incorrect. The quarry is located, according to UBD Perth 2008, within 30km radius of Perth CBD. Local resident(s) # 6 	<p>The radius of Perth CBD is different to the actual location of Perth. Figure 1 clearly demonstrates the site location.</p>

3.18 OVERALL OBJECTION TO THE PROPOSAL

Of the 21 submissions received, 8 raised an overall objection to the proposal. This included the traditional owners, a local catchment group, a local rate payers association and 5 local residents.

The submission(s) raised issues regarding the proposal with respect to:

- Environmental impacts of both the individual proposal as well as cumulative impact of another quarry, either not properly defined and/or underestimated; and
- Need to protect the natural environment and cultural heritage of both the site itself and the Darling Escarpment.

The general objections raised below are noted by Boral and references to relevant responses from other sections of this document are provided.

3.18 Item	Submissions received	Response
1	<ul style="list-style-type: none"> • General opposition to the proposed Quarry at this location, citing responsibility to Ancestors, current and future generations to protect and look after the Land and all that goes with it....including Susannah Brook...and the area of the proposed Quarry. Swan Valley Nyungah Community 	<p>Refer to Section 3.1 of this document above. Boral has consulted with the indigenous representatives of the area in order to preserve and protect Aboriginal Heritage. The Quarry footprint has been redesigned on several occasions to incorporate the requested protection of two sites. A Section 18 Application (to disturb an Aboriginal site) has been submitted with the Department of Indigenous Affairs, after consultation with traditional land owners. This application has been preliminarily approved and is awaiting the outcome of the EPA process before formal approval is provided.</p>
2	<ul style="list-style-type: none"> • Opposed to another quarry in this area of the Darling Range. Proposal cannot be viewed in isolation. Concerned about cumulative impact of industrial activities already existing in the area. 	<p>Refer to Section 3.11 of this document above, regarding consideration of cumulative impacts.</p>

	Jane Brook Catchment Group	
3	<ul style="list-style-type: none"> The Swan Valley Ratepayers' and Residents' Association is deeply upset by the addition of a new hard rock quarry which will effectively move quarrying back into dominance over the Swan Valley. So ever increasing quarrying on the Darling Scarp is in conflict with the need to protect Perth's water supply and Perth's reputation as a clean and beautiful city. <p>Swan Valley Rate Payers and Residents</p>	Refer to the responses provided in the following sections of this document: Section 3.7 Surface and groundwater impacts; Section 3.11 Cumulative impacts; Section 3.16 Lifestyle impacts; and Section 3.20 Planning approval, in particular item 2.
4	<ul style="list-style-type: none"> I would like to raise objection to the granting of a licence to Boral Resources (WA) Ltd for the extraction of granite and quarry products from their proposed site at Red Hill and partially in the locale of Gidgegannup. The objection I raise is on the basis that 1 quarry has already "slipped under the radar" with very little community consultation occurring. This proposal will add impacts to the already compounding issues relating to the Hanson Quarry. ...I believe the combined area on Red Hill mining 2/5mtpa from the escarpment, in an area known to have continual easterly wind conditions, no true analysis of the alpha particulates physical properties, the heavy haulage of product and the use of water for dust suppression and product watering will have major health and societal risk in the future. <p>Local resident(s) # 2</p>	Refer to the responses provided in the following sections of this document: Section 3.2 Air quality, in particular Items 1 and 4; Section 3.8 Transport impacts; Section 3.11 Cumulative impacts; and Section 3.20 Planning approval, in particular item 2.
5	<ul style="list-style-type: none"> The long established tradition of quarrying on the Darling Escarpment has been environmentally unacceptable for decades. I strongly object to the establishment of any new and/or any expansion of existing quarries on the Darling Escarpment and expect the EPA to advise the Minister that a timeframe should be established to discontinue all quarrying on the Escarpment and establish another timeframe for the acceptable rehabilitation of abandoned quarries to be compatible with surrounding natural vegetation. <p>Local resident(s) # 7</p>	Refer to Section 20 Item 2 of this document below The need for viable and well managed raw materials sources (eg hardrock, gravel, clay) close to the metropolitan region etc is recognised through various planning policies and processes, such as Local Government planning schemes and the Western Australian Planning Commission Statement of Planning Policy No 2.4 <i>Basic Raw Materials</i> (which applies to a number of local government authorities including the City of Swan). Planning and environmental assessment processes recognise and ensure that quarrying activities can be managed in an environmentally acceptable manner.
6	<ul style="list-style-type: none"> This...response to the Boral proposed quarry can be generally put as being against it in many respects. ...the proposal should be refused on the grounds that the environmental impacts on the area are too great and are unacceptable. 	As part of the PER assessment process, the Office of the Environmental Protection Authority (OEPA) will determine whether this proposal can be undertaken in an environmentally acceptable manner and recommend suitable conditions of approval appropriate to the project.

	<ul style="list-style-type: none"> The main real concern I have is a more general and devastating one....Why is the Government continuing to develop extractive industries on an area of high Natural heritage value so close to the Perth Metro area? Local resident(s) # 8 	Refer to Item 5 above and Section 20 Item 2 of this document below regarding resource planning related matters.
7	<ul style="list-style-type: none"> We are ratepayers and landowners in Gidgegannup and wish to express our opposition to the proposed Quarry and cite our concerns. From the conclusion: it is unconscionable that large tracts of pristine bush on the doorstep of Perth be destroyed, along with their fauna populations. This quarry will have significant adverse affect on the residential community, both on their amenity, land value and their right to travel safely on local road. Perth has a precious natural resource at its doorstep. <p>Local resident(s) # 9</p>	<p>Refer to the responses provided in the following sections of this document:</p> <p>Section 3.3 Flora and fauna; Section 3.3.1 Flora and vegetation, particularly re offsets; Section 3.8 Transport impacts; Section 3.9 Visual amenity; Section 3.16 Lifestyle impacts; and Section 3.20 Planning approval, in particular item 2.</p> <p>Boral will prepare an Environmental Management Plan (EMP) for the site upon completion of the PER assessment process. The EMP will detail the relevant management practices to be implemented and maintained to mitigate impacts associated with the proposed Quarry operations.</p>
8	<ul style="list-style-type: none"> It is my opinion that the submitted Boral request for approval for the Gidgegannup granite quarry should be denied. This suggestion also reflects my view that the proposed development is located near a growth region earmarked for future population expansion and housing development. (from the conclusion) Boral's request for the approval of the proposed Gidgegannup quarry should be denied. The submitted PER provides inadequate evidence that the local environment will not be adversely impacted by development. In addition parts of the report are inaccurate and do not provide enough data for the establishment of environmental baselines for future measurement of corporate performance. <p>Local resident(s) #10</p>	<p>Refer to Item 5 above and Section 20 Item 2 of this document below regarding resource planning related matters.</p> <p>Qualified consultants were used to undertake relevant environment assessments and prepare the PER document in accordance with EPA guidelines and an EPA approved Scope of Works. As noted in Item 6 above, as part of the PER assessment process, the OPEA will determine whether this proposal can be undertaken in an environmentally acceptable manner and recommend suitable conditions of approval appropriate to the project.</p>

3.19 OWNERSHIP OF THE SITE

The submission(s) raised issues regarding the proposal with respect to:

- lack of clarity over ownership within Boral re the various lots; and
- who will be responsible for impacts on the local environment and concern no-one will take responsibility.

The following information, previously noted in Section 3.2, Item 9 of this document, is provided to clarify issues of ownership of the site:

As of 1 July 2010, Boral Resources (WA) Ltd (referred to as 'Boral' throughout this document) assumed full ownership and operational control of both the clay and granite resources at this site. Boral Resources (WA) Ltd will take full responsibility for all aspects of site management.

3.19 Item	Submissions received	Response
1	<ul style="list-style-type: none">• The actual current and proposed ownership of the Lots delineated for the proposed quarry and surrounding area is not clear in this report.• It is not clear who will be the responsible body should there be impact on Susannah Brook. There is already impact on Susannah Brook from the existing Midland Brick area. It needs to be absolutely clear who is the responsible body regarding contamination of this water course, Boral or Midland Brick. <p>Gidgegannup Progress Association Inc</p>	Refer to the comments at the start of this section above.
2	<ul style="list-style-type: none">• The actual current and proposed ownership of the Lots delineated for the proposed quarry and surrounding area is not clear in this report. ...proponent is Boral Resources (WA) Ltd...Lots mentioned are only part of the larger area owned by Midland Brick Ltd, which may be impacted and does impact on Susannah Brook.This may lead to blame shifting in the event of incidents such as Susannah Brook contamination if the development goes ahead.• The whole area owned should be covered in this PER and a single owner or point of responsibility guaranteed for the development (rather than more than one subsidiary of Boral), including previous existing clay pits. <p>Local resident(s) # 4</p>	Refer to the comments at the start of this section above.

3.20 PLANNING APPROVAL

The submission(s) raised issues regarding the proposal with respect to the Impact of the proposed quarry on future development earmarked for the area.

The City of Swan noted that quarrying is a permitted use within the zoning of the site but will require development approval. The City declined to provide technical comment so as not to prejudice their approval processes.

3.20 Item	Submissions received	Response
1	<ul style="list-style-type: none"> • The site is zoned “resource” in the City of Swan Local Planning Scheme 17. • The proposed use defined as “industry – extractive” is a permitted use in that zone. • The proposal will require planning approval under Clauses 4.3.4 of the Swan Local Planning Scheme 17 and the City will require notice of the development be given in accordance with the requirements set out under Clause 9.4 of the Scheme. Through this process the City will receive input from various stakeholders to consider in its assessment. • No technical comment provided as any comment made by the City prior to the finalisation of the above process may prejudice the outcome of the Council’s assessment of a future Development Application City of Swan: Manager of Statutory Planning 	<p>The City of Swan’s comments are noted.</p> <p>Boral will submit the necessary planning application to the City of Swan for this proposal, in due course.</p>
2	<ul style="list-style-type: none"> • The Perth metropolitan area is rapidly growing towards the hills. The WAPC has earmarked portions of the Gidgegannup area, near the proposed quarry, for future housing development. The approval the Boral Gidgegannup granite quarry would impact significantly on any future development in the area towards the north and northwest of the Boral site. Local resident(s) #10 	<p>Designation or “zoning” of appropriate areas for resource extraction in light of other local land uses is a matter for local and State government planning authorities.</p> <p>The proposed use of this site for extractive industry, is consistent with the City of Swan Local Planning Scheme 17 being a permitted use on lands zoned as “Resource”. As noted in Section 3.10, Item 4 of this document, the objectives of this zoning are to provide for the extraction of basic raw materials with proper environmental safeguards; and to protect resources of basic raw materials from inappropriate development.</p> <p>As noted in Item 1 above, the proposal will also require assessment by the City of Swan</p>

3.21 QUALITY OF PER

Of the 21 submissions raised, 14 raised concerns regarding the quality of the PER document or sections within the document.

In particular the submissions raised issues regarding the quality of the document with respect to:

- Repetitive, inconsistent and contradictory presentation of information;
- Technical inadequacy of, and errors within, the fauna report in particular;
- The report not being in a format that is easy to read, including language used;
- Concern regarding applicability and limitations of desktop studies, especially where data from other sites is used;
- Concern reports from other sites are flawed and therefore provide misleading information on which to base assessment;
- Concern regarding limited site specific information, eg groundwater;
- The need for site specific research; and
- Responsibility of proponent to undertake site specific research.

Site specific aspects for which submitters considered there was limited or no data; inadequate assessment and/or conflicting information include:

- existing habitat;
- flora and fauna;
- groundwater;
- acid sulphate soils;
- dieback;
- Carnaby's Cockatoo;
- stormwater management;
- site location details; and
- size of resource and rate of extraction.

A number of minor inconsistencies have been identified in the PER however these are not significant in the assessment of the project.

3.21 Item	Submissions received	Response
1	contradictory presentation: <ul style="list-style-type: none">• Page I, 7 says Boral will operate Monday to Friday 5am to 6pm and on Saturdays "morning to early afternoon" (vague description), but MAY seek consent to work Saturdays to 6pm "under exceptional circumstances" (not defined) and "possibly dispatch on Sundays". Then page xiii ...says the processing plant will work 7am to	Refer to Section 3.4 for clarification of operating hours.

	<p>7pm Mondays – Saturdays and blasting 7am – 6pm Mondays- Saturdays. The hours are too long , and what are we supposed to believe?</p> <ul style="list-style-type: none"> • If page v says "overall" traffic impact will be approx 3.9%, then page xiii says it will be a "minor increase 2%. • Page vi says 2 indigenous sites will be directly impacted by the proposed quarry, page xv says 1. The list goes on. Local resident(s) # 9 	<p>Based on the traffic figures provided on page v, the correct % increase is 3.9%. This is still only a minor increase.</p> <p>Page vi actually states: "The surveys identified two new heritage sites within the quarry pit footprint (Site ID 24882 and 24883). The footprint was subsequently refined to avoid direct impact on these sites and provides a buffer zone of 50 m around these two sites. These buffer zones will be marked out and will be excluded from any development or disturbances associated with the quarry expansion. One registered heritage site, the Gidgegannup Gnammma Hole and Lizard Trap (Site ID 21080), will be directly impacted by the Quarry." This same information is summarised in the table on page xv.</p>
2	<ul style="list-style-type: none"> • There is no existing quarry...The PER text gives the impression that the proposal is an expansion of Boral's quarrying operation at the site. THIS IS NOT THE CASE. As described in the PER, there are other division and sections of Boral that are using the site adjacent to the proposed area, but there are no hard rock quarries. I see this as mitigation or cover up of the significance of the proposal. • Flawed report offered in support. ...The use of Hanson report (Appendix D) on habitat is flawed. The report is part of an attempt by Hanson to misrepresent the true nature of their environmental impacts on the ecology of the are of their PER proposal. The area that is reported, is around Strelley brook which is west of the PER area by some distance. The area is about a kilometre from the Boral proposed PER site. The habitat is totally different at the proposed Boral site than the area of the report. Thus this Report is not RELEVANT. It should not be considered as supporting evidence for this PER. It is evidence that Boral is trying to introduce false and misleading data into their PER to create the impression that the quarry will not affect our environment. <p>Local resident(s) # 8</p>	<p>The PER does not reference an existing hard rock quarry on the property. It does reference the existing quarry at the neighbouring Hanson site and also existing clay extraction at the Boral site. Refer to Section 3.2 Item 9 of this document relating to ownership of the Site.</p> <p>Refer to Sections 3.3 and 3.3.2 particularly the introductory comments regarding the relevance and adequacies of survey methods used. See also the comments under Item 4 below.</p>
3	<ul style="list-style-type: none"> • The PER is described by the submitter as "repetitive, fragmented and contradictory presentation" and the submitter expresses frustration at the use of "potential" impacts and claim that "it is simply not necessary to make these statements that are nothing more than an attempt to conceal the obvious". • From the conclusion: The PER document is poorly assembled, repetitive and 	<p>The terminology used in the PER is the standard language used to prepare these types of assessments. For example, impacts are described as potential as they have not occurred. Actual impacts are those which have occurred. The structure of the PER, including the Executive Summary and Summary Table are requirements of the EPA guidelines.</p>

	<p>contradictory. It is based on assumptive and generalised desktop information that bears little relevance to on site realities.</p> <p>Local resident(s) # 9</p>	
4	<ul style="list-style-type: none"> • This PER document has been presented in a form that is not easy for the reader to comment upon. It is repetitive, inconsistent and contradictory. • There are phrases such as "potential impacts", when it is quite clear they are actual impacts. • Desktop studies and assumptions have been made, together with extensive use of what appears to be unsubstantiated material. • We would suggest that a much more rigorous document and basis for argument needs to be produced before we could support any approval for the quarrying of this area. Gidgegannup Progress Association Inc 	<p>Refer to the comments for Item3 above.</p> <p>The level of assessment undertaken for a PER crosses a gradient of detail and field investigations. Desktop assessments are a key component of all studies as it provides background information from Government and other sources. This background information can provide information collected over an extended period (in the case of fauna surveys for example) which provides both relevant information and context on which to consider the project. Where required, this information is supplemented by site visits, field surveys and sampling.</p> <p>Professional judgement by suitably qualified practitioners is also applied in considering the level of assessment for each element of the natural environment.</p>
5	<ul style="list-style-type: none"> • Conduct studies specific to the location concerned. • There is heavy reliance upon consultative reports that do not apply to the PER location. • ...there is a distinct lack of reference to current and specific data. In particular, that of climatic wind pattern information and recent findings related to the specific health effects of granite dust; properties such as its physical structure and alpha radioactivity emissivity. • The site deserves its own analysis from which fauna, floral and hydrological information can be ascertained. • An anomaly may exist in the PER when predicted water usage is made....the Boral figures is way in excess of the Hanson usage which is extracting three times as much product. What is the real situation? <p>Local resident(s) # 5</p>	<p>Refer to the following sections of this document for appropriate responses:</p> <ul style="list-style-type: none"> - Section 3.2 Air quality, in particular Item 4 re dust assessment and radioactivity; - Sections 3.3 and 3.3.2 particularly the introductory comments regarding the relevance and adequacies of survey methods used; - Section 3.7.1 Item 1 re groundwater; and - Section 3.7.4 Item 1 re water requirements. As noted in Section3.7.2 Item 6 of this document, water consumption for the Boral quarry is calculated on basis on likely requirements for dust control and site amenities. Usage at Hanson quarry is not relevant to this proposal.
6	<ul style="list-style-type: none"> • Considerable repetition of topics in various sections of the report... • Re Stakeholder consultation... Quite a lot of padding out and repetition of events & communications in the way it is recorded and tabulated <p>Local resident(s) # 4</p>	<p>Refer to Item 3 above.</p>
7	<ul style="list-style-type: none"> • A desktop assessment of groundwater resources is limited. One would have expected that ground drilling would have been required to model the aquifer behaviour. Desktop studies are more applicable to concept studies not to full blown PER. • A desktop assessment and a limited field survey verifying the desktop was 	<p>Refer to Sections3.7 and 3.7.1 Item 1 of this document regarding groundwater assessment, as well as Sections 3.3 and 3.3.2 particularly the introductory comments regarding the relevance and adequacies of survey methods used. See also the comments under Item 4 above.</p>

	<p>restrained in assessing flora and vegetation. ...More field surveys over different seasons throughout a year should be undertaken to obtain a comprehensive study of flora and vegetation. A random two days over two years field study, on in the middle of winter the other middle of spring, is inadequate because there are yearly climate variables with flora and vegetation. Local resident(s) # 6</p>	
8	<ul style="list-style-type: none"> • A review of the WAPC Planning bulletin No 64 suggests (page 19) that the site proposed for quarrying has no risk of acid sulphate soils. Has there been any on site soil sampling to "confirm this"? No. This is not acceptable. • A desktop survey by GHD to assess hydrology and groundwater resources has been conducted. Has there been any actual on site testing to confirm the veracity of this information? • A desktop survey method was used to assess the flora of the site (page 27) which was then "assessed" according to information dating back to 1980. We query the relevance of this and ask why a comprehensive on site survey covering several seasons was not undertaken to provide up to date information. • Boral have been planning a quarry since...1998 and subsequent new studies in 2004. This more than adequate time to conduct high quality on site surveys but this opportunity was not taken. Rather it appears that only two field flora surveys were undertaken on in spring and on in winter...This overlooks the diversity and spread of plant flowering that occurs throughout the remainder of the year, particularly during summer and autumn. • A search of the DEC database has led Boral to believe that no Threatened Ecological Communities exist on the site. No on site investigation has been undertaken. • No formal assessment to determine the presence of Dieback on site has been undertaken. • A level 1 field survey of indeterminate length by GHD of fauna present on the site was conducted. A more in depth survey was not required as the results of the Hanson survey done in 2007 (which we considered to be inadequate in length and sampling) were considered applicable to the Boral site and therefore a level 1 survey (even briefer) was considered more than adequate (5.9.1). A look at the table of species (pages 38.39) shows the survey to be superficial and the species observed to be indicative of a brief visit only, and perhaps at a time when fewer animals were at large. • As a result of the Hanson survey (based mainly on desktop information) no trapping was considered necessary (page 39) which confirms that the fauna survey undertaken was cursory at best. 	<p>Refer to the following sections of this report for the appropriate responses:</p> <ul style="list-style-type: none"> - Item 7 above regarding desktop surveys; - Sections 3.3 and 3.3.2 particularly the introductory comments regarding the relevance and adequacies of survey methods used. - Section 3.3.1 Item 1 regarding dieback; - Section 3.3.3 re Carnaby's Cockatoo - Section 3.5.2 Item 1 re acid sulphate soils; and - Section 3.7 and 3.7.1 Item 1 re groundwater.

	<ul style="list-style-type: none"> • Impact on Carnaby's Cockatoo is still a very serious cumulative effect as development increases in the area. The Carnaby's Cockatoo Report in Appendix C only covers the area of the quarry pit and stockpiles. It does not cover at all potential feeding and breeding disruption from noise, excavation and pit operations in the broader surrounding areas to the North owned by Midland Brick. • The safe routing of stormwater and contaminated water is based on the premise that shatter zones and preferred flow paths will not be encountered and are unlikely because this phenomenon did not occur at the Hanson Quarry (page 56). This assumptions sidesteps the responsibility to undertake on site research. • Statement made in Summary or Proposed management – "Stormwater will be diverted to onsite clay pits to contain sediment on site." This is unsatisfactory as clay pits have leaded to Susannah Brook in the past. • Gidgegannup Progress Association Inc 	<p>The information provided on pages 56 to 57, and in particular reference to shatter zones, is a discussion of potential impacts on groundwater and possible groundwater flow paths. It has no bearing on safe routing of stormwater and contaminated water on the site. Stormwater management is discussed in the preceding section of the PER under Surface water impacts.</p> <p>Refer to section 3.7 item 1 and 3.7.2 re surface water management.</p>
9	<ul style="list-style-type: none"> • A review of the WAPC Planning bulletin No 64 suggests (page 19) that the site proposed for quarrying has no risk of acid sulphate soils (page 19). Has there been any on site soil sampling to "confirm this"? No. This is not acceptable. • A desktop survey by GHD to assess hydrology and groundwater resources has been conducted (page 19). Has there been any actual on site testing to confirm the veracity of this information? • A desktop survey method was used to assess the flora of the site (page 27) which was then "assessed" according to information dating back to 1980 (nearly 30 years old). We query the relevance of this and ask why a comprehensive on site survey was not done to provide valuable updated information. • Boral have been planning a quarry since...1998 and subsequent new studies in 2004. This more than adequate time to conduct high quality on site surveys that set a benchmark for currency and validity that is based on sound testing practices. It is disappointing that the opportunity for unique on-field research presented by such a significant lead time has been squandered. • DEC database (no on site survey) have led Boral to believe that no Threatened Ecological Communities (TECs) exist on the site. Only a thorough investigation on-site would prove this. ...The DEC database is assumptive and generalised. • No formal assessment to determine the presence of Dieback on site has been undertaken • A level 1 field survey of indeterminate length by GHD of fauna present on the site was conducted. A more in depth survey was not required as the results of the Hanson survey done in 2007 (which we considered to be inadequate in length and sampling) were considered applicable to the Boral site and therefore a level 1 	<p>This is essentially the same submission as in Item 8. Refer to comments under Item 8 above.</p>

	<p>survey (even briefer) was considered more than adequate (page 38). ...A look at the table of species (pages 38.39) shows the survey to be superficial and the species observed to be indicative of a brief visit only, and perhaps at a time when fewer animals were at large.</p> <ul style="list-style-type: none"> As a result of the Hanson's survey (based mainly on desktop information) no trapping was considered necessary (page 39) which confirms that the fauna survey undertaken, was cursory at best. The safe routing of stormwater and contaminated water is based on the premise that shatter zones and preferred flow paths will not be encountered and are unlikely because this phenomenon did not occur at the Hanson's Quarry (page 56). Again assumptions made to sidestep the obligation for responsible on-site research. Local resident(s) # 9 	
10	<ul style="list-style-type: none"> Various studies (in Appendices) are not consistent in the areas studied – varies from the 42 hectare quarry area itself to the broader “proposed Boral Resources (WA) Ltd project footprint” to the full area owned by Midland Brick Ltd which is in the order of 450 hectares. This should be addressed before any approval of the new development requested. <p>Local resident(s) # 4</p>	<p>Some of the technical investigations considered areas outside the immediate footprint of the proposed quarry expansion. However, all information presented in the PER is relevant to the assessment of the proposal.</p> <p>Refer also to Sections 3.3 and 3.3.2 particularly the introductory comments regarding the relevance and adequacies of survey methods used; and the comments under Item 4 above.</p> <p>Refer to Section 3.2 Item 9 re Site ownership</p>
11	<ul style="list-style-type: none"> From conclusions: Inconsistencies with working hours Executive Summary vs Consultative Report. ...I have noted inconsistencies and a general bias as to the proposal by Boral to extract .5mtpa of product from the site. Some information is outdated and timing of studies being carried out over the course of a quantified time period of a month rather than a coverage of a full year. From conclusions: The address of the quarry given on the PER in my opinion is misleading and does not reflect the actual location of the area. Local resident(s) #2 	<p>Refer to the following sections of this report for the appropriate responses:</p> <ul style="list-style-type: none"> - Item 7 above regarding desktop surveys; - Sections 3.3 and 3.3.2 particularly the introductory comments regarding the relevance and adequacies of survey methods used. - Section 3.4 for clarification of operating hours. - Section 3.17 Item 1 re location of quarry.
12	<ul style="list-style-type: none"> Lack of clarity, uncertainty or a contradiction regarding the rate of extraction - The PER describes a proposal consisting of a 28ha quarry to be mined at a maximum rate of 500 00t per year. This is not consistent with information found elsewhere in the document...In appendix A of the PER ...the project is described as a quarry that will reach a depth of 100m below ground level and extract 9M tonnes of rock over 10-12 years (figure 1 – proposed quarry site). This equates to an annual extraction from year on of operations of between 750,000 and 900,000 tonnes. 	<p>This Proposed Staging of the Quarry is clearly outlined within the Executive Summary. The maximum rate of extraction will be 500,000t per annum. The resource is finite and is expected to yield 25 million tonnes of rock over the 50 year life. The calculation provided in this submission does not allow for bench heights, safety berms and other pit layout requirements.</p> <p>Boral will prepare an Environmental Management Plan (EMP) for the site</p>

	<p>Based on the information contained in the report and as the proposal includes a significant ramp up period during the initial years, following start up, annual output would be significantly more than this at the end of the period. Section 2 of the PER however contradicts this and states that the annual output will ramp up to a maximum of 0.5M tonnes per annum. This inconsistency is highly significant as the EPA has been asked to assess the environmental impact of a quarry operation with an annual output of 0.5M tonnes. Clearly the environmental impacts ...will be significantly less than impacts associated with a quarry producing in excess of 1.0M tpa.</p> <ul style="list-style-type: none"> • - ...there is an obligation of the proponent to transparently state what are its plans in respect to the trajectory of output levels over time. • Ambiguity regarding the size of the resource <p>- The inconsistencies in the document are not limited to the rate of extraction; resource volume has also not been clearly defined. ...Section 2 of the PER ...states that the resource is finite and at a consumption rate of 0.5M tpa the quarry will have a 50 year life. This indicates a total resource of 25M tonne... in Appendix A and Section 2 of the PER however describe the quarry as having an area of 28ha and a maximum depth of approximately 100m...Based on this area and depth, the actual available volume of resource, allowing for pit layout is approximately 222M m³ which equates to approximately 50M tonnes, potentially double the yield that is the subject of the PER assessment process.</p> <ul style="list-style-type: none"> • Insufficient detail regarding the operation of the quarry and seasonality factors which will impact on traffic and air and ground emissions. BGC (Australia) Pty Ltd 	<p>upon completion of the PER assessment process. The EMP will detail the relevant management practices to be implemented and maintained to mitigate impacts associated with the proposed Quarry operations.</p>
13	<ul style="list-style-type: none"> • Throughout the PER it is very difficult to ascertain specifics. The language does not seem to give validity to what is being reported on. The non committal terms used when assessing potential risk event outcomes does not provide the reader with the confidence that Boral have understood the consequences of their intended operation. Local resident(s) # 5 	Refer to Item 3 above.

3.21.1 Quality of PER - Fauna report inadequacies and quality of report

Section 3.24 deals with a range of concerns regarding the overall quality of the PER. This section deals specifically with the submission by the Office of the EPA's Terrestrial Ecosystems Branch in which they provide comments regarding technical information within the fauna report.

3.21.1 Item	Submissions received	Response
1	<ul style="list-style-type: none"> • Please note that TES provided advice on fauna issues in the draft Scoping Document...indicating the poor quality and inadequacy of that document. Some of the errors in the draft Scoping Document which were commented on in that earlier advice have not been corrected and have been included in the current PER. ...Specific comments on fauna issues are provided below. Please note that these comments only address the technical standard of the report and do not consider the likely impact of the proposal if implemented on the fauna of the area. • PER Section 5.9.2 Table 11 <ul style="list-style-type: none"> - Brown Honeyeater is given both its specific name and that of the Singing Honeyeater - Golden Whistler is given the specific name of the Rufous Whistler plus the name of another unspecified species - Species names should not commence with a capital letter. • PER Section 5.9.2 Table 12 <ul style="list-style-type: none"> - Species names should not commence with a capital letter. - The White-bellied Sea-Eagle is a coastal marine species and not present in the Darling Scarp – it should be deleted from the list. 	<ul style="list-style-type: none"> • GHD is aware that the fauna section of the 'Flora and Fauna report, 2007' which was provided as Appendix 2 in the PER was not sufficient to constitute a Level 2 fauna survey. A Level 2 fauna survey and report was undertaken at the adjacent Hanson quarry and should be sufficient to assess the fauna of the area. As discussed with the DEC, GHD is of the opinion that there will be little benefit in doing an additional Level 2 fauna survey. Management allowances have been made in the PER to address all fauna that could potentially have been identified in a Level 2 survey. The specific comments on the information in the PER relating to fauna are addressed below. <p>Yes – this was incorrectly transcribed from the fauna document into the PER. Neither the Singing Honeyeater or the Brown Honeyeater are threatened.</p> <p>This was an error in formatting which sometimes occurs automatically. The data in the Flora and Fauna report did not have species capitals.</p> <p>The listing of the White-bellied Sea Eagle came up in an EPBC Protected Matters search using a 10km buffer and as such cannot be deleted from the list. In addition, this species travels some distance inland from the coast close to water courses. The site is within 5km of the Swan River and there is potential for it to use the area opportunistically.</p>

	<ul style="list-style-type: none"> • PER Section 5.9.4 <ul style="list-style-type: none"> - Some statements given here in relation to Carnaby's Cockatoo are in variance with statements given in Appendix C particularly in relation to the breeding season of the species. Correct data should be included and incorrect statements amended. - The Black-faced Cuckoo shrike and Straw-necked Ibis are incorrectly ascribed a marine status – they should be deleted from this list of migratory marine species. • PER Section 5.9.8 <p>Statements that habitats are "considered to be well represented in the nearby" and "considered likely that this habitat occurs" are speculative and do not give any level of certainty. Information needs to be represented to show with certainty that habitats do occur in areas outside the project area.</p> <p>PER Section 5.9.111 see comments on Appendix B section 4.5.3 below</p> <ul style="list-style-type: none"> • Appendix B Flora & Fauna Report: <p>Section 2.10.2</p> <ul style="list-style-type: none"> - ...(the Agreement between Government of Australia and the Republic of Korea on the Protection of Migratory Birds) is missing from the list of agreements <p>- The White-bellied Sea-Eagle is a coastal marine species and not present in the Darling Scarp – it should be deleted from the list.</p> <p>Per Section 4.5 Table 9</p> <ul style="list-style-type: none"> - Black-faced Cuckoo shrike is incorrectly ascribed marine status - Brown Honeyeater is given both its specific name and that of the Singing Honeyeater - Golden Whistler is given the specific name of the Rufous Whistler plus the name of another unspecified species <p>Section 4.5.1</p> <p>Some statements in relation to significant faun species are misleading or incorrect.</p>	<p>Breeding time in PER is incorrect. Appendix C is correct.</p> <p>The Black-faced Cuckoo-shrike is listed as a marine species under the EPBC Protected matters list. The Straw-necked Ibis has been incorrectly listed as Marine by GHD.</p> <p>Information in the flora and vegetation section of the PER indicates that the overall jarrah vegetation type is 69% conserved. This gives a good indication that similar habitat is likely to be available, including in the nearby John Forrest National Park. Pers. comm. advice by E Mattiske (whose vegetation complex work for the Darling Scarp and range is referenced in the document and who is highly knowledgeable about this area) has indicated that there are similar vegetation types within the Monadnocks Nature Reserve.</p> <p>Agreed. The ROKAMBA agreement was signed in July 2007 and was not entered onto the EPBC Protected Matters Search website until early 2009. This was not therefore included in the fauna report of 2007 and was not added to the PER. Four species are listed in the ROKAMBA agreement that is not already listed under other agreements, and 2 of these are not found in WA. The remaining 2 are shorebirds.</p> <p>Refer to comments above.</p> <p>Refer to comments above.</p> <p>According to the current WA Museum website, Gidgegannup to West Midland is the northern extent of Baudin's Cockatoo's range. At the time of the original survey, the</p>
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	<p>- The statement that Baudin's Cockatoo "is unlikely to regularly use the survey area" is not true. This species is a regular seasonal feeding visitor to the area.</p> <p>- Black-faced Cuckoo-shrike – is not a marine species</p> <p>- The Straw-necked Ibis is not a migratory species</p> <p>Section 4.5.3</p> <p>- statements that "This species should be common in the nearby John Forrest National Park" is speculative. Statements need to be based on scientific certainty, not speculation.</p> <p>- The status of the two unidentified millipede species needs to be addressed. Are they unnamed species, and why were they not identified? Their significance in the project area needs to be determined and a clear statement that they occur outside the project area needs to be provided.</p> <p>- The statement that "No land snails were recorded form the survey area, however, this is considered to be common for areas containing granite outcrops" is not correct. A number of land snail species are known to occur on granite outcrops in the Darling Range...</p> <p>Section 4.5.6 and 4.5.7</p> <p>- In regard to linkages and impacts on fauna it is stated that the project area is surrounded by continuous vegetation. The tenure of these areas needs to be taken into consideration as it is likely that other proposals may be located in these areas.</p>	<p>records of Birds Australia did not indicate this species as being in the area. It has similar requirements to Carnaby's Cockatoo, which has been considered in the report.</p> <p>Refer to comments above.</p> <p>Refer to comments above.</p> <p>These species were recorded in the survey by Bamford Consulting. Millipedes are very poorly known and most are not identified. The species were shown to Dr Mark Harvey at the WA Museum but have not been identified due to a poor or non-existent taxonomic framework for the group. As there are considerable areas of similar habitat outside the project area it is considered that are likely to be further distributed and also protected in the adjacent John Forrest National Park. This is a similar issue with a large number of invertebrates, few of which have been identified or their extents mapped. The recognised SRE millipede, <i>Dinocambala ingens</i>, was not recorded during the survey.</p> <p>Statement will be changed. However, no land snails were recorded in the GHD or Bamford surveys. Little was known about snails in this area when the survey was undertaken in 2007.</p> <p>At present there is continuous vegetation on all sides of the project area. The proponent is not in a position to know what might possibly occur in these areas in the future. They are reporting on the current status and to consider other possibilities is purely speculation.</p>
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<p>Appendix C Table 26</p> <p>- This table is of a very poor professional standard and lacks understanding of both habitat preferences and distributions.</p> <p>-Two of the frog species (Squelching Froglet and Sand Frog) are not known to occur in the Darling Scarp, but are known from sands of the coastal plain. They should be deleted from the list which should only include species that are likely to occur based on known habitat preferences. The Yellow-rumped Pardalote does not occur west of the Fitzgerald River area..., the Antarctic Prion is a marine species, <i>Lerista elegans</i> is a coastal plain sand inhabiting species (in the Darling Range it is replaced by the similar <i>Lerista distinguenda</i>) and should be deleted from the list, <i>Lerista lineopunctulata</i> does not occur in the Darling Range, some explanation needs to be provided for the inclusion of two subspecies of <i>Strophurus spinigerus</i> (it is unusual for two subspecies to occur together).</p> <p>- A number of species included in this list (especially birds) lack the inclusion of accepted common names; these should be included.</p> <p>Appendix D (the Bamford Report) This appendix was prepared for a different project to the west of the current project area. Its use here is of questionable value as it has been deemed by the EPA to not provide sufficient clarity and certainty that habitats occur in protected areas outside the project area. The EPA is likely to require proof habitats in the current project are occur in secure areas outside.</p> <p>Appendix E stakeholder Consultation Page 26 The statement that "All surveys are reviewed by the EPA conservation branch to check that the survey complies with appropriate methodologies and procedures" needs to be amended. An EPA conservation branch does not exist.</p> <p>Page 27 Why is it inferred that Carnaby's Cockatoo will not roost in trees occupied by other species.</p> <p>Office of the EPA: Strategic Policy and Planning Services Division, Terrestrial</p>	<p>Table 16 includes species that have been listed in a Nature Map (WA Museum database) search of a 10 km radius at the time of the study. This is clearly stated in the table's heading and in the text at 2.10.1. The last paragraph of section 2.10.2 on page 11 indicates that some species listed in WA Museum searches can be dated or misrepresented. A list of species for the area NatureMap can be gained with a point search and a minimum 10km buffer so there are no options to undertake the search any other way. The list is intended to gain further information on any significant fauna which may have been recorded for the area, not as a comprehensive fauna list.</p> <p>We cannot alter the outcome of searches on databases as this could potentially lead to selective removal of species of significance</p> <p>At the time of the completing the PER document, GHD understood that the Bamford report for the adjacent Hanson quarry was potentially acceptable by the EPA as representative of the current project area . A decision was made not to undertake a second trapping survey in the project area. Recent decisions by the EPA on the acceptability of the Bamford report for the Hanson quarry appear to have changed this understanding.</p> <p>This comment was provided in a transcription from stakeholder meetings and while not technically correct is intended to inform the public that Boral and its consultants use survey methodologies acceptable to the relevant decision making authorities, such as the DEC and EPA.</p> <p>Again this refers to a comment provided in a transcription from stakeholder meetings. These Stakeholder notes are advisory only. The correct reference for technical information re the Carnaby's Cockatoo is the GHD Report provided in Appendix C of the PER. In this particular instance refer to Section 3.2.1 of Appendix C which states:</p>
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	Ecosystems Branch	<p>"In order for Carnaby's Cockatoo to successfully breed it requires suitable nesting hollows and adequate food resources. ...competition for nesting hollows by increasing numbers of galahs, western corellas and feral honey bees may be significant".</p> <p>During the site survey for Carnaby's, for the eight potentially suitable nesting trees, three of these competitive bird species were recorded as nesting at the time of the visit.</p> <p>The information in the Carnaby's assessment is consistent with the guidance provided by the Commonwealth Department of the Environment, Water, Heritage and the Arts (DEWHA) specifically regarding the Carnaby's Cockatoo and provision of offsets (refer to Appendix A of this document).</p>
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3.22 STAKEHOLDER CONSULTATION

The submission(s) raised issues regarding the proposal with respect to:

- some local residents not being aware of proposal or involved in consultation process; and
- lack of consultation of local residents.

Boral has initiated an extensive stakeholder consultation program, for which a summary is provided in Section 11 of the PER with the full details provided in Appendix E of the PER. The proposal has been widely communicated through numerous avenues within the community. For example, in July 2008 an information pack and invitation to community information session was emailed to 42 stakeholders and hand delivered to 137 residents. In summary the key stakeholder events and dates since the stakeholder consultation program was initiated in 2004/2005 include:

- July 2008 Information Pack, Community information sessions
- September 2008 Newsletter
- April 2009 Frequently Asked Questions information pack
- May 2009 Feedback information session
- June 2009 Stakeholder Reference Group Meeting 1

The views of the residents are transparent within Boral's documentation, including both positive and negative feedback. An example (noted in section 3.1 of this document) is the Swan Valley Nyungah Community, while raising an overall objection to the proposal at this location in their submission, acknowledge that "Boral has been a very good company to meet and talk with and be consulted by, and they have taken our concerns seriously". Another example (noted in section 3.12 of this document) is the submission from the Stoneville and Parkerville Progress Association (who have been actively involved in stakeholder consultation sessions), which comments on the constructive nature of the stakeholder consultation process and the opportunity that is available through this process as well as through good planning and resourcing, to ensure operations can exist with minimal / reduced impacts.

This consultation program will continue throughout the life of the project primarily through regular meetings with an ongoing Stakeholder Reference Group as well as periodic Newsletters to local residents. A Stakeholder Consultation and Communications Log has been developed to record consultation inputs and responses and will be maintained throughout the life of the project.

3.22 Item	Submissions received	Response
1	<ul style="list-style-type: none"> • Ensure all residents surrounding the affected locale are consulted. • I have been totally unaware of the Boral intentions until brought to my attention through a chance meet while walking the adjoining National Forest. • The PER provides details relating to consultation with local groups and residents, however, these details do not seem consistent with the view of residents that I have talked to in the surrounding area. This is an area well within a 3km radius of the intended location. Local resident(s) # 5 	Refer to the comments at the start of this section above as well as Section 3.17 Item 1 of this document.
2	<p>I have not been able to respond in more detail as I was alerted to this proposal by a neighbour who had concerns in relation to the lack of consultation and how this proposal has immediately followed the Hanson application...Local resident(s) # 2</p>	<p>Refer to the comments at the start of this section above.</p> <p>This proposal has not immediately followed the Hanson Application.</p>

3.23 TOURISM IMPACTS

This submission raised issues regarding the proposal with respect to the impact of the quarry, particularly visual, on Swan Valley tourism

3.23 Item	Submissions received	Response
1	<ul style="list-style-type: none"> • Negative effect on tourism in the Swan Valley. Swan Valley Rate Payers and Residents 	<p>There is insufficient evidence in this submission to validate this claim and it is inconsistent with the outcomes predicted in the PER on the basis of a range of environmental assessments.</p> <p>Refer also Sections 3.9 and 3.16 of this document regarding visual amenity and lifestyle impacts respectively.</p>

4.0 CHANGES TO PROPOSAL

The only material change to the proposal since the issue of the PER is the change of ownership noted in Section 3, Item of 9 of this document:

As of 1 July 2010, Boral Resources (WA) Ltd assumed full ownership and operational control of both the clay and granite resources at this site. Any future clay extraction will require Midland Brick to seek all necessary approvals, including provision of any necessary environmental assessments specific to clay extraction.

This transfer of ownership of land from Midland Brick land to Boral Resources (WA) Ltd does not materially affect either the environmental assessment process, the predicted outcomes or proposed management strategies. In fact it provides a greater level of certainty regarding corporate responsibility over the whole of the Boral landholding (approx 450 ha, refer to Figure 5 of the PER).

4.1 CORRECTIONS

During the PER review, a number of inconsistencies or errors were noted and the following corrections are provided in Table 4 below.

Table 4: Corrections to PER

Environmental Factor	Submission summary reference	PER Reference	Error and/or Inconsistency	Corrected statement and/or information
Noise and vibration - Operating hours	3.4	Summary table pxiii, Section 2.5 p7, Section 8.5.3 p72	various references to operating hours, lack of clarity	<p>Clarification of Quarry Operating hours</p> <p><u>Days of operation</u> Monday to Saturday</p> <p><u>Hours of Operation</u> 0500 – 0700 hrs personnel arrive to site to commence equipment pre-start, refuelling and other checks as well as complete any necessary safety documentation (eg permits). No trucks arriving on site before 6am. Aggregate load-out to commence after 6am.</p> <p>0700 – 1800hrs crushing and screening operations; general quarry operations. Typically on a Saturday operations would be completed early afternoon, however consent will be sought to work until 6pm on Saturdays for eventual issues.</p> <p><u>Sundays:</u> Boral may also in the future seek approval to dispatch (ie load-out) on Sundays, however this would be unusual and would require community notification. The process plant would not be running and no blasting would take place on Sundays.</p>
Surface and groundwater – groundwater levels	3.7 Item 1	Appendix A Surface and Groundwater Report p 3	Based on the regional groundwater level being approximately 60m above Susannah Brook, the Creek would contribute to groundwater (effluent system) through infiltration rather than the aquifer contributing to the stream.	"Based on the regional groundwater level being approximately 60m below Susannah Brook, the Creek system would contribute to groundwater (effluent system) through infiltration rather than the aquifer contributing to the stream."

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Environmental Factor	Submission summary reference	PER Reference	Error and/or Inconsistency	Corrected statement and/or information
Transport impacts - total % increase in traffic	3.8	Executive Summary pv, 9.3.2 p83	The total per percentage increase in traffic from 2007 data is quoted in the executive summary as 3.9%, while in section 9.3, 2% is quoted.	Based on the figures provided in the executive summary, the total percentage increase should be referred to as 3.9%.
Transport impacts - quarry entrance	3.8	Executive summary table p xiii (predicted outcomes)	typographical error in sentence: <i>The intersection, road and entrance to acceptable standards will under normal circumstances ensure the safety of all road users.</i>	"The intersection, road and entrance to the site will be designed to acceptable standards and will, under normal circumstances ensure the safety of all road users."
Quality of PER - Fauna report	3.21.1	5.9.2 Table 11	The Brown Honeyeater name was wrongly mixed with the Singing Honey eater name. This information was incorrectly transcribed from the fauna document (Appendix B).	Neither the Singing Honeyeater or the Brown Honeyeater are threatened.
	3.21.1	5.9.2 Table 11	Species names should not commence with a capital letter. This was an error in formatting which sometimes occurs automatically.	The data in the Flora and Fauna report does not have species capitals.
	3.21.1	5.9.4	Some statements given in relation to Carnaby's Cockatoo are in variance with statements given in Appendix C particularly in relation to the breeding season of the species.	Breeding time in the PER is incorrect. Appendix C is correct.
	3.21.1	5.9.4	The Black-faced Cuckoo shrike and Straw-necked Ibis are incorrectly ascribed a marine status – they should be deleted from this list of migratory marine species.	The Black-faced Cuckoo-shrike is listed as a marine species under the EPBC Protected matters list. Changes to the list need to be taken up with DEWHA. The Straw-necked Ibis has been incorrectly listed as Marine by GHD.

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Environmental Factor	Submission summary reference	PER Reference	Error and/or Inconsistency	Corrected statement / information
Quality of PER - Fauna report	3.21.1	Appendix B Flora & Fauna Report: Section 2.10.2	<p>The Agreement between Government of Australia and the Republic of Korea on the Protection of Migratory Birds) is missing from the list of agreements.</p> <p>The ROKAMBA agreement was signed in July 2007 and was not entered onto the EPBC Protected Matters Search website until early 2009. This was not therefore included in the fauna report of 2007 and was not added to the PER.</p>	Four species are listed in the ROKAMBA agreement that is not already listed under other agreements, and 2 of these are not found in WA. The remaining 2 are shorebirds.
	3.21.1	Appendix B Flora & Fauna Report:	<p>The statement that "No land snails were recorded from the survey area, however, this is considered to be common for areas containing granite outcrops" is not correct.</p> <p>However, no land snails were recorded in the GHD or Bamford surveys and little was known about snails in this area when the survey was undertaken in 2007</p>	"A number of land snail species are known to occur on granite outcrops in the Darling Range including species of <i>Bothriembryon</i> and <i>Succinea</i> as well as other micro-snail species. However, no land snails were recorded from the survey area."



5.0 SUMMARY OF IMPACTS AND PROPOSED MANAGEMENT MEASURES

The environmental factors identified for the project and the proposed management measures and commitments are summarised in Table 5 below.

Following completion of the PER assessment process, an Environmental Management Plan (EMP) will be prepared and implemented. The EMP will incorporate and build upon the management and mitigation measures identified within the PER and through the public review process, and as summarised in Table 5.

Table 5 Summary of proposed impacts and management measures and commitments

Management objective	Existing Environment	Potential Impacts	Proposed Management Measures	Predicted outcome
Environmental Factor: Surface Water				
To maintain the quantity of water (surface and ground) so that existing and potential environmental values, including ecosystem maintenance, are protected.	<p>The Site is located to the south and west of Susannah Brook.</p> <p>The footprint of the Quarry falls within the Susannah and Jane Brook Catchment.</p> <p>The Quarry footprint impacts slightly on one of the ephemeral streams that drain into Susannah Brook</p>	<p>Capture of runoff in the pit, resulting in minor reduction in Susannah Brook and Jane Brook catchments.</p> <p>Stormwater runoff from operational areas and/or cleared areas may contain increased levels of sediment or contaminants. Runoff may leave the site and drain into nearby watercourses or drainage lines.</p> <p>Potential flooding of pit from extreme climatic events.</p> <p>Possible need to release excess water into Susannah Brook and Jane Brook.</p>	<ul style="list-style-type: none"> Completion of Site-wide hydrological assessment, design and development of water management plans to oversee the containment of stormwater from the Site. Stormwater will be diverted to onsite clay pits to contain sediment on site. At all times, stormwater will be managed in accordance with the <i>Stormwater Management Manual for Western Australia (DEC 2005)</i>. Water requirements at the quarry will be met using water harvested from on-site dams and clay pits. Where possible, water from the site will be treated on-site for reuse for dust suppression. A potable water supply tank will be installed at the Site and will be serviced by a tanker as required. 	A minor (0.1%) reduction in the catchment area of Susannah Brook and very minor (0.001%) reduction in the catchment of Jane Brook is likely. Downstream flow signatures are not expected to be significantly altered by this minor loss of catchment area. The project will not cause any direct disturbance to Susannah or Jane Brook.

Surface water quality			
To ensure that the quality of water emissions (surface, ground, and marine) does not adversely affect environmental values or the health, welfare and amenity of people and land uses, and meets statutory requirements and acceptable standards.	As above	As above	<p>• A water management plan will be developed to oversee containment of stormwater on Site and flow diversions around the Quarry.</p> <p>• Adequate flow diversions, bunds and/or other suitable drainage structures will be designed to divert all stormwater runoff to on-site sedimentation dams.</p> <p>• All stormwater will be diverted to onsite clay pits in order to contain potentially polluted surface water and sediment on site.</p> <p>• Most stormwater drains will be designed for an Average Recurrence Interval (ARI) of 10 years as per Australian Standard AS 3500.3:2003, plus an appropriate freeboard.</p> <p>• Stormwater drains and pipes at the main entrance will be designed for an ARI of 20 years in order to safeguard against having stormwater run down the entrance road and on to Toodyay Road.</p> <p>• A surface water quality monitoring programme will be implemented, which will include monitoring locations within Susannah Brook upstream and downstream of the quarrying operations.</p> <p>• All current infrastructure within the proposed offset area will be maintained, and no additional or new infrastructure will be allowed within the offset area.</p> <p>• The sediment basin facility north of the proposed quarry area will be maintained to minimize the</p>

			<p>potential for contaminating Susannah Brook.</p> <ul style="list-style-type: none"> • A wheel wash facility will be installed at the entrance of the Site to ensure that sediment is not transported off site by vehicle wheels. • Soil disturbance will be minimised around excavation works. • Excavation works will be undertaken when the probability of rainfall is low. • Finished works will be left in a stable condition. • Existing stormwater facilities will not be unnecessarily blocked or restricted by material stockpiles. • Material stockpiles will be contained within a sediment fence. • An oily water separator will be installed at the workshop. • Contaminated material and spills will be cleaned up immediately. 	
Groundwater				
To maintain the quantity of water (surface and ground) so that existing and potential environmental values, including ecosystem maintenance, are	Ferruginous lateritic soils and weathered regolith form a series of perched isolated aquifers, which contain shallow bores during winter. Yields reduce substantially during summer.	The Quarry will intercept the deeper groundwater table. Any flows into the pit are likely to be minor provided a shatter zone or preferred flow path are not	<ul style="list-style-type: none"> • Groundwater monitoring will be undertaken to ensure that the groundwater depth and quality is well understood in the area of proposal, prior to development of each cell. • A groundwater management plan will be developed to ensure potential seepages originated within the Quarry are contained and to prevent potential contamination of groundwater and downstream surface waters. 	Impacts on the local and regional groundwater regime are expected to be minimal and are not expected to impact on any other groundwater users

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protected.	<p>Regional groundwater levels for the basement aquifer show that the groundwater levels are generally in the range of 60m below the surface.</p> <p>Groundwater levels are thought to broadly correlate to topographic surface levels.</p> <p>Surface water infiltration can form a localised perched aquifer.</p> <p>Water yield capacity from the perched aquifer appears to be highly variable and responsive to seasonal variability.</p> <p>Areas containing secondary porosity (fractured rock patterns) are likely to comprise a minor local aquifer within the quarry area.</p>	<p>encountered. If a shatter zone or preferred flow path are intersected, there is potential for the quarry to become flooded.</p>	<ul style="list-style-type: none"> Contingency procedures will be developed to address the (minor) potential that the Quarry will encounter a preferred flow path or shatter zone. 	
Groundwater Quality				
To ensure that the quality of water emissions (surface, ground and marine) does not adversely	As above	Contamination of groundwater.	<ul style="list-style-type: none"> A groundwater management plan will be developed to contain potential seepages originated within the proposed quarry and prevent potential contamination of groundwater. During operations, the acidification potential will continue to be assessed as the geology is proved. 	The proposed granite quarry is not expected to adversely affect groundwater quality.

<p>affect environmental values or the health, welfare and amenity of people and land uses, and meets statutory requirements and acceptable standards.</p>			<ul style="list-style-type: none"> • All hydrocarbons will be stored in accordance with Australian Standard AS1940. • All servicing of mobile equipment will take place in a designated service area with appropriate pollution control. • Spill kits will be available at all locations where hydrocarbons are stored or used and staff will be trained in their use. • Any spills will be cleaned up immediately and disposed of to a suitable disposal facility. 	
Vegetation and flora				
<p>To maintain the abundance, diversity, geographic distribution and productivity of flora at the species and ecosystem levels through the avoidance or management of adverse impacts and through improvement in knowledge.</p>	<p>The Site consists of three vegetation types (Eucalypt/Woodland Forest, Mixed Heath and Lithic Community). No threatened ecological communities (TECs) or Declared Rare Flora (DRF) species have been recorded at the Site. One Priority 4 species (<i>Calothamnus rupestris</i>) has been recorded at a number of locations within the Site. Thirty-two weed species have been recorded, of which one, Paterson's</p>	<p>Clearing of approximately 31 ha of vegetation. Clearing of conservation significant flora: <i>Calothamnus rupestris</i> (P4). Potential introduction and/or spread of weed species. Potential to introduce/spread plant pathogens into adjacent bushland. Soil degradation and erosion.</p>	<ul style="list-style-type: none"> • Vegetation clearing lines will be surveyed and clearly marked prior to earth moving activities. • An onsite offset area comprising 48.35 ha of remnant vegetation will be conserved. The offset area includes Susannah Brook and a vegetated corridor providing linkages to surrounding vegetation. • Conservation significant flora will be re-established if possible, around the pit and/or in rehabilitated areas. • Clearing controls and traffic management controls (such as fencing) will be implemented to ensure that areas that are outside of the clearing area are not disturbed. • A weed management plan will be implemented to control the spread of weeds through limiting initial disturbance areas, restricting vehicles to established trafficable areas and undertaking appropriate control spraying using non-residual herbicides. 	<p>The Quarry will require clearing of approximately 31 ha of vegetation over the life of the quarry. The proposed clearing will result in the removal of approximately 10 plants of the Priority 4 species, <i>Calothamnus rupestris</i>. The proposed clearing is not expected to have any significant impacts on flora or vegetation at a local or regional scale. The proposed offset land has a large range of flora, due to the range of vegetation types present. The offset area is considered to be more than adequate to preserve vegetation similar to the quarry area.</p>

	<p>Curse (Echium plantagineum), is a Declared Plant.</p> <p>The majority of the Quarry area is thought to be Dieback free, however some plant deaths attributed to Dieback infestation have been identified, particularly on the Jarrah-Marri forest on the lateritic upland area.</p>	<ul style="list-style-type: none">• Weed control measures for Paterson's Curse will be implemented prior to commencement of any vegetation clearance.• A comprehensive Dieback survey will be completed by a qualified dieback interpreter prior to the commencement of clearing or ground disturbing activities, to determine the presence of Dieback within the Project area and Dieback management procedure implemented as required.• Topsoil will be stockpiled and respread over the batter slopes of the quarries to encourage rehabilitation after completion of each phase.• Where possible, existing quarry disturbances will be rehabilitated.• Boral will undertake progressive rehabilitation of the site with endemic native species.• Firebreaks will be maintained clear of overhanging vegetation and rocks; and to allow full access to a wide range of fire vehicles, including those operated by Local Government Volunteer Bush Fire Brigades, the DEC and FESA.• A procedure will be developed with FESA for notification of explosives on site in the event of a bushfire in the area. <p>Mine Closure</p> <ul style="list-style-type: none">• The area of disturbance outside of the quarry pit (approx 14 ha) will be rehabilitated after closure.• The quarry infrastructure footprint will be rehabilitated	
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		and surface drainage reinstated post closure.	
		Fauna	
To maintain the abundance, diversity, geographic distribution and productivity of native fauna at the species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge.	<p>No threatened fauna species have been recorded at the Site, however a number of conservation significant species have previously been recorded the vicinity of the Site, including Carnaby's Cockatoo (Endangered).</p> <p>There are eight trees which may be suitable for nesting by Carnaby's Cockatoo within the quarry footprint. Most of these are large Marri's and not a preferred choice for this species. The clearing area contains limited nesting trees and there is no evidence that the area is being used as a breeding site. Limited feeding possibilities occur at the site to support Carnaby's Cockatoo.</p> <p>The Site is not considered to contain significant habitat unique to the Project area.</p>	<p>Possible fragmentation of fauna habitat and interruption to fauna movements. However, the Site is relatively small and there are areas of good quality bushland on all sides that would provide alternate habitat linkages.</p> <p>The Site is wholly surrounded by continuous vegetation and does not contain vegetation or habitat zones that are not present within the surrounding areas. Disturbance is most likely to occur on a local scale, impacting individual animals, rather than a species.</p> <p>Increased susceptibility of native fauna to predation</p> <p>Soil disturbance and potential refuge destruction for ground dwelling, or cryptic fauna</p>	<p>A fauna trapping and relocation program to be undertaken prior to commencement of clearing. Fauna will be relocated to a suitable area to be confirmed with the DEC.</p> <ul style="list-style-type: none"> Clearing will be undertaken progressively away from already cleared areas to allow fauna to move away from the area of disturbance; A nesting box program will be developed in consultation with DEC to replace the loss of potential nesting hollows in any habitat trees. Where possible large logs will be used to enhance habitat values around the edges of the quarry. The quarry pit perimeter will be bunded to deter fauna from approaching and falling over the quarry face. Speed limits will be restricted on haul roads. An offset area (as shown in Figure 8 of the PER) including habitat corridor along the western boundary of the Site, will be conserved. Rehabilitation will aim to provide alternative food sources for native fauna species, in particular black cockatoo species, through replanting of native prime feed species, such as <i>Allocasuarina</i>, <i>Banksia</i>, <i>Eucalyptus</i>, <i>Grevillea</i> and <i>Hakea</i> species that currently occur at the Site.

	<p>The Site contains a number of different fauna habitats: Lateritic uplands and associated outcrops; Granite outcrops and associated areas where runoff collects; large trees, fallen logs; and dense heath.</p>	<p>species. Death or restriction of movement of wildlife within the area. Changes to natural drainage may adversely affect fauna and their habitat. Changes to vegetation structure composition.</p>		
Pollution Control (Hydrocarbons and Chemicals)				
<p>To ensure that land uses and activities that may emit or cause pollution are managed to maintain: physical and biological environment and the natural processes that support life, the health, welfare and amenity of people and land uses.</p> <p>To ensure that pollutants</p>	<p>There is no known existing contamination or pollution at the Site</p>	<p>Spills resulting in contamination of land, groundwater or surface water.</p>	<ul style="list-style-type: none"> • All hydrocarbons will be stored in accordance with Australian Standard AS1940. In particular, diesel will be stored within a purpose built, self bunded container. • All servicing of mobile equipment will take place in a designated service area with appropriate pollution control. • An oily water separator will be installed at the workshop. Oil from the system will be collected and removed for recycling or disposal and clean water will be discharged to the clay pits for reuse. • Spill kits will be available at all locations where hydrocarbons are stored or used, and staff will be trained in their use. • Any minor spills will be cleaned up immediately and disposed of to a suitable landfill. 	<p>The proposed Quarry is not expected to pose a significant threat to the contamination of soil, groundwater or surface water. Any spills that occur at the site will be cleaned up immediately and any necessary remediation carried out.</p>

<p>emitted are as reasonably practicable, and comply with all statutory requirements and acceptable standards.</p>			<ul style="list-style-type: none"> • Should soil or water contamination occur at the Site, Boral will liaise with the DEC to determine the appropriate course of action for remediation. • Wastewater generated on site will be treated and/or disposed of as follows: <ul style="list-style-type: none"> - sewage will be routed to on-site septic tanks; - wash basin water from staff ablution facilities will be routed to clay pits for reuse; - washdown water from maintenance workshop and vehicle servicing area wash bays and fuel storage areas will be treated by an oily water separation system; and - Water from the wheel wash at the main entrance and normal truck washdown will flow to the dam just to the east of the middle gate and be pumped or piped from it to the western dam for storage/reuse/evaporation. 	
Solid wastes				
<p>To maintain the integrity, ecological function and values of the environment.</p> <p>To ensure that emissions do not adversely affect the health, welfare and amenity of people and land uses</p>	<p>There is currently no waste produced at the Site.</p>	<p>Solid waste generation is expected to be limited to minor quantities of office and servicing waste</p>	<ul style="list-style-type: none"> • Solid waste will be collected in containers sealed from the weather and disposed of at the most suitable landfill, disposal or recycling facility. 	<p>All solid waste will be removed from the Site and disposed of to an appropriate recycling or disposal facility. Solid waste is not considered likely to pose a significant impact.</p>

Noise and vibration			
To protect the amenity of nearby residents from noise impacts resulting from activities associated with the proposal by ensuring the noise levels meet statutory requirements and acceptable standards.	<p>The nearest sensitive receptors are the Red Hill Disposal Site staff building and Hanson Quarry staff building. These sites are located approximately 500 m from the Site, and noise impacts are expected to be negligible.</p> <p>The closest noise sensitive premise is a house located approximately 850 m to the east of the Quarry.</p> <p>The following noise impacts already exist in the area; traffic noise along the Toodyay Road; blasting noise from the Hanson's Quarry; process noise from the Hanson's Quarry; and process noise from Red Hill Waste Management Facility.</p>	<p>Noise levels may exceed assigned daytime levels during start-up and future operations.</p> <p>Once the process plant has been excavated to 10 m below ground level, noise from this plant will comply with the <i>Environmental Protection (Noise) Regulations</i>.</p> <p>Noise and vibrations from blasting may impact residents.</p>	<ul style="list-style-type: none"> The process plant will only be operated between the hours of 7am to 6pm, Mondays to Saturdays. Blasting will be restricted to 7am to 6pm, Mondays to Saturdays. If construction activities are required outside the hours of 0700 to 1900 hours Monday to Saturday, Boral will submit a noise management plan and obtain an approval from the City of Swan at least 7 days before the planned out-of-hours construction work (as per Regulation 13 of Noise Regulations). Boral may also in the future seek approval to dispatch (ie load-out) on Sundays, however this would be unusual and would require community notification. The process plant would not be running and no blasting would take place on Sundays. An 8.5 m effective height acoustic relief bund or equivalent configuration, will be constructed on the northern and eastern sides of the processing plant area. Bunds will be revegetated. Quiet alarms that emit a noise only 5 dB above ambient noise and/or low frequency 'croaker' alarms will be used. Internal roads will be designed to eliminate the need for reversing of road trucks where practicable.

			<ul style="list-style-type: none"> • Equipment, specifically their mufflers to be maintained. • Before the commencement of drilling and blasting, Boral will be required to develop a Blast Management Plan (which may include the blasting contractor's processes and procedures). • Boral's blast services provider will carry out specific risk assessments and trial blasts to quantify necessary clearance distances. • Blast charges will be designed to keep noise and vibration below the allowable limits. • Boral will provide an email and SMS service, for neighbours who wish to be informed ahead of blasting, notifying of blast dates and times well in advance of any blast activity. • Vibration and airblast pressure will be measured for each blast on an on-going basis and blast parameters will be modified accordingly by the blast services. • Blast measurements will be reported back to the Stakeholder Reference Group. 	
Unplanned Emergency Work				
As for pollution control, and noise and vibration above.		<p>It may be necessary for unplanned emergency works to be completed outside of the normal work hours. Works outside of normal hours would only be required when an event, such as a bushfire or severe storm, pose a risk to</p>	<ul style="list-style-type: none"> • Boral will notify the CEO of the DEC as soon as practicable in the event of unplanned emergency works being required, in accordance with Section 75(1) of the <i>Environmental Protection Act 1986</i>. 	Boral will comply with the requirements of the <i>Environmental Protection Act 1986</i> .

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		safety or the environment.		
Transport impacts				
	February 2007 average weekday traffic volumes on Toodyay Road ranged from 6,000 vehicles per day from the bottom of Red Hill to 3,000 vehicles per day east of Gidgegannup. Volumes are expected to be increasing.	<p>At maximum production, the Quarry will result in an additional 12 trucks movements per hour on Toodyay Road (6 coming, 6 going).</p> <p>Based on February 2007 figures, this is a 2% increase in traffic on Toodyay Road.</p> <p>Potential for transportation of dust off-site.</p>	<ul style="list-style-type: none"> A wheel wash will be installed to clean vehicle wheels before leaving the Site. Trucks will be required to cover their load before leaving the Site. Access to the Site will be from Toodyay Road at the existing entrance to the Midland Brick clay quarry or at a position between the existing access and the boundary with Hanson Quarry to the west of the existing entrance. The final position of the entrance will be dependant on approval from Main Roads. The existing entrance will be closed and rehabilitated if not used A new entrance to the Quarry is being designed to main Roads WA standards to allow for acceptable sighting distances looking both east and west. The design will incorporate acceleration and deceleration lanes in both directions of Toodyay Road. The entrance road will be designed to limit rain water running across the intersection. Adequate parking space will be available inside the entrance gate to the Quarry to prevent queuing of trucks on Toodyay Road. 	At maximum production, the Quarry operations will result in a minor (approximately 2%) increase in traffic on Toodyay Road. The intersection, road and entrance to the Site will be designed to acceptable standards and will, under normal circumstances ensure the safety of all road users
Air Quality				
To ensure that air emissions do not adversely affect	There are a number of existing land uses in the area surrounding the Quarry with potential to	<p>Potential health impacts.</p> <p>Impact on visual amenity.</p>	<ul style="list-style-type: none"> A dust management plan will be developed for the Site. Boral will continue to monitor dust from the site and 	Ambient air quality standards for PM10 are likely to be exceeded outside of the quarry boundaries, including at two receivers, the Red

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<p>environmental values or the health, welfare and amenity of people and land uses by meeting statutory requirements and acceptable standards</p>	<p>generate dust and affect ambient air quality, including the existing Hanson Red Hill Quarry, Red Hill Disposal Site, cropping and grazing and hobby farms.</p> <p>A marked seasonal trend in dust emissions would be expected from the existing emissions sources due to changes in ground cover and soil moisture. Dust would be higher during summer when soil moisture is lower and ground cover from cropping or pasture is lower. Forested areas, such as those which surround the proposed quarry, would have low dust emissions except after fire when large areas of exposed ground may be present</p>	<p>General nuisance concerns.</p>	<p>work to continually improve dust management.</p> <ul style="list-style-type: none"> • Use of dust suppression measures (i.e. foaming agents and water sprays) on crushing, screening and conveying transfer points on the three crushing units; • Use of water carts for application of water or other dust suppressants to unsealed haul roads; • Enforcement of speed limits within the plant and stockpile areas (20km/hr) and on haul and exit roads (40km/hr); • Operation of a water canon on plant and product stockpiles and other exposed surfaces; • Use of dust extraction equipment on the drilling rig; • Timing of blasting operations to reduce dust through consideration of meteorological conditions; • Clearing vegetation in a staged manner to reduce open, exposed areas; • Maintaining a buffer zone of vegetation or building bunds to act as a windbreaks to reduce wind speed; • Covering and/or wetting truck loads of product prior to leaving the proposed quarry; • Installation and use of a wheel wash to ensure minimal mud and dust deposited onto public roads (Toodyay Road); • Undertaking daily inspections during dust prone conditions to visually assess dust generation; 	<p>Hill Disposal Facility and Hanson Quarry (staff buildings). Both of these receptors are potentially large sources of dust in their own right and are considered to be within an 'industrial area' and therefore the NEPM standards are not applicable.</p> <p>No other receptors are likely to experience any exceedance of the 50 ug/m³ PM10 (24 hr) level.</p> <p>Dust impacts on nearby sensitive receptors and vegetation are unlikely during construction and operation of the proposed quarry.</p>
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			<ul style="list-style-type: none"> • Undertaking regular inspections of dust suppression equipment • Undertake progressive rehabilitation of quarried areas to reduce the total exposed area. <p>Visual amenity</p>	
To ensure that visual amenity is considered and measures are adopted to reduce adverse visual impacts on the surrounding environment as low as reasonably practicable.	<p>The Darling Scarp is an important feature in this overall landscape, however when viewed from most places the Scarp is primarily a background element.</p> <p>Most sensitivity receptors, especially the roads in the area, are characterized by substantial roadside vegetation and frequent built structures of various sorts (houses, stables, farm sheds, etc) which in practice tend to limit visibility towards the Scarp, or further eastward up through the incised valleys that allow limited views towards the quarry site.</p> <p>The existing quarry can be seen in the distance with unaided vision from the north-west (Seen</p>	<p>The proposed quarry expansion will result in a quarry face on its eastern side that will cut into higher elevation terrain, the top of which will be visible from additional various positions in the surrounding landscape than is the case with the existing quarry void.</p> <p>The upper portion of the east wall of the quarry will most likely be visible from a variety of viewing places within the Swan Valley.</p>	<ul style="list-style-type: none"> • The Quarry will be developed in stages including topsoil draping and rehabilitation utilizing the stockpiled overburden and topsoil. • Rehabilitation of exposed faces visible from north and, to a lesser extent the west will be a priority. • Upper benches of the Quarry will be progressively rehabilitated and landscaped to reduce visible impacts. • Where practicable, existing exposed faces of the clay extraction area will be rehabilitated and planted to reduce visual impact. • Earth bunds or vegetation screens will be utilized to limit visibility if deemed necessary. 	<p>The Quarry may be visible from a number of residences, particularly to the north and north-west.</p> <p>Boral will prioritize rehabilitation of exposed faces visible from the north and, to a lesser extent the west. Upper benches of the quarry will be progressively rehabilitated and landscaped to reduce visible impacts.</p>

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	<p>Area 3), however the quarry is not dominant in the landscape.</p> <p>There are many visually incongruous and negatively impacting elements within the Swan Valley itself.</p>			
To ensure that changes to the biophysical environment do not adversely affect historical and cultural associations and comply with relevant heritage legislation.	<p>A number of registered Aboriginal heritage sites are known to exist within close proximity to the proposed Quarry.</p> <p>One new ethnographic site and one new archaeological site were identified during the heritage surveys completed in 2007.</p>	<p>One registered Aboriginal heritage site will be directly impacted by the proposal.</p> <p>Potential for unauthorized or accidental disturbance of heritage sites.</p>	<p>Aboriginal heritage</p> <ul style="list-style-type: none"> • Extensive inspections have been carried out by Aboriginal representatives and elders and consultation with Aboriginal elders has been conducted. • Agreement has been reached to protect two new sites identified during archaeological and ethnographic surveys of the area. • A 50m buffer will be marked out and maintained around these two significant sites throughout the life of the Quarry operation. • All site personnel and contractors at the Site will be informed of their obligations and responsibilities under the <i>Aboriginal Heritage Act 1972</i>. • Stakeholders will be consulted throughout the life of the quarry. 	<p>One registered Aboriginal heritage site is located within the proposed quarry footprint and will be directly impacted by the proposal. Boral has submitted an application under Section 18 of the <i>Aboriginal Heritage Act 1972</i> to disturb this site, and will comply with the provisions of the <i>Aboriginal Heritage Act</i> at all times during the project.</p>

Stakeholder Consultation			
			<ul style="list-style-type: none">• The Stakeholder consultation program will continue throughout the life of the project primarily through regular meetings with an ongoing Stakeholder Reference Group as well as periodic Newsletters to local residents.• A Stakeholder Consultation and Communications Log has been developed to record consultation inputs and responses and will be maintained throughout the life of the project.



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APPENDIX A: Summary of All Submissions Received

Submitter Type	Submitter (submission #)
Issue	Submission Details
Commonwealth Government	Department of the Environment, Water, Heritage and the Arts (DEWHA) (Submission #9)
Offsets	<ul style="list-style-type: none"> ...just because black (Carnaby's) cockatoos do not use a site over a particular period of time, there is the potential for the black cockatoos to return to this site in the future. Any offset area to be set aside would need to include appropriate nesting and foraging habitat for the Carnaby's. DEWHA would also need certainty that the land would be secure in tenure and not mined in the future. DEWHA notes that 48.35 ha are proposed to be set aside for offset. Below is guidance on recent offset ratios that have been approved by the Minister... Each project is assessed on a case by case basis. However, the Minister expects projects that involve black cockatoo habitat to achieve similar standards to previous approved projects. As a guide the following are some ratios which are indicative of the outcomes recent projects affecting black cockatoo habitat have achieved through a combination of mitigation strategies. <p>4:1 or higher has been achieved for the creation of foraging habitat – ie for every hectare of cleared habitat, 4ha were created through new plantings of foraging species. The department seeks to create new foraging habitat because we understand that there is not enough foraging habitat to support current black cockatoo populations.</p> <p>6:1 or higher has been achieved for protection of foraging habitat – protecting existing habitat that is under threat can also assist black cockatoos, but this needs to be a higher ratio than creating new habitat because this measure does not add new habitat to existing resources.</p> <p>6:1 or higher has been achieved for protection of breeding habitat – the department prefers protecting existing breeding habitat because of the time it takes for new breeding habitat (seedlings) to become viable (more than 230 years). Given this length of time, the ratio for creating new breeding habitat needs to be higher (above 10:1).</p>
significant impact thresholds	<ul style="list-style-type: none"> DEWHA notes that 48.35 ha are proposed to be set aside for offset. Below is guidance ... recent significant impact threshold criteria that has been developed. Significant impact thresholds <p>The Department considers that an action is likely have a significant impact on one or more of the three black cockatoo species if there is a real chance or possibility that it will result in one or more of the following:</p> <ul style="list-style-type: none"> - Any clearing of breeding habitat in woodland stands of 0.5ha or more that contains 3 or more breeding trees of suitable size (ie a DBH greater than 500 mm); - any clearing of known breeding trees of suitable size (ie a DBH greater than 500mm); - Clearing of more than 1 ha of foraging habitat; - Creation of a new gap of more than 4 kilometres between patches of black cockatoo habitat; - Clearing of a known roosting site (including individual trees used for roosting); - Shooting of birds or taking of eggs or chicks from the wild; - Introduction of invasive species such as honey bees that creates competition for hollows; - Spreading of known plant diseases such as Phytophthora; or - Altering hydrology or fire regimes so that black cockatoo habitat of more than 1 ha would become degraded or destroyed.

State Government	Office of the EPA: Strategic Policy and Planning Services Division, Terrestrial Ecosystems Branch (Submission #11)
Flora and vegetation report	<ul style="list-style-type: none"> No flora and vegetation report is provided in the PER so it is not possible to comment on the validity of the assessment against EPA's requirements....However the absence of a full flora and vegetation assessment is contrary to EPA Guidance Statement 51. The RFA vegetation complexes (Matiske and Havel 2000) should be included in the vegetation extent and status calculations to enable full assessment of regional significance. The "Lithic (granitic) communities on shallow soils" should be assessed against the known values of Priority 4 Ecological Community (PEC) – Central Northern Darling Scarp Granite Shrubland Communities. Several species listed in Appendix B occur within this community, however without the flora and vegetation report it is impossible to determine if the species occur in the same community.
Fauna report inadequacies and quality of report	<ul style="list-style-type: none"> Please note that TES provided advice on fauna issues in the draft Scoping Document...indicating the poor quality and inadequacy of those documents. Some of the errors in the draft Scoping Document which were commented on in that earlier advice have not been corrected and have been included in the current PER. ...Specific comments on fauna issues are provided below. Please note that these comments only address the technical standard of the report and do not consider the likely impact of the proposal if implemented on the fauna of the area. PER Section 5.9.2 Table 11 <ul style="list-style-type: none"> Brown Honeyeater is given both its specific name and that of the Singing Honeyeater Golden Whistler is given the specific name of the Rufous Whistler plus the name of another unspecified species Species names should not commence with a capital letter. PER Section 5.9.2 Table 12 <ul style="list-style-type: none"> Species names should not commence with a capital letter. The White-bellied Sea-Eagle is a coastal marine species and not present in the Darling Scarp – it should be deleted from the list. PER Section 5.9.4 <ul style="list-style-type: none"> Some statements given here in relation to Carnaby's Cockatoo are in variance with statements given in Appendix C particularly in relation to the breeding season of the species. Correct data should be included and incorrect statements amended. The Black-faced Cuckoo shrike and Straw-necked Ibis are incorrectly ascribed a marine status – they should be deleted from this list of migratory marine species. PER Section 5.9.8 <ul style="list-style-type: none"> Statements that habitats are "considered to be well represented in the nearby" and "considered likely that this habitat occurs" are speculative and do not give any level of certainty. Information needs to be represented to show with certainty that habitats do occur in areas outside the project area. PER Section 5.9.111 (see comments on Appendix B section 4.5.3 below) Appendix B Flora & Fauna Report: Section 2.10.2 <ul style="list-style-type: none"> ...(the Agreement between Government of Australia and the Republic of Korea on the Protection of Migratory Birds) is missing from the list of agreements The White-bellied Sea-Eagle is a coastal marine species and not present in the Darling Scarp – it should be deleted from the list. Section 4.5 Table 9

- Black-faced Cuckoo shrike is incorrectly ascribed marine status
- Brown Honeyeater is given both its specific name and that of the Singing Honeyeater
- Golden Whistler is given the specific name of the Rufous Whistler plus the name of another unspecified species
- Species names should not commence with a capital letter.

Section 4.5.1

Some statements in relation to significant faun species are misleading or incorrect.

- The statement that Baudin's Cockatoo "is unlikely to regularly use the survey area" is not true. This species is a regular seasonal feeding visitor to the area
- Black-faced Cuckoo-shrike – is not a marine species
- The Straw-necked Ibis is not a migratory species

Section 4.5.3

- statements that "This species should be common in the nearby John Forrest National Park" is speculative. Statements need to be based on scientific certainty, not speculation.
- The status of the two unidentified millipede species needs to be addressed. Are they unnamed species, and why were they not identified? Their significance in the project area needs to be determined and a clear statement that they occur outside the project area needs to be provided.
- The statement that "No land snails were recorded from the survey area, however, this is considered to be common for areas containing granite outcrops" is not correct. A number of land snail species are known to occur on granite outcrops in the Darling Range...

Section 4.5.6 and 4.5.7

- In regard to linkages and impacts on fauna it is stated that the project area is surrounded by continuous vegetation. The tenure of these areas needs to be taken into consideration as it is likely that other proposals may be located in these areas.

Appendix C Table 26

- This table is of a very poor professional standard and lacks understanding of both habitat preferences and distributions.
- Two of the frog species (Squelching Froglet and Sand Frog) are not known to occur in the Darling Scarp, but are known from sands of the coastal plain. They should be deleted from the list which should only include species that are likely to occur based on known habitat preferences. The Yellow-rumped Pardalote does not occur west of the Fitzgerald River area..., the Antarctic Prion is a marine species, *Lerista elegans* is a coastal plain sand inhabiting species (in the Darling Range it is replaced by the similar *Lerista distinguenda*) and should be deleted from the list, *Lerista lineopunctulata* does not occur in the Darling Range, some explanation needs to be provided for the inclusion of two subspecies of *Strophurus spinigerus* (it is unusual for two subspecies to occur together).
- A number of species included in this list (especially birds) lack the inclusion of accepted common names; these should be included.

Appendix D

This appendix was prepared for a different project to the west of the current project area. Its use here is of questionable value as it has been deemed by the EPA to not provide sufficient clarity and certainty that habitats occur in protected areas outside the project area. The EPA is likely to require proof habitats in the current project are occur in secure areas outside.

Appendix E stakeholder Consultation

Page 26 The statement that "All surveys are reviewed by the EPA conservation branch to check that the survey complies with appropriate methodologies and procedures" needs to be amended. An EPA conservation branch does not exist.

Page 27

Why is it inferred that Carnaby's Cockatoo will not roost in trees occupied by other species.

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State Government	Department of Water: Regional Management and Water Information (Submission #1)
Surface water / groundwater	<ul style="list-style-type: none"> The Department of Water is satisfied that the advice previously given has been incorporated and therefore has no further comment.
State Government	Department of Environment and Conservation: Noise Regulation Branch (Submission # 2)
Noise	<ul style="list-style-type: none"> Most noise issues raised previously have been adequately addressed; Noise control measures proposed should be able to bring the noise emissions into compliance at closest residence, if properly implemented; Regarding out-of-hours planned construction work, the proponent needs to revise their management measures to ensure compliance with noise regulation 13(3), ie to submit a noise management plan and obtain an approval from the City of Swan at least 7 days before the planned out-of-hours construction work. The proponent has not responded to the recommendation of developing a construction noise management plan for the proposed noise bund construction work, clearly distinct from quarry operations. It is necessary that the proponent can demonstrate that the noise impact from bund construction will be minimised.
Local Government	City of Swan: Manager of Statutory Planning (Submission #3)
Zoning and planning approval	<ul style="list-style-type: none"> The site is zoned "resource" in the City of Swan Local Planning Scheme 17. The proposed use defined as "industry – extractive" is a permitted use in that zone. The proposal will require planning approval under Clauses 4.3.4 of the Swan Local Planning Scheme 17 and the City will require notice of the development be given in accordance with the requirements set out under Clause 9.4 of the Scheme. Through this process the City will receive input from various stakeholders to consider in its assessment.
General comment(s)	<ul style="list-style-type: none"> No technical comment provided as any comment made by the City prior to the finalisation of the above process may prejudice the outcome of the Council's assessment of a future Development Application
Traditional Owners	Swan Valley Nyungah Community for the Combined Swan River and Swan Coastal Plains and Darling Ranges Traditional Owners and Native Title Holders (Submission #6)
Overall objection to the proposal	<ul style="list-style-type: none"> General opposition to the proposed Quarry at this location, citing responsibility to Ancestors, current and future generations to protect and look after the Land and all that goes with it....including Susannah Brook...and the area of the proposed Quarry.
Alternative options	<ul style="list-style-type: none"> Suggest move quarrying operations to Toodyay where land is already cleared and where there are no Aboriginal Sites; and utilise rail transport. "This will avoid the damage to our Sites within Boral's Area and within Hanson's area, including the Darling Range itself which is a Site under the Aboriginal Heritage Act. It will protect the Sites, and the Natural Environment – kangaroos, all animals, birdlife, trees and shrubs and plants, all the Rock formations, and water courses and everything created since Time began, all of which is important and significant and Sacred to us. This proposal will also be much less disruptive to the people who use Toodyay Road, and all the roads to Fremantle. Future expansion will then be much less damaging and still supply the people of Western Australia with road-making material and other uses."

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Aboriginal heritage	<ul style="list-style-type: none"> acknowledge Boral has altered quarry design on two occasions to avoid Ancient Rock Engravings. - claim there are other Sites throughout the Land of the proposed Quarry that will be destroyed.
Water	<ul style="list-style-type: none"> Effect of leaching white murky water from existing dams into Susannah Brook. Efforts to control contamination have not worked. Susannah Brook is a very important site in itself.
Local Groups	Jane Brook Catchment Group (Submission # 4)
Overall objection to the proposal	<ul style="list-style-type: none"> Opposed to another quarry in this area of the Darling Range. Proposal cannot be viewed in isolation. Concerned about cumulative impact of industrial activities already existing in the area.
Flora	<ul style="list-style-type: none"> Flora: <ul style="list-style-type: none"> concern regarding fragmentation of habitat and reduced biodiversity caused by further clearing; little faith in dieback management measures; disagree with offset areas. None of this area should be available to quarry;
Fauna	<ul style="list-style-type: none"> Fauna: <ul style="list-style-type: none"> very little importance is given to existing wildlife in the proposal; concern regarding loss of habitat, especially wildlife corridors, large nesting trees; cumulative impact of noise and vehicle movement from this & other existing noise sources on animals, ie area of disturbance greater than suggested.
Surface water	<ul style="list-style-type: none"> Water: <ul style="list-style-type: none"> pollutants from quarry will add to the load in the Swan River (via Susannah Brook, Jane Brook and their tributaries) concern that directing surface water into clay pits will not be sufficient to prevent sediment loss to local creeks in the event of flash flooding; existence of clay pits is a danger not addressed in the PER. cumulative changes to quantity and quality of water supply will destroy the viability of the river system
Groundwater	<ul style="list-style-type: none"> Groundwater: <ul style="list-style-type: none"> new pit could intersect the deep water table and this will have long term irreversible effects. destruction of a potential potable water source is unacceptable.
Air quality	<ul style="list-style-type: none"> Air Quality: <ul style="list-style-type: none"> quarry will add to Perth's air pollution from all phases of its operation removal of vegetation will further limit the ability of the area to contain the dust problem or capture carbon Boral's stated position is that dust comes from other sources in the vicinity so a little more doesn't matter it must be an industrial areas, so NEPM standards don't apply
Environmental monitoring	<ul style="list-style-type: none"> Monitoring acknowledges proposed monitoring by proponent but would prefer independent assessment of procedures and outcomes by a responsible government body; monitoring of all parameters should be independent; PER should have been prepared by the EPA and paid for by Boral Limited; self regulation doesn't work and until money can be found to enable independent monitoring, no further licenses should be granted.

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Aboriginal heritage	<ul style="list-style-type: none"> • Indigenous heritage - little importance is granted to the existence of identified sites in the document. - many sites remain uncovered - agreement of local elders re disturbance of known sites is insincere as it is not a contract between parties on equal footing.
Transport impacts	<ul style="list-style-type: none"> • Transport impacts - Road Safety - traffic figures don't take into account the huge increase in vehicle movement planned from the Hanson quarry or from Red Hill Waste Disposal Site. The proposed "4%" increase from this operation will add to traffic problems on an already busy road.
Alternate Options	<ul style="list-style-type: none"> • Would prefer Boral's West Toodyay quarry be used instead with government assistance to develop a rail head at West Toodyay to load out material, and in doing so, preserve the natural assets we have in the Darling Scarp
Local Groups	Stoneville and Parkerville Progress Association Inc (Submission # 5)
General comment(s)	<ul style="list-style-type: none"> • The community consultation phases undertaken by Boral Resources (WA) Pty Ltd, together with their consultants (GHD), have proven to be very open and transparent processes resulting in a great deal of confidence and trust being developed between the company and the local community representatives. • The current proposal to construct and operate a granite stone quarry located at Toodyay Road, Red Hill to produce up to 500 000 tonnes of quarry product per annum for a period of approximately fifty (50) years duration also has similar issues, however with proper consultation, good planning and adequate resourcing, this project should be able to deliver better outcomes acceptable to the whole community. At present a real opportunity exists to ensure that any proposed operations can exist with minimal or reduced impacts. • This review undertaken by the Stoneville & Parkerville Progress Association Inc (SPAA) has carefully considered the potential effects and planned management responses relating to the construction and operation of another Stone Quarry operating in close proximity to other major operations, including, Midland Brick, Hanson Quarries, Easter Metropolitan Regional Council Waste Treatment – Landfill Facility; local communities, transport operators, commuters and other users. This localised region has a unique setting comprising of some of the most delicate and historically significant cultural features enveloped into the surrounding landscape. As well as protecting this area, the water course of the Susanna Brook must also be further protected from all man made threats.
Drinking water supply/waste	<ul style="list-style-type: none"> • Re the proposed use of water bottles for potable drinking water, as there is no potable drinking water supply on site. Recommend installation of potable water supply tank on site to eliminate plastic water bottles and packaging being generated and going to waste land-fill. • Boral Resources (WA) have previously responded advising that a potable water supply tank replenished by potable water tanker can be installed onsite. The members of SPAA would like the EPA to include this in any approval to operate as issued by the EPA.
Blasting	<ul style="list-style-type: none"> • The control and management of blasting is of major concern to the members of SPAA, many of whom travel past the proposed quarry site on daily basis. • Specific questions raised: <ul style="list-style-type: none"> - will blasting more frequently (eg once/week) provide smaller blasts resulting in less impact on the environment, wildlife, less noise, vibration and potential for fly-rock damage/injury - what are maximum allowable limits for noise? - what are maximum allowable limits for vibration? - what are maximum allowable limits for blast overpressure? - what are maximum allowable limits for dust emissions? - who will take measurements and how will the results be made public?

	<ul style="list-style-type: none"> • the PER document advises that there should be at least 250 metres clearance from Toodyay Road to reduce the risk of flyrock. It also advises that allowances for fly-rock should be 40 metres behind the blast and 100 metres in front. The power lines and road edge are only 100 metres from the centre of the starter pit. - how is flyrock to be prevented from penetrating Toodyay Road during the start up phase of the quarry development? - what traffic management plans are there for advising motorists of the date and time of blasting (ie roadside warning signs/permanent warning signs) - how will the local community be given adequate notice and advised of the date and time of blasting? (ie letterbox drop/phone calls, email, SMS, to close neighbours; adverts in local papers, email, SMS to surrounding closures). - what traffic management plans are there for controlling traffic during a blast? (ie manned traffic controllers/road closures?) -given the close proximity to Toodyay Road from the starter pit, what are the likely effects of blast pressure upon passing traffic along Toodyay Road?
Transport impacts	<ul style="list-style-type: none"> • This section of the PER is short on detail and does not fully address the impacts of the cumulative effects of operating heavy vehicles (mostly long vehicles) along with those already operating to and from neighbouring locations along Toodyay Road, including Hanson Quarries, Midland Brick Clay Pit Operations, EMRC waste trucks and general traffic including other heavy and light transport. • The PER states that the increase in traffic is likely to be about 2% however the PER fails to address the cumulative effects of an increase in movements and traffic density in a short section of Toodyay Road. • The PER also does not provide adequate solutions for: <ul style="list-style-type: none"> - crossing Toodyay Road with heavy, long and slow moving trucks & trailers out over Toodyay Road to travel down hill(60/66? Trucks per day) - travelling along Toodyay Road at <40 kph <u>downhill</u> in single file traffic causing impatience with other road users and potential for overtaking accidents/fatalities. - travelling along Toodyay Road at <40 kph <u>uphill</u> in single file traffic causing impatience with other road users and potential for overtaking accidents/fatalities • SPPA Recommendation: The section of Toodyay Road between Red Hill and Roe Highway in Midland requires upgrading to provide four (4) lanes being two (2) lanes up hill and two (2) lanes downhill with entry and exit slip lanes for the existing Hanson Quarry, the ERMC Red Hill Landfill Site and the proposed Boral Resources (WA) Gidgegannup (Red Hill) Quarry site. • Also no provision for a truck arrester bed (downhill) has been provided in the event of any vehicle loosing effective braking. • The PER does not provide adequate solutions for impact of the use of heavy transport (quarry trucks) using local roads as short cuts for quarry product transport & distribution (ie use of Roland Road, Stoneville Road, Bunning Road, not designed for heavy transport). Note at present Hanson Quarry trucks are using local roads and not main arterial roads to transport aggregate products. These local roads are not designed or constructed for heavy vehicle traffic. • SPAA recommendation: any heavy vehicle operating to or from the Boral Resources (WA) Gidgegannup (Red Hill) Quarry site shall be restricted to using main arterial roads and shall only be permitted to use local roads if making local deliveries. ie no vehicle is to travel through the local communities, but may only use local roads if the specific delivery is destined within that locality. Any breach of this requirement, will result in either substantial fines to both: (a) Boral Resources (WA) and; (b) the driver concerned. In addition, if the driver is found to be in repeated breach of this operation condition, then that person shall be banned from entering the Boral Resources (WA) Gidgegannup (Red Hill) Quarry site.
Noise	<ul style="list-style-type: none"> • It is noted in the PER that during Stage 1, for approximately the first five (5) years of operation (depending on demand volumes) that the operation will be unable to comply with Noise Limit Regulations. Questions: <ul style="list-style-type: none"> - what are the estimated noise levels of the operations during stage 1? -what noise level limits will be acceptable to the EPA for a five year stage 1 duration? - what more can be done to reduce the impact of any mobile crushing, screening and handling plant situated in the start-up pit until the fixed plant can be installed and commissioned.

Water quality	<ul style="list-style-type: none"> The members of SPPS are very concerned about water/sediment runoff into the Susannah Brook from the proposed quarry development. Questions: <ul style="list-style-type: none"> - what provisions have been made for and what protection has been provided for against the effects of sever weather storms/heavy rainfall? - if provisions/protection have been provided for, are they adequate to contain the effects of any severe weather storms/heavy rainfall - how will the Susannah brook be protected against water/sediment runoff in abnormal weather storms/heavy rainfall (100?year flood)
Significant trees	<p>The members of SPAA are also very concerned regarding the protection of significant tress at the quarry site.</p> <p>The members of SPAA request the EPA require any mature species onsite to be transplanted and maintained rather than be culled before any staged clearing of vegetation is carried out. In this way some of the mature transplanted species may survive.</p>
Local Groups	Gidgegannup Progress Association Inc (Submission # 10)
Ownership of site	<ul style="list-style-type: none"> The actual current and proposed ownership of the Lots delineated for the proposed quarry and surrounding area is not clear in this report. It is not clear who will be the responsible body should there be impact on Susannah Brook. There is already impact on Susannah Brook from the existing Midland Brick area. It needs to be absolutely clear who is the responsible body regarding contamination of this water course, Boral or Midland Brick.
Presentation of information / contradictory information	<ul style="list-style-type: none"> This PER document has been presented in a form that is not easy for the reader to comment upon. It is repetitive, inconsistent and contradictory. There are phrases such as "potential impacts", when it is quite clear they are actual impacts. Desktop studies and assumptions have been made, together with extensive use of what appears to be unsubstantiated material. We would suggest that a much more rigorous document and basis for argument needs to be produced before we could support any approval for the quarrying of this area.
Use of desktop surveys and other offsite assumptive information	<ul style="list-style-type: none"> A review of the WAPC Planning bulletin No 64 suggests (page 19) that the site proposed for quarrying has no risk of acid sulphate soils. Has there been any on site soil sampling to "confirm this"? No. This is not acceptable. A desktop survey by GHD to assess hydrology and groundwater resources has been conducted. Has there been any actual on site testing to confirm the veracity of this information? A desktop survey method was used to assess the flora of the site (page 27) which was then "assessed" according to information dating back to 1980. We query the relevance of this and ask why a comprehensive on site survey covering several seasons was not undertaken to provide up to date information. Boral have been planning a quarry since...1998 and subsequent new studies in 2004. This more than adequate time to conduct high quality on site surveys but this opportunity was not taken. Rather it appears that only two field flora survey s were undertaken on is spring and on in winter...This overlooks the diversity and spread of plant flowering that occurs throughout the remainder of the year, particularly during summer and autumn. A search of the DEC database has led Boral to believe that no Threatened Ecological Communities exist on the site. No on site investigation has been undertaken. No formal assessment to determine the presence of Dieback on site has been undertaken A level 1 field survey of indeterminate length by GHD of fauna present on the site was conducted. A more in depth survey was not required as the results of the Hanson survey done in 2007 (which we considered to be inadequate in length and sampling) were considered applicable to the Boral site and therefore a level 1 survey (even briefer) was considered more than adequate (5.9.1). A look at the table of species (pages 38.39) shows the survey to be superficial and the species observed to be indicative of a brief visit only and perhaps at a time when fewer animals were at large. As a result of the Hanson survey (based mainly on desktop information) no trapping was considered necessary (page 39) which confirms that the fauna survey

	<p>undertaken was cursory at best.</p> <ul style="list-style-type: none"> • Impact on Carnaby's Cockatoo is still a very serious cumulative effect as development increases in the area. The Carnaby's Cockatoo Report in Appendix C only covers the area of the quarry pit and stockpiles. It does not cover at all potential feeding and breeding disruption from noise, excavation and pit operations in the broader surrounding areas to the North owned by Midland Brick. • The safe routing of stormwater and contaminated water is based on the premise that shatter zones and preferred flow paths will not be encountered and are unlikely because this phenomenon did not occur at the Hanson Quarry (page 56). This assumption sidesteps the responsibility to undertake on site research. • Statement made in Summary or Proposed management – "Stormwater will be diverted to onsite clay pits to contain sediment on site." This is unsatisfactory as clay pits have leaded to Susannah Brook in the past.
Cumulative impacts of additional quarry	<ul style="list-style-type: none"> • ...this area is situated on the Darling Scarp and is an environmentally and visually sensitive area with its impact on the Swan Valley and residential areas of Brigadoon and Gidgegannup. The Boral Granite quarry will become the latest of a series of Resource developments in this area, all having cumulative impacts on the Scarp. It is this cumulative impact that needs to be examined carefully. This Quarry together with the Hanson hard rock quarry, the Midland Brick clay pits and the ERMC waste facility will create an enormous contiguous precinct of extractive industry, which will result in Gidgegannup suffering the irreplaceable loss of a significant tract of scarp land bush and landscape. Together with a large footprint of processing infrastructure, it will erase and significantly reroute fauna migration routes. • We ...feel it is important for State Government to look at the development of the Scarp as an entity. Development from quarries and residential development is going to make an indelible imprint. We need to be planning for the future to address this problem, to seek resources away from this area and plan for alternative means of transport to bring the resources to Perth other than road. This is why we should no be approving quarrying for 50 or 100 years. We have no right to sell the future.
Visual amenity	<ul style="list-style-type: none"> • This area is also on the flight path for incoming overseas, interstate visitors, presenting a visual blight. • Boral advises that the initial stages will need a "acoustic relief bund" to be constructed (page iv). Where is the bund to be sited, dimensions, will it be permanent and vegetated for concealment? Page xiii says it will be 8.5m high and be revegetated. Then p 72 (and repeated elsewhere) says it will be removed. Therefore, revegetation is unlikely. Other pages say that the bund could be 5m high if a large excavation was installed to house infrastructure. • The quarry will be significantly visible to residents to the north and northwest of the site. Who, suffering loss of amenity by Hanson activity, now will have their views compromised further (page v)? Some of the quarry will be visible to the west. • ...the stockpile will be visible from Toodyay Rd. Levels provided in the absence of topographical maps conflict and indicate that the exposure will be greater than Boral estimates. • As exemplified from Hanson and other Boral re-vegetation efforts, rehabilitation is inadequate as the task of trying to grow plants on near vertical faces in thin soil and extreme weather is difficult at best. The view of neighbouring properties will be forever compromised. • Models are needed to show visibility from all aspects. • Should there not be a revegetation schedule and commitment to revegetate with endemic species. Will Boral be creating their own nursery for this purpose?
Aboriginal heritage	<ul style="list-style-type: none"> • Indigenous people will have their cultural areas disturbed and destroyed and inaccessible by permanent fencing.
Longevity of activity	<ul style="list-style-type: none"> • It is not entirely clear how many years this application is being made for. ...The GPA would certainly not support an approval for 50 years. We believe that approvals for Quarrying should not be granted for more than 10 years at a time. Who is to say after 10 years, how environmental, residential, climatic conditions will have changed.We only support an approval for 10 years, after which time conditions can be amended if needed.

Surface water catchment and groundwater disturbance	<ul style="list-style-type: none">• Boral do not believe that surrounding users of groundwater will be impacted by their activity as they believe the perched aquifer is highly localized and separated from surrounding aquifers.• Despite numerous requests, we still have not seen a map with topographic lines.• If a neighbour is adversely affected, what compensation or remedy is available, if, the deeper rock aquifer does influence the bores of surrounding landholders within a 3km radius?• The quarry will intercept the deeper groundwater table p iv). This has the potential for more negative cumulative effects on the environment and soil hydrology that cannot be predicted with any certainty.• Boral have done no testing to determine the actual location of small localized perched aquifers on their property. They have related information pertaining to other properties (EMRC and Hanson (page 22)) and sites on their property more than 200m from the proposed pit edge (page; 21) and dismissed the aquifers as "minor, perched, of no regional interconnectivity, and any impacts by quarrying would be much localized" (page 21).• The destruction of local aquifers by quarrying or blasting that cracks the bedrock containment would have adverse affect on flora beyond the pit boundary.• These assumptions are based on desktop surveys, anecdotal report from Boral staff, and drilling reports from a neighbouring property.• The Nyoongar elders have identified this area as containing underground streams (page 22).• There is serious concern that contamination of Susannah Brook is still a significant future risk. This is focused on the sedimentation trap dam described in the report and that some of the existing Midland Brick clay pits have the potential to broach in heavy rainfall and the impact of these are not included in this PER....There is no detail on what would be done and how it would be monitored.• Discharge of excess stormwater:<ul style="list-style-type: none">- ...we are extremely concerned that stormwater will be diverted to onsite clay pits to contain sediment on site. This is not satisfactory as clay pits have leaked to Susannah Brook in the past.- Upon closure of the quarry, how will contaminated areas (workshops, bitumen hardstand, carparking bays with oil deposition P 54) be monitored to ensure polluted water does not enter local aquifers and streams? Who will empty silt traps to ensure silt does not overflow into the surrounding landscape and water courses?
Self sufficient provision of water	<ul style="list-style-type: none">• The company says it will be "generally self sufficient on water" (P 8). Generally? This is vague, especially as the capacity of the dams has not been defined.• Is there a proposal to sink bores or are there bores on site?• Do they propose to increase the holding capacity of the existing dams?• What calculations have been made for loss in recycling and evaporation?

Flora	<ul style="list-style-type: none">• Boral have set aside land of "equal" value including some riparian habitat alongside Susannah Brook (page iii).<ul style="list-style-type: none">-how is this land protected?- Is this land covenanted to the National Park?- Riparian habitat should be quarantined from quarrying and clearing- does this mean that future expansion of the quarry is possible and this land is merely being quarantined for that event?• are the existing Midland Brick clay pits going to be revegetated? These pits have been infested by weeds and have allowed feral vermin to gain a foothold. How is this to be addressed?• Boral have not undertaken on site surveying to determine the presence and extent of aquifers and the effect blasting could have on these aquifers, fracturing them and depriving remnant vegetation of summer waters resources and severely affect their ability to survive the seasonal drought. ..• Table 8 (pp 32, 33) demonstrate the likelihood of considerable populations and species variety of "priority flora". Table 6 (p 29) describes the quarry area as having at least three vegetation types in very good conditions. This demonstrates the inappropriateness of more clearing of irreplaceable scarp land bush.• Figure 6 (next to p34) confirms the presence of widespread populations of Priority 4 flora and a stand of Kingia exceeding 6m. The loss of unique vegetation such as these should not be permitted.• Re the 10 Clearing principles:<ul style="list-style-type: none">- Principle 1 – native vegetation should not be cleared if it comprises a high level of biological diversity (it does – refer page 2, Table 8 pages 32, 33). Boral reply is that areas of vegetation just as good or better exist in the vicinity. This does not meet the criteria of Principle 1, which simply states native vegetation shall not be cleared if it is biologically diverse.- Clearing Principle 2 relates to the clearing of vegetation necessary for fauna survival (p 59).42 hectares is being cleared and is significant when it comprises a significant portion of the last buffer zone between National Park and rural and residential development.- Clearing Principle 3 relates to clearing impacts on Priority 4/endangered flora. Boral makes the assumption that destroying only 10 plants will not be a "significant impact on the species, either locally or regionally" (p 59) but does not support this statement with data.• P.xiii says acceleration and deceleration lanes will be incorporated into the entrance works. This will mean more clearing of roadside vegetation...
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GIDGEGANNUP GRANITE QUARRY
PER Response to Submissions



Fauna	<ul style="list-style-type: none"> • ...the impact of this quarry will result in depletion of fauna populations, whose migration routes and food sources are disturbed and obliterated and severely confined. • The completion of quarrying activities will see a large area of land excluded from returning fauna by high fencing. The provision of a fauna corridor (page iv) is debateable as to its effectiveness as wild animals will shy away from unnatural noise and vibration. • There is no doubt that populations will be displaced and forced into surrounding areas which are already stressed by groundwater depletion, pollution, erosion, dieback, etc. • Boral will trap and relocate fauna (page ix) prior to commencing works. <ul style="list-style-type: none"> - why not do this earlier so that the information could have been in the PER. - the transportation of species to another area will be providing competition to the species already inhabiting the area, thus causing another problem. • The destruction of this large area of quality bushland means the destruction of habitat. • Migratory corridors are not by inference habitat. These are habitat linkages" (p 45). The inadequacy of this zone for a corridor is clearly described on Figure 8 (next to p 64) which requires fauna to travel along a long narrow fenced raceway (adjacent to Hanson boundary), only to exit in a concentrated manner on Toodyay Road, putting road users at greater risk. • A far better solution would be to remove the Hanson boundary fence, and combine the two corridor areas to create a more sustainable zone of movement and occupancy. • Boral make the...statements based on assumption, hearsay, reports of others based on insignificant local on-site research (Hanson) and desktop surveys. In no way are their findings supported by continuous 12 month surveying of fauna (or flora species). Without such ON SITE survey, the true nature of fauna populations cannot be assessed.
Noise	<ul style="list-style-type: none"> • Boral admits noise levels will exceed regulatory guidelines during the initial construction and operational phases until permanent infrastructure is installed (page iv) e into the pit. This could be anything from 10 to 20 years of adverse noise impact on neighbours. • Boral admit that the construction of the noise bund (above ground) will generate the greater noise impacts to surrounding areas (page iv) than allowed by regulation, greater than the initial construction phase of the pit. How long is this to impact on neighbours? The bund may be removed...Therefore it will be an ongoing source of excessive noise. • Noise will be an issue as Boral are requesting some very long working hours 5am-6pm Mondays to Saturdays (not that elsewhere in the PER they are requesting a 7pm closure) and possibly Sundays....the early hours will be disturbed by heavy haulage vehicles and on site loading and transport vehicles. At that time of the day, noise travels a long way in the stillness of the early morning. • "Quiet alarms such as Smart alarms that emit a noise only 5dB above ambient noise and/or low frequency 'croaker' alarms will be used;" To be meaningful this also needs to apply to all trucks visiting the site. • Page 21 of the Noise Impact Assessment ...says that noise will exceed assigned daytime levels – at 5.00am! • Construction activities may occur outside the assigned hours of 7.00am-7.00pm. ...Boral is not required to give advance notice of this. It is merely required to explain itself "the next business day". (page 72) This is unacceptable. • Independent noise studies need to be carried out at various points around the proposed site on neighbouring properties to measure impact.
Light Pollution	<ul style="list-style-type: none"> • Boral want to commence business at 5am. There will be an influx of employee vehicles. There will have to be bright lights from 5.00am to 7.00 am in the morning. In the winter this is going to illuminate the sky for miles around. Hours needed to be adjusted in the morning, in winter particularly at weekends.

GIDGEGANNUP GRANITE QUARRY
PER Response to Submissions



Air Quality	<ul style="list-style-type: none"> We have concerns that because this area is classified as "industrial", and therefore NEPM standards for air quality are not applicable or enforceable (page v). The cumulative affect in this area is disturbing for residents and for the production of livestock and crops.
Stockpile management	<ul style="list-style-type: none"> We have concerns concerning the management of the stockpiles. The heights of these, the proximity to and visibility on Toodyay Road, Dust control and drift on to Toodyay Road. What precautions will be taken for the sweeping of Toodyay Road and control of this nuisance?
Buffer zones	<ul style="list-style-type: none"> ...will these be on the proponent's property, on the Midland Brick property or on neighbour's property. What undertakings will be made to plant these out with screening vegetation?
Traffic management	<ul style="list-style-type: none"> Boral estimate of additional 12 trucks per hour. This equates to 24 vehicle movements. This considerably increases the heavy truck traffic on Toodyay Road. Boral base these figures on trucks carrying 30 tonnes at a time.the real impact is heavy trucks descending Red Hill. This creates a significant bottleneck and safety issues. Again the cumulative effect of Midland Clay Pit expansion, Hanson Quarry extension and new Boral Quarry will manifest itself by its dangerous consequences on the residential community, whose right to safe travel is being totally ignored. The combination of accelerating downhill traffic, increased numbers of HEAVY vehicles (minimum 25 % increase depending on truck configuration), single lanes at the bottom of Red Hill, the rapid convergence of 2 lanes into a single lane on a step down hill sharp blind bend, is a recipe for disaster. We cannot believe that the authorities would consent to a significant increase in heavy vehicle movements on a road which is already overloaded, under maintained, constantly breaking down, has frequent serious and fatal accidents, without requiring the companies that cause this situation to make a significant contribution to the upgrade of services. There is no mention of the entrance being constructed with a diversion drain to prevent stormwater entering Toodyay Road. P.xiii says acceleration and deceleration lanes will be incorporated into the entrance works. This will mean more clearing of roadside vegetation and disruption to local traffic. What allowance in the statistics has been made for the additional traffic movements attributable to employees and servicing personnel? The number of employees is not defined. Boral are applying for business hours that commence at 5.00am six days a week. This will mean peak hour traffic volumes will affect the safety of residential Toodyay Road traffic from a very early hour each day. No mention has been made of controls or instructions that will be given to truck drivers not to use local roads as "cut throughs" to the Great Eastern and Great Northern Highways. This is a significant nuisance to local residents and a danger. ...Toodyay Road needs to be a four lane highway from Middle Swan to past the Resource area and we would request that Boral lobby the State Government to gain priority funding from Federal Government for this improvement.
Indigenous matters	<ul style="list-style-type: none"> Boral want to "disturb" 2 sites (page vi). "Disturb" appears to mean destroy. Boral state they have protected two other sites by altering the footprint and creating a 50m exclusion buffer zone. It appears to be trade off that only two sites are to be destroyed and the evaluation of the sites to be preserved against those to be destroyed is questionable. Boral is still "seeking permission" to "disturb" these sites. This matter needs to be resolved before any approval is given. Permanent fencing into the foreseeable future will deny indigenous people access to their lands (pxx). Indigenous sites saved will be excluded from access and visitation. Is this "preservation" of value?

Local Groups	Swan Valley Rate Payers and Residents (Submission # 13)
Overall objection to the proposal	<ul style="list-style-type: none"> The Swan Valley Ratepayers' and Residents' Association is deeply upset by the addition of a new hard rock quarry which will effectively move quarrying back into dominance over the Swan Valley. So ever increasing quarrying on the Darling Scarp is in conflict with the need to protect Perth's water supply and Perth's reputation as a clean and beautiful city.
Cumulative impacts of additional quarry	<ul style="list-style-type: none"> This proposal combined with the expansion of Hanson's quarry will open up a large scar in the Darling Ranges that will be seen from much of Perth. The increase in visual, noise and dust pollution will increase because Hanson's intends to remove the ridge that currently hides their and Boral's quarrying from most of the Swan Valley.
Visual impacts	<ul style="list-style-type: none"> Visual pollution ruining property values. ...it can be seen that the impact of the quarry will be considerably more than to just reduce property values but actually make some properties worthless in value. ...visual pollution from a hugely expanded, working quarry.
Noise & vibration	<ul style="list-style-type: none"> Noise problems with primary crushing, secondary crushing, screening and truck movements. Noise pollution from a hugely expanded, working quarry. Blasting vibrations causing possible damage to homes and buildings.
Surface water	<ul style="list-style-type: none"> Pollution of pristine Susannah Brook (the cleanest tributary to the Swan river; by a Water and Rivers Commission Research Document).
Tourism impacts	<ul style="list-style-type: none"> Negative effect on tourism in the Swan Valley.
Air quality	<ul style="list-style-type: none"> Dust problems – hard to measure a nuisance value eg washing covered in dust as before when Herne Hill Quarry was in operation. The easterlies already reach sever wind speeds throughout the summer months and will easily carry dust particles from the operating quarry to envelop vast areas of the Swan Valley.
Impact of changes to topography	<ul style="list-style-type: none"> Wind problems (and possible impacts on rainfall distribution) by destroying the top of hill can have a devastating effect on Easterlies wind patterns and affect rainfall; this has happened in other parts of the world.
Lifestyle impacts	<ul style="list-style-type: none"> Impacts onto CALM Darling Range Regional park, hindering passive enjoyment of the area. Incompatible with Swan Valley lifestyle. Who wants to drive to the Swan Valley with friends for a leisurely lunch and wander around the various art galleries, wineries, and breweries etc, accompanied by a noise sounds and dust pollution from an operating quarry which is clearly visible from most areas of the Swan Valley?

Local residents – individual submissions (unnamed)	Local resident(s) # 1: Gidgegannup (submission # 7)
Cumulative impacts of additional quarry	<ul style="list-style-type: none"> I am concerned that another quarry is being considered in the Red Hill/Gidgegannup area. The proposed site largely remnant bushland of a very high standard. This bushland contains significant flora and fauna and both are at high risk if clearing takes place. Areas such as this are becoming less common all over Perth and the Darling Ranges.
Aboriginal heritage	<ul style="list-style-type: none"> The aboriginal people have a very special connection with this area and their ancient spiritual attachment with the land is far more important to our society than the short term gain being sought by multinational companies.
Dust, noise, water	<ul style="list-style-type: none"> Further to these concerns are the environmental concerns of dust and noise and downstream contamination of waterways.
Traffic impacts	<ul style="list-style-type: none"> Also Toodyay Road is barely able to cope with traffic at the moment. Increased truck movements on Toodyay Rd will lead to a greater danger for all road users.
Alternative options	<ul style="list-style-type: none"> My feelings on these projects are they should be carried out on degraded farmland or similar and the granite should be transported by rail
Local residents – individual submissions (unnamed)	Local resident(s) # 2: (submission # 8)
Overall objection to the proposal	<ul style="list-style-type: none"> I would like to raise objection to the granting of a licence to Boral Resources (WA) Ltd for the extraction of granite and quarry products from their proposed site at Red Hill and partially in the locale of Gidgegannup. The objection I raise is on the basis that 1 quarry has already “slipped under the radar” with very little community consultation occurring. This proposal will add impacts to the already compounding issues relating to the Hanson Quarry. ...I believe the combined area on Red Hill mining 2/5mtpa from the escarpment, in an area known to have continual easterly wind conditions, no true analysis of the alpha particulates physical properties, the heavy haulage of product and the use of water for dust suppression and product watering will have major health and societal risk in the future.
Inconsistencies in report / misleading information	<ul style="list-style-type: none"> From conclusions: Inconsistencies with working hours Executive Summary vs Consultative Report. ...I have noted inconsistencies and a general bias as to the proposal by Boral to extract .5mtpa of product from the site. Some information is outdated and timing of studies being carried out over the course of a quantified time period of a month rather than a coverage of a full year. From conclusions: The address of the quarry given on the PER in my opinion is misleading and does not reflect the actual location of the area.
insufficient consultation	<ul style="list-style-type: none"> ...I have not been able to respond in more detail as I was alerted to this proposal by a neighbour who had concerns in relation to the lack of consultation and how this proposal has immediately followed the Hanson application...

Fauna	<ul style="list-style-type: none">• 2 year timeframe and day/night study log for a detailed study of an area adjacent to a "A Class Reserve"; typically the John Forest national Park;;• Some species of frog are not mentioned, there area minimum of eight (8) varieties on my property alone including underground species;• Lizard species including the Bearded Dragon have been spotted on my property and in the adjoining areas, although not threatened, the numbers appear to be declining possibly due to loss of habitat;• Specific studies of water species, western pigmy perch for instance is on the decline, live in this habitat and may move downstream when water quality is low, moving upstream when the flows are of a higher quality.• The Chuditch and dunnart have been identified to habitat the area; however the numbers and the impact of these vulnerable species by introduction of heavy transport, dust and vibration should be studied. Carnaby's, Red Tailed Black Cockatoo and Red Capped Parrots do range over this area, in the last five years, they seem to be more prevalent, both species are vulnerable due to the mating of a pair for life, vulnerability to impacts nearby during mating and breeding cycles...• Red Capped Robins and Blue Wrens are also regular nesters on my property.• No allowance has been given in the study area for seasonal changes or endemic underground species such as amphibians (Western Spotted Frog, Turtle Frog...and Water Retaining Frog), some mammals or reptiles.
Air quality	<ul style="list-style-type: none">• From conclusions: Health issues have not been addressed for local residential areas, workforce, flora and fauna in relation to the air quality and chemical /compound make-up of the crustal alpha particulates being released into the air.• Granite is a natural source of radiation, ...but its known affects on health is limited as studies into the mining and inhalation of the dust particles are currently limited and available health information is unreliable as no long term formal studies have been undertaken. ...The Boral PER does not take into consideration the radiation hazards connected to alpha particles nor does it provide surety of safety.• From conclusions: Although dust mitigation strategy has been completed, it is consistent with the actual prevailing winds, landscape and combination of 2 quarries producing 2/5mtpa.• Sensitive receptors are not positioned consistent with wind direction thus being able to give accurate assessment.• Inconsistencies with information on wind direction and speed. Actual statistics taken from the area over long term by the Bureau of Meteorology are a more accurate measure was not used in the study.

Water	<ul style="list-style-type: none"> From conclusions: There is no water quality monitoring stations for any of the ephemeral creeks or Susannah Brook. In 2.1 Geomorphology it is stated that the "Quarry Footprint impacts slightly onto on to the ephemeral streams' however in the long term proposal (clay pits reopening) and that the Hanson's proposal, these streams would be quarried up to 50m (self regulated buffer) from the banks of....Susannah Brook, no provision has been made in regards to the ephemeral streams. Both Boral and Hanson intend to extract product up to this buffer for several hundreds of meters along Susannah Brook. There is no mention of the Swan River Trust being involved in the consultation process...the reports states that the impact Susannah Brook has on the Swan River is less than .001%, the assumption made for an overarching picture of the complete Swan River system. Whereas, if the footprint of the actual feed flow and seepage into the Swan River in the area of Susannah Brook outlet were assessed, the conclusion may be different when considering settlement contaminants in the restricted area. The silt or fines that will escape into the ephemeral streams from the surrounding settlement area is most likely to significantly impact on the water quality of the catchment area of Susannah Brook when rains fill ephemeral creeks, drainage areas and land wash areas flow in the main tributary. From conclusions: Water uses vary between the Hanson (1.5mtpa lower consumption) and Boral (500 000tpa- greater consumption) quarries and needs to be addressed to ascertain actual water consumption. From conclusions: A study to ascertain definitive clarity of impacts on water (ground and surface) quality into the future. The PER also states that groundwater may be affected up to 3km radius from the quarry footprint, there are many properties that fall within that area, reliant on groundwater and will be impacted by the loss of this resource.
Cumulative impacts of additional quarry	<p>From conclusions:</p> <ul style="list-style-type: none"> longer term and more stringent criteria for study of endemic species has to be undertaken to correctly assess the impact of the 2 quarry footprints combined as this does have an impact on the area. scoping comparatives of the 2 PER's to quantify impacts on the complete environment
Transport impacts	<ul style="list-style-type: none"> From conclusions: Traffic management of 160 000 truck movements per year of a limited direction and length, including the descent down Red Hill of fully loaded heavy haulage vehicles. The proposal put forward by Boral Pty Ltd for the transportation of products states that 12 trucks per hour will occur, the days will have a duration of 13 hours for 5.5 days per week....which equates for a 48 week year to 41800 movements per year from the Boral Quarry alone. The Hanson quarry...intends to move three times the product...,combined total movements within the 10km stretch of Toodyay Road to Reid Highway intersection will be greater than 160 000 movements of heavy haulage vehicles, additional movement must also be of concern as the Hanson PER stated no consideration has been given for truck movements from ad hoc sales (private and other contractors) of product. Currently to gain access to Great Northern Highway, Hanson trucks are using Campersic, Oakover and Hadrill Roads in Middle Swan, Herne Hill and Millendon to shortcut and circumvent heavy traffic and delays at the great Northern/Reid Highway intersection...These roads are not suitable, nor is it sustainable or best practice to transport product without upgrading, widening and resurfacing works to accommodate continual use of heavy haulage vehicles through a rural residential area road design has not taken into consideration for movements of heavy haulage vehicles.
Transport of explosives	<ul style="list-style-type: none"> From conclusions: Transportation of explosives and societal risk assessment strategies. Serious consideration must be undertaken with the transportation of explosives to both quarries on Toodyay Road and storage of explosives on site. There is no mention of dialog with the Department of Mines and Petroleum or Minister for Mines.

Local residents – individual submissions (unnamed)	Local resident(s) # 3: (submission # 12)
Visual amenity	<ul style="list-style-type: none"> • View destroyed by seeing an ugly gaping hole on the darling Escarpment, caused by an operating quarry, totally at odds with the surrounding bush and vineyard landscape.
Noise	<ul style="list-style-type: none"> • Noise interrupting passive enjoyment of the tranquil Swan Valley. No pleasure to be gained from walking or horse riding in an area accompanied by vibrations, blasting and noise of trucks backing up and filling up their trays.
Dust	<ul style="list-style-type: none"> • Dust concerns.
Impact of changes to topography	<ul style="list-style-type: none"> • Nobody can predict the affect on the wind and rain of altering the topography of the top of the escarpment. • If the wind and rainfall patterns change due to the removal of the top of the escarpment, what are the consequences on the local flora and fauna? • We need a thorough in-depth study carried out, no paid for by mining companies but done by an independent body, and no just quick, sketchy look at the surrounding environment as has been done to date.
Surface water	<ul style="list-style-type: none"> • Susannah Brook will be detrimentally impacted by the proposed expansion of quarry works. It is interesting to note that water samples are never taken when the water is looking murky and yellow buy only when it looks clear.
Fauna	<ul style="list-style-type: none"> • Local flora and fauna habitats obliterated. To name just a few, we have large flocks of Carnaby's cockatoo which forage in the area, as well as a nesting pair of wedge-tailed eagles, whose nest is situated right in the area to be mined. We have countless species of birds including hawks, owls, black-shouldered kites, Australian kestrels, little eagles, a peregrine falcon, sacred kingfishers and rainbow bee eaters. Other animals include echidnas, bandicoots, kangaroos, blue tongue goannas, skinks and black monitors.
Flora	<ul style="list-style-type: none"> • Local flora and fauna habitats obliterated. ...There are countless species of flora, some of which are endangered, in the nearby Wandoo Heights nature Reserve...Who can say how it will be affected if the quarrying operation disturbs and destroys their habitat?
Cumulative impacts	<ul style="list-style-type: none"> • Now is the time to look at all heavy industries in the area, such as Boral, Hanson quarry and Delta Concrete and view them all together and revisit the legitimacy of their operations in their current locations. Now is the time to review and act, not have a piecemeal destruction of our environment bit by bit until there's nothing left to preserve.

Local residents – individual submissions (unnamed)	Local resident(s) # 4: (submission # 15)
Ownership of site	<ul style="list-style-type: none"> The actual current and proposed ownership of the Lots delineated for the proposed quarry and surrounding area is not clear in this report. ...proponent is Boral Resources (WA) Ltd...Lots mentioned are only part of the larger area owned by Midland Brick Ltd, which may be impacted and does impact on Susannah Brook.This may lead to blame shifting in the event of incidents such as Susannah Brook contamination if the development goes ahead. The whole area owned should be covered in this PER and a single owner or point of responsibility guaranteed for the development (rather than more than one subsidiary of Boral), including previous existing clay pits.
Inconsistencies	<ul style="list-style-type: none"> Various studies (in Appendices) are not consistent in the areas studied – varies from the 42 hectare quarry area itself to the broader “proposed Boral Resources (WA) Ltd project footprint” to the full area owned by Midland Brick Ltd which is in the order of 450 hectares. This should be addressed before any approval of the new development requested.
Repetition	<ul style="list-style-type: none"> Considerable repetition of topics in various sections of the report... Re Stakeholder consultation... Quite a lot of padding out and repetition of events & communications in the way it is recorded and tabulated
Transport impacts	<ul style="list-style-type: none"> Extra truck traffic will cause further deterioration of Toodyay Road & increase the risk of head on collision in the single downhill lane section from the escarpment to the coastal plain. This is a cumulative effect on Toodyay Road, so quoting small percentage increases is meaningless. ... this Development should not be approved without an undertaking from Main Roads to upgrade Toodyay Road to a suitable standard. ...issue is cumulative effect – road needs to be fixed now before any further traffic is allowed.
Surface water	<ul style="list-style-type: none"> I have serious concern that contamination of Susannah Brook is still a significant future risk. This is focused on sedimentation trap dam described in the report... Turbidity contamination of Susannah Brook from existing clay pits – must be addressed. Statement made in Summary of Proposed Management - “Storm water will be diverted to onsite clay pits to contain sediment on site.” This is not satisfactory as clay pits have leaked to Susannah Brook in the past. Page 52 – Impact on Surface Water – talks about 42 hectare quarry impact on surface water – the whole lot is 450 hectares owned by Midland brick has a broader impact including a number of existing clay pits – this needs to be addressed as a whole or any problems will just be bounced from Company to Company even though they are both subsidiaries of Boral. Page 12 – “other runoff water which does not flow into these dams flows to a constructed sediment trap dam, which has a membrane and filter bed. All final overflow discharges into Susannah Brook.” – Query whether this sediment trap dam has overflowed before and confirm it is on the Quarry owned site and not on Midland brick land not covered by this PER. ...the sediment basin facility north of the proposed quarry area will be maintained to minimize the potential for contaminating Susannah Brook;” – There is no detail on what would be done and how it would be monitored – concern for Susannah Brook.

Flora & Fauna	<ul style="list-style-type: none"> Actual flora and fauna visits very limited – majority of very wordy studies are based on desktop work. Further work covering several seasonal exposures should be required for a complete and balanced assessment, before this development is approved. Very limited actual site fauna and flora surveys conducted. Mostly one or two visits only for specific surveys – not covering multiple seasons or times (day/night etc). Just 2 visits listed – one in winter and one in spring – very, very limited actual on the ground flora survey time in limited seasons. The area of the quarry pit to be cleared is pristine bushland looking out towards the coastal plain. Wildlife corridor/s between Hanson quarry are likely to be impacted.
Fauna	<ul style="list-style-type: none"> The Forest Red-tailed Black Cockatoo and Carnaby's Cockatoo are likely to occur within the quarry area – The quarry is yet one more development that will impact on both feeding and potential breeding of both of these species. It can be said that this particular development may have relatively small individual impact, but as part of the ever increasing development around the Perth Metropolitan area, the impact is cumulative and serious. This...comment above applies to most of the fauna surveyed – limited individual impact, but must be considered cumulatively with all development happening in the escarpment area.
Fauna – Carnaby's Cockatoo	<ul style="list-style-type: none"> Impact on Carnaby's Cockatoo is still a very serious cumulative effect as more and more developments occur in the area. The Carnaby's Cockatoo Report in Appendix C only covers the area of the quarry pit and stockpiles – it does not cover at all potential feeding and breeding disruption from noise, excavation and pit operations in the broader surrounding areas to the North owned by Midland Brick....A more detailed study on the whole area is required for a meaningful report, A properly researched and executed study of impact of the whole 450 hectare Midland Brick Ltd owned site is required before this development could be approved. Otherwise the impact on the Cockatoo can not be reasonably determined. Nesting box proposal for any trees removed as potential Carnaby's Cockatoo breeding sites – issue is noise and clearing disturbance over the whole Midland Brick Site.
Groundwater	<ul style="list-style-type: none"> Section 4.7 Hydrogeology – desktop study only with surface visits to Boral and Hanson Sites – extrapolations from EMRC site, but more recent EMRC monitoring info submitted to DEC, including groundwater contamination at SW margins of EMRC property not included.
Offset / Conservation area	<ul style="list-style-type: none"> This area extends into lots 198 and 166, which are not owned by the proponent – how will this work – ongoing issue of interaction between Boral Resources and Midland Brick a concern...
Noise and vibration	<ul style="list-style-type: none"> "Quiet" alarms such as Smart Alarms that emit a noise only 5 dB above ambient noise and/or low frequency 'croaker' alarms will be used" – to be meaningful this also needs to apply to all trucks visiting the site. Re Impacts of Blasting - ...very technical & comprehensive report. Risk assessment covered very clearly. Appears to be acceptable risk to surrounding infrastructure.

Local residents – individual submissions (unnamed)	Local resident(s) # 5: (submission # 16)
Cumulative impacts	<ul style="list-style-type: none"> • It is my view, that while this PER has been submitted independently in relation to a single mining operation, it should be assessed in consideration of similar operations already approved alongside the intended location. This is because an appreciation of the impact on the surrounding area can only be envisaged when a combined picture is illustrated. This PER is submitted to support the mining of 500 000 tonnes of granite per year. Next door (Hanson's) has just got approval to mine 1,500,000 tonnes (1.5Mt) per year. It could be considered negligent if this application was not considered with that perspective in mind.
Stakeholder consultation	<ul style="list-style-type: none"> • Ensure all residents surrounding the affected locale are consulted. • I have been totally unaware of the Boral intentions until brought to my attention through a chance meet while walking the adjoining National Forest. • The PER provides details relating to consultation with local groups and residents, however, these details do not seem consistent with the view of residents that I have talked to in the surrounding area. This is an area well within a 3km radius of the intended location.
Quality & Applicability of studies	<ul style="list-style-type: none"> • Conduct studies specific to the location concerned. • There is heavy reliance upon consultative reports that do not apply to the PER location. • ...there is a distinct lack of reference to current and specific data. In particular, that of climatic wind pattern information and recent findings related to the specific health effects of granite dust; properties such as its physical structure and alpha radioactivity emissivity. • The site deserves its own analysis from which fauna, floral and hydrological information can be ascertained. • An anomaly may exist in the PER when predicted water usage is made....the Boral figures is way in excess of the Hanson usage which is extracting three times as much product. What is the real situation?
Language of report	<ul style="list-style-type: none"> • Throughout the PER it is very difficult to ascertain specifics. The language does not seem to give validity to what is being reported on. The non committal terms used when assessing potential risk event outcomes does not provide the reader with the confidence that Boral have understood the consequences of their intended operation.
Groundwater	<ul style="list-style-type: none"> • Conduct specific hydrological studies in order that definitive conclusions can be made. • ...reference to a major source from which to draw conclusions, is made to a report conducted on a site 1km away, upstream of man-made diversion mechanisms, for a land-fill waste area....it seems negligent to use this report as a major source when qualifying effect on ground, sub-surface and local aquifers. It would be far more responsible to conduct a survey in the proposed project area. Observations relating to water tables, flow paths and surface drainage would be heavily influenced by the fact that Toodyay Rd cuts right between the two sites where man-made drainage and water diversion techniques have been deployed.

Air Quality	<ul style="list-style-type: none">• Ensure that the scope of studies accommodate the physical properties of granite dust, in particular the radioactivity aspects.• I live downwind of the proposed location and therefore considered to be in a location where the propensity for dust deposition and inhalation is high. I would therefore consider myself and neighbours a 'Sensitive Receptor' living in Herne Hill and only 2.45km away from the proposed operation.• The PER is void of any consideration to the physical properties of the dust hazard and seems to only consider it as an environmental factor through deposition, compromising foliage and quoting "possible health effects".• Only desktop studies and dispersion modelling has been used. In the absence of measuring stations, why were residents downstream of prevailing wind patterns not asked?• With respect to meteorological wind pattern data and the propensity for dust pollution , the PER is predicated on data and sources that are either not correct for the proposed location in question or possibly presented in a way that is not consistent with recent data from more accurate sources (ie weather station much closer to the location).• Of particular concern is the use of an 'average daytime wind speed'...If a more representative data sources was used, as residents of this area well know, what is of significance is the occurrence and length of prolonged seasonal high wind speeds during specific periods...• The Darling Scarp Granite outcrops are particularly high in radioactivity, being the major source of high background radiation....It is the dust that warrants the closest scrutiny because if its ability to become airborne and be ingested into the sensitive tissue of the lungs. ...when radioactive granite dust is inhaled into the lung, the alpha radiation is extremely damaging to the delicate lung tissue.• All granite contains large amounts of crystalline silica, which is also harmful to the lungs. It is not appropriate for homeowners to be exposed to the respiratory hazards that are present in granite.
Location	<ul style="list-style-type: none">• This location is not at Gidgegannup. Gidgegannup is at least 12km away. The location is in the area of existing Red Hill operations, such as that of Hanson's and the Red Hill landfill site. The location provided in the PER is misleading. This could be a significant point, if the area of public consultation was centred around Gidgegannup as a result of this locale quote in the PER, when in fact those most significantly effected live in the areas Herne Hill and Red Hill.

Local residents – individual submissions (unnamed)	Local resident(s) # 6: (submission # 17)
Noise and vibration	<ul style="list-style-type: none"> • We are concerned about the staging of temporary mobile crushing equipment by the 5th year. There will be a noise issue with temporary infrastructure, in particular, the mobile crushing equipment. • As well the quarry is proposing a slow 'ramp up' so why are they proposing extended and flexible hours of operation. The hours need to be fixed. • 5am-6pm hours of operation are too early in the morning and too late in the evening. The noise factor with mobile equipment is a major deterrent by itself, let alone the noise impact for immediate residential neighbours. ...Boral will not be housing its jaw crusher as it is mobile equipment. Therefore, we suggest 6am to 6pm Monday to Friday for sales, however, crushing operations to be from 7am to 4pm. Monday to Friday only. • ...we oppose operations on Saturday afternoons and no crushing whatsoever on Saturdays. Neighbours need to have some respite from quarrying operations. As well, vehicular traffic can flow freely again as the trucks congest the roads... • ...we oppose all operations on Sundays. It is the only day of the week that peace and quiet resumes in the valley. ...Moreover, according to Lloyd George Acoustics, I "is recommended that the site only operate between 7am to 7pm Mondays to Saturdays...". • There needs to be fixed hours and agreement with stakeholders to the hours of operation of Boral.
Flora and fauna	<ul style="list-style-type: none"> • We are concerned by the statement: 'that Midland Brick will likely return to the Site in the future to access remaining clay reserves'. This will have a negative impact on any rehabilitation that Boral may undertake as the company will not spend any money if areas are to be re-used for further extraction. • To counteract this scenario more lands need to be vested by Boral for wildlife corridors. A suggestion would be all land within a minimum of 250meters of Susannah Brook be set aside and all Boral's land north of Susannah Brook be classified as protected for fauna and flora. This would at least safeguard two perimeter boundaries for fauna corridors. • A desktop assessment and a limited field survey verifying the desktop was restrained in assessing flor and vegetation. ...More field surveys over different seasons throughout a year should be undertaken to obtain a comprehensive study of flora and vegetation. A random two days over two years field study, on in the middle of winter the other middle of spring, is inadequate because there are yearly climate variables with flora and vegetation.
Existing environment	<ul style="list-style-type: none"> • Has the proposed quarry site been tested at depth for acid sulphate soils, because if oxidisation does occur through disturbance it will release arsenic and other elements into the groundwater? • The statement "A search of DEC's Contaminated Sites Database indicates that there are no contaminated sites within a 5km radius of the site is incorrect! EMRC, the waste disposal facility is a contaminated site..... This is well within five kilometres of Boral's proposed quarry. DEC's database needs updating and this quoted statement above proves that reliance on desk top studies alone by Boral may produce incorrect information. • Any area has the potential to create dust but to compare hobby farms and grazing farms to a working quarry ...is incongruous. [re page 47 Item 5.12.1] To include these latter two (50%) is incorrect in this section.

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Use of desk top surveys	<ul style="list-style-type: none"> • A desktop assessment of groundwater resources is limited. One would have expected that ground drilling would have been required to model the aquifer behaviour. Desktop studies are more applicable to concept studies not to full blow PER. • A desktop assessment and a limited field survey verifying the desktop was restrained in assessing flor and vegetation. ...More field surveys over different seasons throughout a year should be undertaken to obtain a comprehensive study of flora and vegetation. A random two days over two years field study, on in the middle of winter the other middle of spring, is inadequate because there are yearly climate variables with flora and vegetation.
Fauna	<ul style="list-style-type: none"> • This level of fauna assessment is insufficient for the region. Data was relied on from Hanson's Red Hill level 2 assessment ...Two field assessments on two days only in two years...is limited and not encompassing. • A comprehensive field survey is warranted throughout the year. Boral should commission their own assessment rather than rely on data from neighbours....Hanson's assessment was insufficient and incomplete at the time and Boral's reliance on Hanson's assessment compounds encumbered data. • Table 12, page 40 does not include the Wedge-tailed eagle. These predatory birds use kilometres for hunting and a nest is approximately situated within four-seven kilometres north of the proposed quarry. • Also...Carnaby and/or Baudini and Forest Red are commonly found /observed in the EPR area under review. • All fauna are affected by the effect of a working quarry; some species more than others. The quarry area proposed will interfere with the habitat of these cockatoos and could interfere and disrupt the breeding cycle of the population. Human activities interferes with their foraging, they signal distress when human presence is near their nest, and noise from quarry blasting or gun shots disturbs the flock enough to fly away. The removal of any potential trees for nesting could be the death knoll for another breeding pair of cockatoos. • ...eight trees were identified as possible suitable trees for nesting' Four out of these eight trees were 'suitable'. ...Can the remaining suitable trees be moved to fauna corridors on Boral's land Or, at least, provide new nesting boxes in existing trees north of the Susannah Brook. • An increase in fauna linkage corridors throughout Boral's land would demonstrate and juxtapose that Boral are committed to environment protection and that would set a progressive precedent to other extractive quarries.
Dust	<ul style="list-style-type: none"> • The Ambient Air Quality standards should be applicable to Boral because their zoning is resource and not, as Boral state, that they are 'within an 'industrial area'....Receivers or regulators should be installed on Boral's land and be monitored and controlled for air quality in a resource area which, to our knowledge , is not the equivalent of an 'industrial area'. Ambient air quality standards should be applicable not retractable. • The report on air quality standards seems to read that the neighbours of Boral create dust so the monitoring is fine because Boral according to the PER, are already in an 'industrial area'. Therefore, Boral relinquish their responsibility for air quality.
Location	<ul style="list-style-type: none"> • The location of the Gidgegannup proposed granite quarry is no 60km ENE of Perth. This statement is incorrect. The quarry is located, according to UBD Perth 2008, within 30km radius of Perth CBD.
Transport impact	<ul style="list-style-type: none"> • The total impact of trucks of 2% based on 2007 figures is irrelevant today. What is important and more concerning is the percentage increase in trucks. ...Do not allow the quarry to proceed until road infrastructure can accommodate another 24% increase in trucks. • The 24%increase of trucks is a major escalation to an already congested haulage road for trucks and passenger vehicles.

Local residents – individual submissions (unnamed)	Local resident(s) # 7: (submission # 18)
Overall objection to the proposal	<ul style="list-style-type: none"> • The long established tradition of quarrying on the Darling Escarpment has been environmentally unacceptable for decades. • I strongly object to the establishment of any new and/or any expansion of existing quarries on the Darling Escarpment and expect the EPA to advise the Minister that a timeframe should be established to discontinue all quarrying on the Escarpment and establish another timeframe for the acceptable rehabilitation of abandoned quarries to be compatible with surrounding natural vegetation.
Previous EPA advice re value of existing environment	<ul style="list-style-type: none"> • Existing and former environmental officers have emphasised the importance of maintaining the Darling Escarpment as a valuable conservation area (EPA Bulletin 510, April 1991). • An earlier 1990 proposal by a quarry company drew attention to the fact that quarrying on top of the Escarpment was environmentally unacceptable and noted that in their view the “priority Extraction Area” at Red Hill and Herne Hill would never receive expansion approval.
Local residents – individual submissions (unnamed)	Local resident(s) # 8: (submission # 19)
Overall objection to the proposal	<ul style="list-style-type: none"> • This...response to the Boral proposed quarry can be generally put as being against it in many respects. • ...the proposal should be refused on the grounds that the environmental impacts on the area are too great and are unacceptable. • The main real concern I have is a more general and devastating one....Why is the Government continuing to develop extractive industries on an area of high Natural heritage value so close to the Perth Metro area?
Quarry timeline	<ul style="list-style-type: none"> • 25 million tonnes at half a million per year, works out to be more than 50 years of Quarrying! The first 20 years is a staged increase in production, so it will actually be longer. ...Lets not kid anyone that this is just a short term project. IT is around half of the proposed quarry life of the Hanson PER, but no less of a disaster. Do not permit this proposed quarry.
Flaws in report	<ul style="list-style-type: none"> • There is no existing quarry...The PER text gives the impression that the proposal is an expansion of Boral's quarrying operation at the site. THIS IS NOT THE CASE. As described in the PER, there are other divisions and sections of Boral that are using the site adjacent to the proposed area, but there are no hard rock quarries. I see this as mitigation or cover up of the significance of the proposal. • Flawed report offered in support. ...The use of Hanson report (Appendix D) on habitat is flawed. The report is part of an attempt by Hanson to misrepresent the true nature of their environmental impacts on the ecology of the area of their PER proposal. The area that is reported, is around Strelley brook which is west of the PER area by some distance. The area is about a kilometre from the Boral proposed PER site. The habitat is totally different at the proposed Boral site than the area of the report. Thus this Report is not RELEVANT. It should not be considered as supporting evidence for this PER. It is evidence that Boral is trying to introduce false and misleading data into their PER to create the impression that the quarry will not affect our environment.

Existing environment	<ul style="list-style-type: none"> The site east of the proposed Quarry is a disaster zone environmentally. It is a pit sued by various companies to extract Kaolin clay for brick making since the 1930s. Boral is the current environmental VANDAL that is destroying this part of our backyard. ...It is an unconscionable act against the ecology of the Susannah Brook Valley, and the quality of life for future generations.
Alternative	<ul style="list-style-type: none"> Flawed basis to be at this site. ...Alternative to avoid this disaster in the Susannah Valley. ...Boral do not have to quarry at this location. ...I suggest West Toodyay as a more environmentally acceptable area to quarry. Boral Quarries already have a quarry at West Toodyay, and have asked the government to engage in developing a rail head at West Toodyay to load the aggregates. The benefits are that the local truck movements are all short haul and minimise damage to roads that were never envisaged to carry such loads as is the case not. The Darling Scarp will remain pristine for our grandchildren. No trucks are mingled into urban commuters each day. No trucks on Toodyay road or Roe Highway etc.
Visual impact	<ul style="list-style-type: none"> We can see where Boral have been at the Gosnells quarries. The visual impact of those can be seen from the ocean. This proposal will not be any different. It will be blight on the landscape forever.
Environmental monitoring	<ul style="list-style-type: none"> Mandatory inclusion of a computerised monitoring system. ...This item must be made a mandatory requirement to this PER and to any proposal for extractive industries in the Susannah Brook Valley. Each site must be compelled to install these monitoring stations at the entry and exit of any waterway from or through their sites. The EPA statement must include the following clause:- - an automatic computerised environmental monitoring system must be installed and maintained at Boral's cost. It can be solar powered at each monitoring site; - the system will monitor all relevant parameters and forward the data via the internet in a fully transparent way so the public and the monitoring authorities can view the values in a common data format like Microsoft excel. - the system shall have set points in the data so any readings exceeding the set point will flag an alarm at Boral and an automatic email to the appropriate authorities, ie the EPA - the system will be audited annually for accuracy by an independent NATA approved company chosen by the EPA, who will administer the monitoring process. The data acquisition shall include a measurement of a "standard" sample of the parameter being measured. This sample measurement shall be included in the data taken every measurement cycle. •the parameters to be measured could include, but are not limited to the following: Water – turbidity, pH, flow, phosphates, blast chemical residue Air – dust quantity, dust particulate size, dust distribution, chemical vapours, sound levels, blast pressures in air Ground – seismic vibration amplitude, seismic vibration frequency, blast timing and sequence, seismic vibration spatial distribution Hydrology – groundwater level of both perched and regional local water levels, monitoring that the east west dykes that contain the aquifers is not breached by the quarry Site logistics and management – vehicle movements in and out of the main gate, tonnages transported, power consumption and timing, noise levels internally and externally, wind speed and direction (as it may affect accuracy of other measurements) rainfall, barometric pressure (as it may affect accuracy of other measurements), tamper detection and alarms of the monitoring site itself.

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surface water	<ul style="list-style-type: none"> • re "a pit developed on the Site to extract Kaolin stores water within the pit"...these pits have a settling pond that has a very weak and badly constructed wall. This wall breached in 1996 and flushed kaolin clay down the Susannah Brook for over 5 kilometres. The flush went on for around 2 WEEKS. It killed the ecology of the brook by choking the aquatic flora and fauna. Some species have not returned from this catastrophe. ...To this day the clay pit wall has not been strengthened or greatly improved. No preventative actions have been taken to avoid another occurrence. It remains a disaster waiting for the once in a decade event to make happen again. • What has this got to do with Boral Quarry? The quarry division is trying to disassociate itself from the actions of "that other section of Boral who dig clay".
Local residents – individual submissions (unnamed)	Local resident(s) # 9: (submission # 20)
Overall objection to the proposal	<ul style="list-style-type: none"> • We are ratepayers and landowners in Gidgegannup and wish to express our opposition to the proposed Quarry and cite our concerns. • From the conclusion: it is unconscionable that large tracts of pristine bush on the doorstep of Perth be destroyed, along with their fauna populations. This quarry will have significant adverse affect on the residential community, both on their amenity, land value and their right to travel safely on local road. Perth has a precious natural resource at its doorstep.
Density of activity	<ul style="list-style-type: none"> • Bora proposed quarry fills the "gap" between Hanson hard rock quarry and Midland clay pits, which together with the EMRC waste facility and Midland clay pit on south side of Toodyay Road, will create an enormous contiguous precinct of extractive industry which will result in Gidgegannup and the Perth area suffering the irreplaceable loss of an enormous tract of quality scarp land bush and landscape. Such a concentration of extractive industry is an unfair burden for a single Council and district to bear. • Except for John Forrest NP, the area being quarried (or proposed) constitutes one of the last pristine undisturbed areas of bushland in the vicinity of Perth.
Longevity of activity	<ul style="list-style-type: none"> • It is simply unacceptable that a license be granted for 50 years. This gives the proponent too much, and makes no provision for changing climate and environmental priorities. There is no incentive to be a good neighbour.

Surface water catchment and groundwater disturbance	<ul style="list-style-type: none">• Boral do not believe that surrounding users of groundwater will be impacted by their activity as they believe the perched aquifer is highly localized and separated from surrounding aquifers.• Despite numerous requests, we still have not seen a map with topographic lines.• If a neighbour is adversely affected, what compensation or remedy is available, if, the deeper fractured rock aquifer does influence the bores of surrounding landholders within a 3km radius?• Boral have done no testing to determine the Actual location of small localized perched aquifers on their property. They have related information pertaining to other properties (EMRC and Hanson (page 22)) and sites on their property more than 200m from the proposed pit edge (page 21) and dismissed the aquifers as "minor, perched, of no regional interconnectivity, and any impacts (by quarrying) would be much localized" (page 21).• The destruction of local aquifers by quarrying or blasting that cracks the bedrock containment would have adverse affect on flora beyond the pit boundary. It will destroy small localized "perched aquifers" that are essential to the survival of vegetation during the summer drought. The potential for widespread demise of vegetation is very real.• Boral is making sweeping statements based on personnel of dubious bias and unqualified knowledge, desktop surveys based on information that is decades out of date and drilling surveys from a neighbouring property considerable distance, on the other side of the road and topographically different. This is not responsible information gathering or relevant reporting.• The Nyoongar elders have identified this area as containing underground streams (page 22). But these have not been investigated.
Water supply	<ul style="list-style-type: none">• The company says it will be "generally self sufficient on water" (page 8). Generally? This is vague, especially as the capacity of the dams has not been defined.• Is the company proposing to sink a few bores just in case?• Are there existing bores on site?• Doe they propose to increase the holding capacity of the existing dams.

Discharge of excess stormwater	<ul style="list-style-type: none">● ...upon closure of the quarry, how will contaminated areas (workshops, bitumen hardstand, carparking bays with oil deposition – page 54) be monitored to ensure polluted water does not enter local aquifers and streams? Who will empty silt traps to ensure silt does not overflow into the surrounding landscape and water courses?● Driving past the clay pit entrance opposite EMRC entrance on Toodyay Road, there is a large diameter black water pipe exiting their property net to a power pole. It is positioned to discharge into the MRD Toodyay Rd roadside drain.<ul style="list-style-type: none">- What is this for?- what type of water is being discharged?- why can't the water be contained and treated on site?- where is this pipe coming from?- Could it be impacted by fire?- Was approval granted for the re-routing of discharge?- Are the roadside drains excavated to absorb this extra runoff?- Who pays for the repairs of blocked drains and the consequential hazard to road users if the drains block up (with rubbish) and overflow because of the additional discharge volume?● Water from this drain eventually reaches Susannah Brook. This water is already burdened with rubbish because of the EMRC waste facility.
Flora	<ul style="list-style-type: none">● Boral have set aside land of "equal" value including some riparian habitat alongside Susannah Brook (page iii).<ul style="list-style-type: none">- how is this land protected?- Is this land covenanted to the National Park?- since when does setting aside land associated with Susannah Brook count as a credit for destruction elsewhere?- Riparian habitat should be automatically quarantined from quarrying and clearing...that exclusion is not meant to compensate or permit clearing elsewhere.- does this mean that future expansion of the quarry is possible and this land is merely being quarantined in the event of that?- which independent/third party, if any, has decreed that this land is adequate value to compensate for that which will be lost forever?● It is far easier to rehabilitate a clay pit than vertical rock faces, yet the existing Midland disused clay pits are infested by weeds, feral vermin has gained a foothold and rehabilitation has not occurred. How does Boral propose to address this?● Midland Brick has a terrible record for revegetation in this area (admitted by Boral). Why should we feel confident that Boral will successfully rehabilitate a quarry, whose vertical hardface walls are much more difficult to remediate than a claypit?● How can Boral assert that destroying 42 ha of quality bushland not constitute "serious or irreversible damage to the environment" (page 16)? The best efforts of revegetation will never replace what clearing and quarrying has destroyed.

Flora	<ul style="list-style-type: none"> • Boral have not undertaken on site surveying to determine the presence and extent of aquifers. They have used desktop studies (page 19), "anecdotal evidence by Boral personnel" (of questionable bias and what qualifications) of the movement of water 200m away (page 21) and results of a drilling program at EMRC (in the other side of the road, several km away) it dismiss the possibility of significant aquifers, large and small, to be "isolated, of no regional interconnectivity, minor and any impact (by quarrying /blasting) would be much localized (page 21). ... Blasting activities that fracture the containment structures of these "minor perched aquifers" will deprive remnant vegetation of summer water resources and severely affect their ability to survive the seasonal drought. It is these aquifers which feed the vegetation above which in turn, support the local fauna population. Destroying localized aquifers by nearby mining activity will widen the extent of vegetation and fauna destruction. • Boral have simply not conducted CONTINUOUS 12 month ON SITE surveys of flora species. Desktop surveys are no substitute for on-sites assessment....Their reluctance to do this merely indicates that they are uncaring and do not want to be inconvenienced by findings of rare or endangered species. • Table 8 (pages 32,33) demonstrate the likelihood of considerable populations and species variety of "priority flora". Table 6 (page 29 describes the quarry area as having at least 3 vegetation types in very good conditions. This demonstrates the inappropriateness of more clearing f irreplaceable scarp land bush. ...The loss of unique vegetation such as these should not be permitted. • Re the 10 Clearing principles: <ul style="list-style-type: none"> - Principle 1 – native vegetation should not be cleared if it comprises a high level of biological diversity (it does – refer page 27, Table 8 pages 32,33). Boral reply is that areas of vegetation just as good or better exist in the vicinity. This does not meet the criteria of Principle 1....it does not state that it can be cleared if there is an "offset". - Principle 2 relates to the clearing of vegetation necessary for fauna survival (page 59).42hac=100 acres. There is an ever shrinking supply quality supply of natural bushland in the scarp area. 100 acres becomes significant when it comprises a significant portion of the last buffer zone between National Park and rural and residential development....It shows the danger of failing to consider the overall impact of numerous applications to clear and develop. - Principle 3 relates to the clearing impacts on Priority 4/Endangered Flora. Boral is dismissive of the effect of the clearing as destroying "only 10 plants" and makes assumption that this will not be a "significant impact on the species, either locally or regionally" (page 59 but has actually acquired no relevant information to support his arrogant statement.
Fauna	<ul style="list-style-type: none"> • 31hac (really 42hac) doesn't sound a large area, but when you add it to the activity of Hanson, EMRC and Midland Clay pits, it sums up a fast shrinking scarp land habitat that is being fragmented by noisy vibrating activity that is unnatural and results in an area wide depletion of fauna populations, whose migration routes and food sources are disturbed and obliterated and severely confined. • Fauna is moved on, inconveniencing neighbouring farmers and intensive agricultural/viticultural enterprises. • The completion of quarrying activities will see vast tracts of land excluded from returning fauna by permanently locked gates and high fences. The provision of a fauna corridor (page iv) is debateable as to its effectiveness as wild animals will shy away from unnatural noise and vibration. • There is no doubt that populations will be displaced from their territories by the unnatural activity and forced into surrounding areas which are already stressed by groundwater depletion, pollution, erosion, dieback, unbalanced native fauna populations (excessive kangaroos) and the activities of trespassers. • Boral misses the point when they say "no species uses the area exclusively"...Boral haven't even conducted property on site surveying or trapping, so how can they say what does or doesn't inhabit the site?

Fauna	<ul style="list-style-type: none"> • A common message is that Boral's 31/42 ha of clearing will not have significant impact (page iv) on fauna and its habitat, but add it to the widespread clearing by Midland Brick, Hanson and EMRC, and the picture looks very different....EVERYONE with their own small scale activity is collectively eroding the environment and the quality and quantity of habitat available for fauna species. • Boral will trap and relocate fauna (page ix) prior to commencing works. <ul style="list-style-type: none"> - where? - how long will they trap? - for what species? - if they can do the trapping before commencing quarrying, then why can't they extensively trap for PER research? - who will do the trapping? - will there be third party monitoring to ensure transparency and protection in case an endangered species is "inconveniently" caught? - where will the animals be released? To overload another area and be exposed to its predator profile?...You cannot simply translocate animals elsewhere to compensate them for the destruction of their own territory and food source. • The destruction of this large area of quality bushland means the destruction of habitat. • Migratory corridors are NOT habitat. ...Boral preservation of migration areas to the west and east is nothing more than "habitat linkages" (page 45) that force native animals to travel further for food and suffer greater exposure to predators. The inadequacy of this zone for a corridor (certainly NOT as a habitat) is clearly described on Figure 8 (next to page 64) which requires fauna to travel along a long narrow fenced raceway (adjacent to Hanson boundary), only to exit in a concentrated manner on Toodyay Road, putting road users at greater risk. • There will be increase incident of "lost" animals meandering along roadside verges trying to find the narrow entry to the migratory corridor. A far better solution would be to remove the Hanson boundary fence, and combine the 2 corridor areas (they've shard research data, so why can't they combine a wildlife corridor) to create a more sustainable zone of movement and occupancy. • Boral make the...statements based on assumption, hearsay, reports of others based on insignificant local on-site research (Hanson) and desktop surveys. In no way are their findings supported by continuous 12 month surveying of fauna (or flora species). Without such ON SITE survey, the true nature of fauna populations cannot be assessed.
Presentation of information	<ul style="list-style-type: none"> • The PER is described by the submitter as "repetitive, fragmented and contradictory presentation" and the submitter expresses frustration at the use of "potential" impacts and claim that "it is simply not necessary to make these statements that are nothing more than an attempt to conceal the obvious". • From the conclusion: The PER document is poorly assembled, repetitive and contradictory. It is based on assumptive and generalised desktop information that bears little relevance to on site realities.
Contradictory presentation	<ul style="list-style-type: none"> • Page I, 7 says Boral will operate Monday to Friday 5am to 6pm and on Saturdays "morning to early afternoon" (vague description), but MAY seek consent to work Saturdays to 6pm "under exceptional circumstances" (not defined) and "possibly dispatch on Sundays". Then page xiii ...says the processing plant will work 7am to 7pm Mondays – Saturdays and blasting 7am – 6pm Mondays- Saturdays. The hours are too long , and what are we supposed to believe? • If page v says "overall" traffic impact will be approx 3.9%, then page xiii says it will be a "minor increase 2%. • Page vi says 2 indigenous sites will be directly impacted by the proposed quarry, page xv says 1. The list goes on.

Use of desktop surveys and other off-site assumptive information accumulation	<ul style="list-style-type: none">• A review of the WAPC Planning bulletin No 64 suggests (page 19) that the site proposed for quarrying has no risk of acid sulphate soils (page 19). Has there been any on site soil sampling to "confirm this"? No. This is not acceptable.• A desktop survey by GHD to assess hydrology and groundwater resources has been conducted (page 19). Has there been any actual on site testing to confirm the veracity of this information?• A desktop survey method was used to assess the flora of the site (page 27) which was then "assessed" according to information dating back to 1980 (nearly 30 years old). We query the relevance of this and ask why a comprehensive on site survey was not done to provide valuable updated information.• Boral have been planning a quarry since...1998 and subsequent new studies in 2004. This more than adequate time to conduct high quality on site surveys that set a benchmark for currency and validity that is based on sound testing practices. It is disappointing that the opportunity for unique on-field research presented by such a significant lead time has been squandered.• DEC database (no on site survey) have led Boral to believe that no Threatened Ecological Communities (TECs) exist on the site. Only a thorough investigation on-site would prove this. ...The DEC database is assumptive and generalised.• No formal assessment to determine the presence of Dieback on site has been undertaken• A level 1 field survey of indeterminate length by GHD of fauna present on the site was conducted. A more in depth survey was not required as the results of the Hanson survey done in 2007 (which we considered to be inadequate in length and sampling) were considered applicable to the Boral site and therefore a level 1 survey (even briefer) was considered more than adequate(page 38). ...A look at the table of species (pages 38.39) shows the survey to be superficial and the species observed to be indicative of a brief visit only, and perhaps at a time when fewer animals were at large.• As a result of the Hanson's survey (based mainly on desktop information) no trapping was considered necessary (page 39) which confirms that the fauna survey undertaken, was cursory at best.• The safe routing of stormwater and contaminated water is based on the premise that shatter zones and preferred flow paths will not be encountered and are unlikely because this phenomenon did not occur at the Hanson's Quarry (page 56). Again assumptions made to sidestep the obligation for responsible on-site research.
Visual impact	<ul style="list-style-type: none">• Boral advises that the initial stages will need a "acoustic relief bund" to be constructed (page iv). Where, dimensions, permanent and will it be vegetated for concealment? Page xiii says it will be 8.5m high and be revegetated. Then page 72 (and repeated elsewhere) says it will be removed. Therefore, revegetation is unlikely. Therefore, the stark visual impact will continue. Other pages say that the bund could be 5m high if a large excavation was installed to house infrastructure. So what is the real outcome?• The quarry will be significantly visible to residents to the north and northwest of the site, who, suffering loss of amenity by Hanson activity, now will have their views compromised further (page v). Some of the quarry will be visible to the west. This is unacceptable.• ...the stockpile will be visible from Toodyay Rd. Levels provided in the absence of (honest) topographical maps (which have been asked for and not supplied) conflict and indicate that the exposure will be greater than Boral estimates.• As seen from Hanson and other Boral re-vegetation efforts, rehabilitation is inadequate as the task of trying to grow plants on near vertical faces in the in soil and extreme weather is all but impossible. The view of neighbouring properties will be forever compromised.

Noise	<ul style="list-style-type: none"> Boral admits noise levels will exceed regulatory guidelines during the initial construction and operational phases (how long?) until permanent infrastructure is installed (page iv) e into the pit. This will be many years of adverse noise impact on neighbours, as Boral pit will be considerably closer than the one proposed by Hanson Boral admit that the construction of the noise bund (above ground) will generate the greater noise impacts to surrounding areas (page iv) than allowed by regulation, greater than the initial construction phase of the pit. How long will this impact neighbours? The bund may be removed...Therefore it will be an ongoing source of excessive noise and aggravation for neighbours. Noise will be an issue as Boral are requesting some very long working hours: 5am-6pm Mondays to Saturdays (not that elsewhere in the Per they are requesting a 7pm closure) and possibly Sundays....the early hours will be disturbed by heavy haulage vehicles and on site loading and transport vehicles.... It is not right that they request such extended working hours without consideration of neighbours' right to peace and quite after working hours. Page 21 of the Noise Impact Assessment ...says that noise will exceed assigned daytime levels. ...Boral are arrogant and inconsiderate by expecting the community to put up with this. Construction activities may occur outside the assigned hours of 7am-7pm. Boral is not required to give advance notice of this. It is merely required to explain itself "the next business day". (page 72) This is unacceptable.
Light Pollution	<ul style="list-style-type: none"> In the winter, neighbours will be woken by bright lighting on dark mornings...ambience will be adversely affected by bright lighting , that , like Hanson's will illuminate the sky for miles around. This will be especially noticeable during the winter months when sunrise is later and sunset much earlier. Boral should be required to shorten their working hours during these months to give neighbours peace and quiet that is free from disturbance by high wattage lighting. Boral want to commence business at 5am. There will be an influx of employee vehicles with bright moving beams...Boral PER document does not explain what happens on site between the hours of 5-7am, 6 days a week, and possibly Sundays. Sunday operation should not be permitted under any circumstance.
Air Quality	<ul style="list-style-type: none"> The extractive activity classifies this area as "industrial" and therefore NEPM standards for air quality are not applicable or enforceable (page v)....Therefore there is no incentive to maintain acceptable dust levels. If everyone is allowed to act in this manner, the cumulative effect is undesirable for Gidgegannup and the surrounding bush environment.
Traffic	<ul style="list-style-type: none"> Boral estimate of additional 12 heavy vehicle movements per hour will increase the heavy truck traffic on Toodyay Road by 24\$. Boral base these figures on trucks carrying 30 tonnes at a time....a truck towing 2 trailers is required to transport this weight. In effect, although it constitutes "one vehicle" it is a double length vehicle....Note only are the trucks "double length" (the equivalent of 2 single trailer trucks) but these will not be the only configuration of vehicle to transport material from the quarry. Boral will not restrict truck size or length. ...The total forecast hourly movement of 12 (6 each of in and out) is vastly underestimated. The reality will be much worse. Again the cumulative effect of Midland Clay Pit expansion, Hanson Quarry extension and new Boral Quarry will manifest itself by its dangerous consequences on the residential community, whose right to safe travel is being totally ignored. The combination of accelerating downhill traffic, increased numbers of HEAVY vehicles (minimum 25 % increase depending on truck configuration), single lanes at the bottom of Red Hill, the rapid convergence of 2 lanes into a single lane on a step down hill sharp blind bend, is a recipe for disaster. We cannot believe that the authorities would consent to a significant increase in heavy vehicle movements on a road which is already overloaded, under maintained, constantly breaking down, has frequent serious and fatal accidents, without requiring the companies that cause this situation to make a significant contribution to the upgrade of services.

Indigenous matters	<ul style="list-style-type: none">• Boral want to “disturb” 2 sites (page vi). In this situation “disturb” means destroy. Boral say they have protect 2 other sites by altering the footprint and creating a 50m exclusion buffer zone. Boral clearly believe that offsets of indigenous sites (and environment) should allow them to “disturb” these 2 sites.• It is debateable whether they are of equal value....Boral clearly have no respect or understanding of the value of these sites. They are still “seeking permission” to “disturb” these sites.
Local residents – individual submissions (unnamed)	Local resident(s) #10: (submission # 21)
Adequacy of baseline studies	<ul style="list-style-type: none">• I argue that Boral Resources (WA) Ltd have not undertaken adequate work and environmental baseline studies to justify the approval of the Gidgegannup granite quarry development proposal.• In several sections of the PER there is insufficient data to support the conclusion that the development of the quarry will not significantly impact the environment and adversely affect the local community.• I have highlighted three sections of the PER in which conclusions are drawn in inadequate and potentially inaccurate data: Visual amenity, groundwater hydrology and fauna.• My concern is that the proponent has down-played and dismissed the potential impact of the proposed quarry on these three environmental aspects and may <u>mislead the public and the EPA by presenting an incomplete environmental picture.</u>
Overall objection to the proposal	<ul style="list-style-type: none">• It is my opinion that the submitted Boral request for approval for the Gidgegannup granite quarry should be denied. This suggestion also reflects my view that the proposed development is located near a growth region earmarked for future population expansion and housing development.• (from the conclusion) Boral’s request for the approval of the proposed Gidgegannup quarry should be denied. The submitted PER provides inadequate evidence that the local environment will not be adversely impacted by development. In addition parts of the report are inaccurate and do not provide enough data for the establishment of environmental baselines for future measurement of corporate performance.

Visual amenity	<ul style="list-style-type: none">Given that the site of the proposed quarry is located on the Darling Scarp adjacent to the Swan Valley, the visual amenity of the site is of high importance.The visual amenity of the site is not considered to be a key factor in the PER, as indicated in the Table of Contents.The PER contains only four pages of explanation and one figure to document this critical issue and provide no supporting appendices that explain the methodology employed or the limited conclusions presented. Without such documentation it is difficult to thoroughly assess the visual amenity of the proposed operations and it is also difficult to benchmark or measure compliance in the future.By providing inadequate documentation of the potential visual impacts of the Boral site and dismissing the view of the Scarp as a "background element" when observed from the Swan Valley to the northwest (Seen Area 3 description on page 89 and Figure 10), Boral does a disservice to its neighbours by treating a major issue as less than important.The view corridor towards the northwest will create a light-coloured scar that will be easily observed from a significant portion of the northern Swan Valley winery/restaurant lands and from hundreds of homes in Avely, Ellenbrook and other town further towards the northwest. None of this is shown in Figure 10, as the western boundary of the figure only extends 7km from the proposed quarry.The view line towards the north of the proposed development is of major concern, given that the WAPC has recommended western Gidgegannup as a potential site for the future O'Brien Township with more than 4000 people (WAPC, NE Perth Hills Settlement Plan – 2002 and Attachment 2).The contents of the PER do not contain a thorough study of the visual impact of the proposed Boral quarry development. I recommend that a comprehensive visual impact study be completed and shared with the public, prior to reaching a decision point on a quarry development.
Groundwater hydrology	<ul style="list-style-type: none">The PER does not contain enough facts upon which to form the conclusion that the local groundwater table will not be drawn-down or effected by quarrying. The concern is that any draw-down of the local groundwater table could adversely affect flow-rates in the bore holes of the local residents.Most of the data cited in the Hanson AquaTerra report, upon which the Boral PER draws heavily, is not based on data collected by Hanson and refers to the results of the Red Hill waste treatment facility bore hole and 5 other holes in Achaean granitic terrain that lie within 5km of the Red Hill quarry. Hence, many of the conclusions with regards to groundwater hydrology in the proposed Boral quarry area are based on the limited data of others and a bore hole that is located about 1km away at Red Hill. This bore may not be representative of the groundwater hydrology of Boral's intended quarry site.The company has not completed any of their own bore holes in the proposed quarry outline to measure depth to groundwater or inflow-rates within the fractured rock aquifer but rely on the limited data of others. This seems remiss and as for the lack of documentation concerning visual amenity, may indicate that Boral is reluctant to perform the adequate baseline work to assist in future measurement of the company's ability to operate in a sensitive environment.The PER does not provide a geological map of the area to demonstrate knowledge of the location of dolerite/diorite dikes and fracture/damage zones, which may focus groundwater flow paths and localize draw-down of the local groundwater table.Boral could be in error with regards to the inferred northerly trend of the diorite dikes on their property and have not demonstrated local geological evidence, such as an accurate geological map, to support their claim that "the compartmentalized groundwater system caused by the north-south trending dikes...would tend to limit east-west groundwater drawdown impacts" (page 20 in the PER).I would give more credence to the forward looking statements made in the PER concerning the lack of impact on the groundwater table and the bore water supply in nearby properties if the company collected and provided more data from their own site and indicated an understanding of the local geology, which directly effects groundwater hydrology.

Fauna	<ul style="list-style-type: none"> If both the requests of Boral and Hanson are approved and quarrying is allowed to commence in the manner forecasted by each company, then the combined zone of deforestation/land destruction, including the existing Red Hill waste treatment facility, will create a _4km wide (E_W) zone of restricted access for N-S faunal movement. In the best case scenario...there will exist only a 300m gap between Hanson and Boral operations.Boral states that there is a 705 gap between its proposed operations and the existing operations of Hanson. The statement in Appendix E is misleading. What studies have been undertaken as to the possible effect of restricting faunal movement along such a wide zone across the Darling Scarp? Boral states that it is committed to maintaining a fauna corridor along the western margin of the site (page 45 and Figure 8 in the Per). However, the width of the proposed offset that would allow for such a corridor is only 50m wide in this area (Figure 8).
Zoning & planning	<ul style="list-style-type: none"> The Perth metropolitan area is rapidly growing towards the hills. The WAPC has earmarked portions of the Gidgegannup area, near the proposed quarry, for future housing development. The approval the Boral Gidgegannup granite quarry would impact significantly on any future development in the area towards the north and northwest of the Boral site.
Alternative options	<ul style="list-style-type: none"> I believe the WA government should increase the area open to granite quarrying in the region and approve sites that do not lie near the Darling Scarp, which are easily seen by local communities. By encouraging materials companies to quarry further towards the East in relatively unpopulated, flat-lying areas surrounded by forest, many issues related to visual impact, dust and noise will be avoided.
Other	BGC (Australia) Pty Ltd (submission # 14)
Life of quarry	<ul style="list-style-type: none"> The proposal presented in the PER is of great significance to the local area for a number of reasons. Primarily this is due to its long term nature. If the quarry is approved it will significantly impede further development on neighbouring land holdings, possibly for the next 50 years, due to the restrictive planning guidelines for developments in the vicinity of quarries.
Inconsistencies in the PER / lack of clarity	<ul style="list-style-type: none"> Lack of clarity, uncertainty or a contradiction regarding the rate of extraction The PER describes a proposal consisting of a 28ha quarry to be mined at a maximum rate of 500 00t per year. This is not consistent with information found elsewhere in the document...In appendix A of the PER ...the project is described as a quarry that will reach a depth of 100m below ground level and extract 9M tonnes of rock over 10-12 years (figure 1 – proposed quarry site). This equates to an annual extraction from year on of operations of between 750,000 and 900,000 tonnes. Based on the information contained in the report and as the proposal includes a significant ramp up period during the initial years, following start up, annual output would be significantly more than this at the end of the period. Section 2 of the PER however contradicts this and states that the annual output will ramp up to a maximum of 0.5M tonnes per annum. This inconsistency is highly significant as the EPA has been asked to assess the environmental impact of a quarry operation with an annual output of 0.5M tonnes. Clearly the environmental impacts ...will be significantly less than impacts associated with a quarry producing in excess of 1.0M tpa. ...there is an obligation of the proponent to transparently state what are its plans in respect to the trajectory of output levels over time.

Inconsistencies in the PER / lack of clarity	<ul style="list-style-type: none"> Ambiguity regarding the size of the resource The inconsistencies in the document are not limited to the rate of extraction; resource volume has also not been clearly defined. ...Section 2 of the PER states that the resource is finite and at a consumption rate of 0.5M tpa the quarry will have a 50 year life. This indicates a total resource of 25M tonne... in Appendix A and Section 2 of the PER however describe the quarry as having an area of 28ha and a maximum depth of approximately 100m...Based on this area and depth, the actual available volume of resource, allowing for pit layout is approximately 222M m³ which equates to approximately 50M tonnes, potentially double the yield that is the subject of the PER assessment process. Insufficient detail regarding the operation of the quarry and seasonality factors which will impact on traffic and air and ground emissions.
Alternative options	<ul style="list-style-type: none"> Lack of consideration to alternative resources locations that may be more appropriate for the identified intended markets. There is no justification provided in the document that adequately explains why Gidgegannup is amore suitable resource than their Morangup...site, which is an existing quarry and has access to rail freight. No mention is made in this document that this resource is currently being utilised. There is no evidence provided in the document that the proponent has considered alternate resource locations to the north of Perth which would offer a more direct route to its intended market.
Cumulative impacts	<ul style="list-style-type: none"> Contemporaneous clay extraction from the site and its impact on the proposed hard rock Quarry activities. The PER also states that clay extraction may occur on the site in the future by Midland Brick Company, the current land owner, however the contribution to dust from either existing clay extraction or future extraction has not been considered. Future clay extraction sites have not been identified and therefore the impact of this activity on the operation of the quarry cannot be assessed nor can the potential impacts of the two activities occurring contemporaneously
Level playing field	<ul style="list-style-type: none"> The dust assessment shows that the NEPM 24 hours PM10 may be exceeded at the property boundary and the PER states that the "NEPM standards are not applicable" because the receivers are the Red Hill Disposal Facility and the Hanson Quarry which are both industrial sites and are sources of dust emissions. The BGH Voyager II Quarry has a set level at the boundary which is not allowed to be breached at any time. ...Ambient dust standards should be consistent for all comparable industry... Noise modelling shows that there will be exceedences prior to the plant being 20m below natural ground level. BGC Voyager II Quarry could not operate until the plant was 30m below natural ground level. There should be consistency in conditions imposed on all quarry operations. [re noise measurement]...To ensure consistency with recent quarry approvals there should be the same level of monitoring required of future proposal, therefore similar conditions should be imposed on the Gidgegannup Granite Quarry Proposal. The proposed offsets for the Gidgegannup Granite Quarry proposal are significantly less than they are for the BGC Voyager II Quarry... The PER details strategies for the management of topsoil including that "topsoil will be stockpiled and respread over the batter slopes of the Quarry to encourage rehabilitation after completion of each phase". The condition imposed on the BGC Voyager II Quarry,...details that "the proponent shall not stockpile overburden and topsoil onsite except in exceptional circumstances"...This condition has been imposed in response to the view that stockpiling has the potential to decrease endemic native seed viability.

Air quality (Dust)	<ul style="list-style-type: none"> ...there is no mention of whether Boral will be conducting dust monitoring as a proposed management tool. If monitoring is to be conducted then it would also be sensible to conduct directional monitoring to ensure dust emissions are being recorded from the correct quarry and not from neighbouring activities. The combination of potential dust emissions from both sites, particularly if not in accordance with relevant standards may only exacerbate the problem, especially in the vicinity of Boral's Lot 51. The PER also states that clay extraction may occur on the site in the future by Midland Brick Company, the current land owner, however the contribution to dust from either existing clay extraction or future extraction has not been considered. Future clay extraction sites have not been identified and therefore the impact of this activity on the operation of the quarry cannot be assessed nor can the potential impacts of the two activities occurring contemporaneously.
Noise, blasting and vibration	<ul style="list-style-type: none"> The risk assessment blasting Operations...states that the "proposed quarry starter pit is designed to be at a distance of approximately 100m from the Toodyay Road and associated services that are within the road reserve". Theoretical flyrock on a 102mm hole is 655m and on an 89mm hole is 598m...With this in mind, will the usual 600m exclusion zone still apply? Air blast overpressure has been calculated to be of a maximum of 125 dBI at sensitive sites. This may have an impact on unsuspecting drivers along Toodyay Road.
Fauna	<ul style="list-style-type: none"> Significant fauna ...The Report for Gidgegannup Quarry, Referral under EPBC Act (December 2009) states that field inspection was undertaken on the 2nd December 2008..."to assess the potential usage of the site by Carnaby's Cockatoos. No birds were seen on the site and the trees assessed for usage." Birds Australia WA ...state that "Carnaby's Cockatoos are believed to breed mostly in the wheatbelt, returning to coastal and near coastal areas from late December to July". If this is the case then the timing of the field assessment may not have been at the most opportune time for sightings of Carnaby's Cockatoos and the assessment should have been conducted later in December or more preferably in late January to February.
Flora and vegetation	<ul style="list-style-type: none"> Topsoil management: <ul style="list-style-type: none"> The PER details strategies for the management of topsoil including that "topsoil will be stockpiled and respread over the batter slopes of the Quarry to encourage rehabilitation after completion of each phase". The condition imposed on the BGC Voyager II Quarry,...details that "the proponent shall not stockpile overburden and topsoil onsite except in exceptional circumstances"...This condition has been imposed in response to the view that stockpiling has the potential to decrease endemic native seed viability. Rehabilitation has been described as to be done after completion of each phase. However, in the case of the proposed Gidgegannup quarry, this would not be able to be achieved until completion of the entire project due to the excavation area being an open pit.
Transport impacts	<ul style="list-style-type: none"> A more detailed traffic assessment is required which considers the seasonality of output and specifically considers daily peak vehicle movements. In addition since the site is primarily a clay extraction site...the impact of clay trucks entering and leaving the site should also be considered when assessing the impact of traffic on Toodyay Road.This assessment may reveal that at certain times the capacity of Toodyay road to handle the additional traffic is exceeded particularly if seasonality factors and clay extraction...are discussed. ...any increase above 500 000 tonnes per annum will further aggravate traffic congestion on Toodyay Road. Any development of haulage based industry in this location will cause significant impacts on local traffic due to the immediate proximity to existing hard rock quarry, clay quarries and waste disposal site. This proposal details an increase in heavy vehicle traffic of 25% onto an already overburdened road system. The existing road infrastructure currently struggles to manage the existing traffic loads. The PER does not appear to have taken into consideration the increase in traffic from the proposed Port Bouvard Gidgegannup townsite development.