

ASSESSMENT REPORT

PEPPERTREE QUARRY
Site Layout and Infrastructure Modification
(06_0074 Mod 2)

1 BACKGROUND

Boral Resources (NSW) Pty Ltd (Boral) owns the Peppertree Quarry (formerly known as Marulan South Quarry), located approximately 10 kilometres (km) southeast of Marulan (see Figure 1). On 28 February 2007, the then Minister for Planning granted project approval for the construction and operation of the Marulan South Quarry Project. The project approval was subsequently modified in March 2009 to establish an exploratory test pit within the approved quarry footprint (see **Appendix A**).

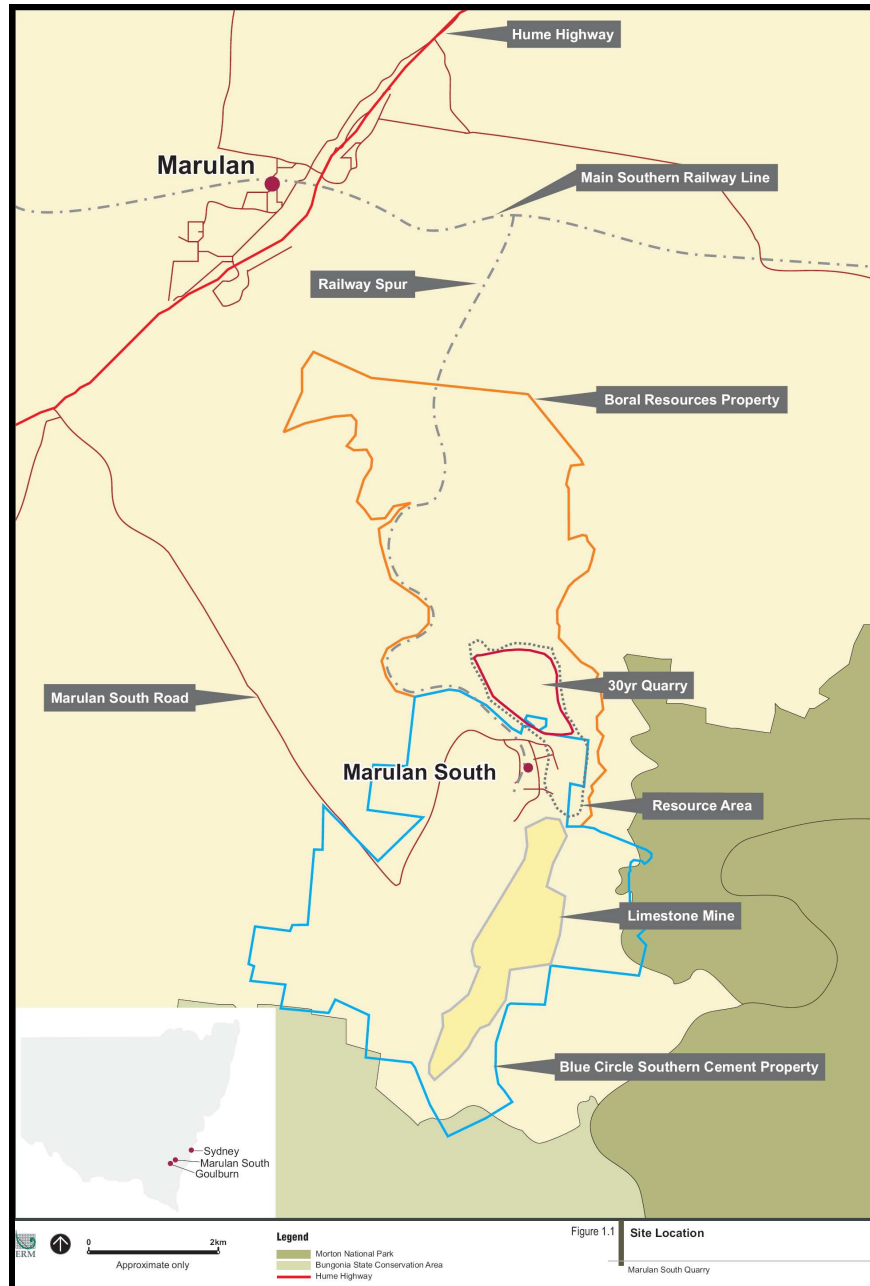
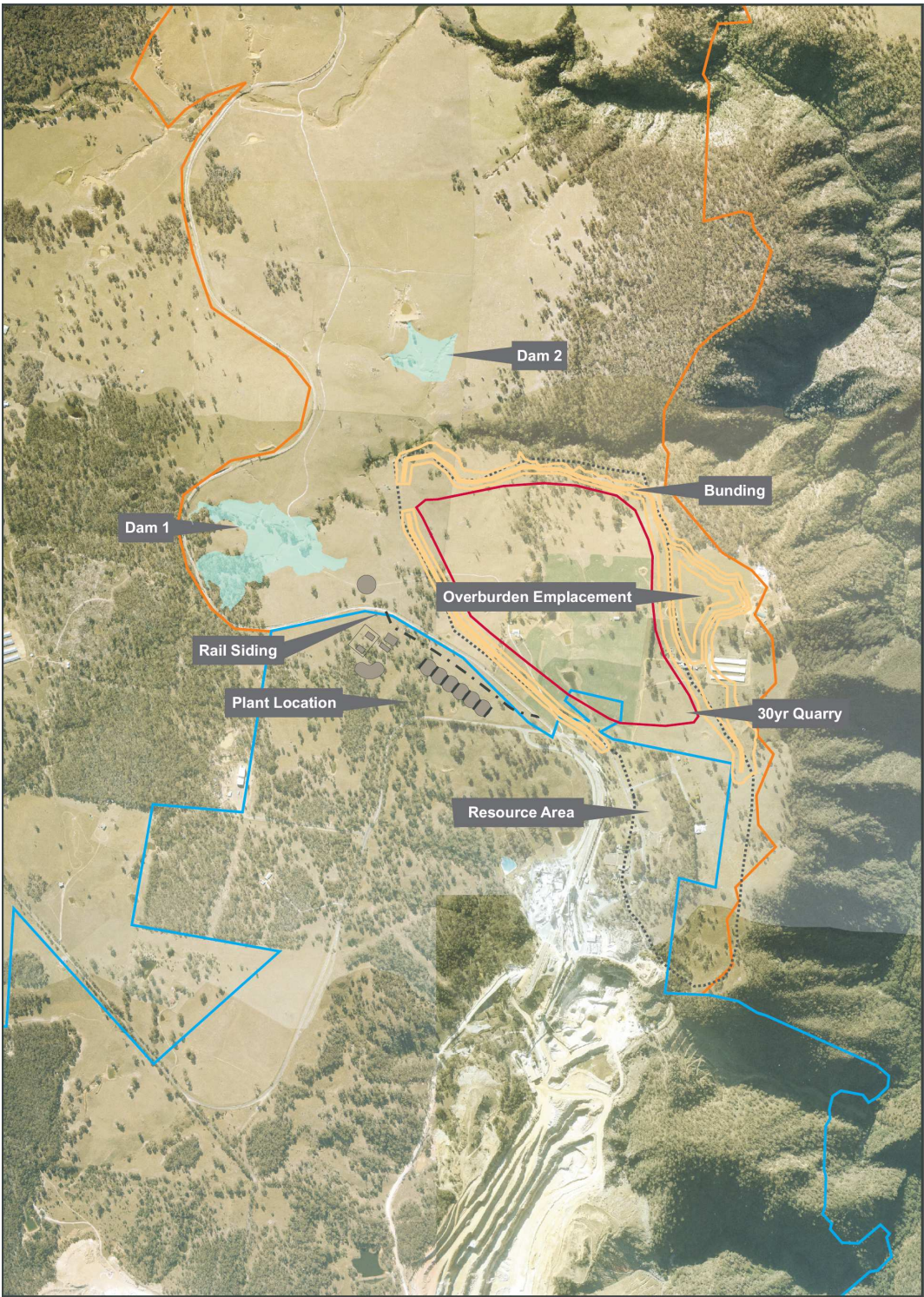


Figure 1: Quarry Location

The modified approval allows the extraction of a granodiorite resource of 105 million tonnes over a 30 year period, with the production of up to 3.5 million tonnes per annum (Mtpa) of quarry products (hard rock, aggregate and manufactured sand). The approval also involves the construction and operation of a processing plant, rail loading facility, and water management system; and transportation of the quarry products by rail to the Sydney construction materials market. The approval is due to lapse in 2038. The quarry is partially constructed and is expected to commence operations in 2013. A plan depicting the approved quarry layout is provided in Figure 2 below.



ERM 0 500m
Approximate only

Legend

- Proposed Dam Locations
- Boral Resources Property Boundary
- Blue Circle Southern Cement Property Boundary
- Resource Boundary
- 30 Year Resource Boundary
- Proposed Bunding and Overburden Placement

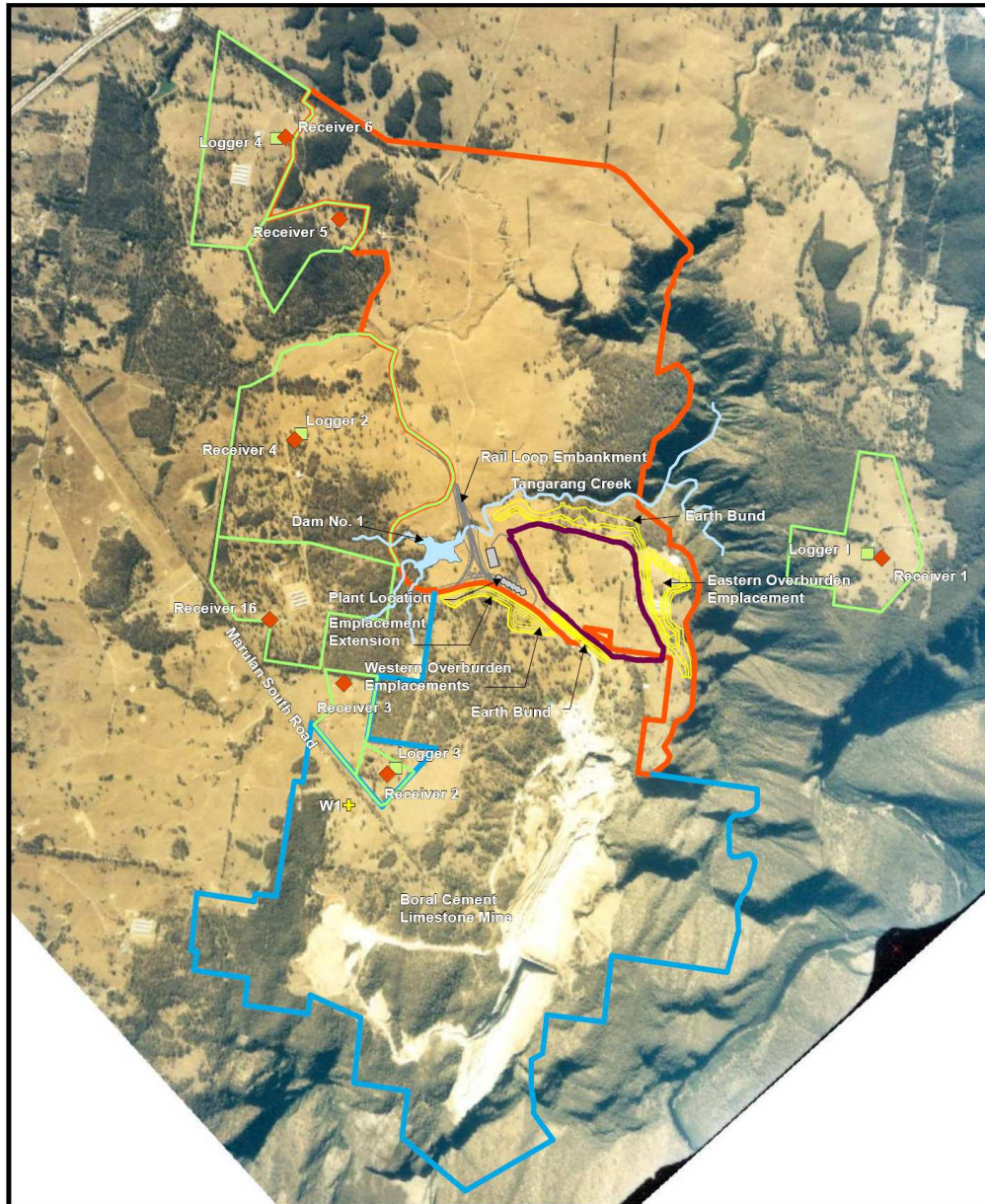
Figure 7.1 Location of the Proposed Development
Marulan South Quarry

Figure 2: Approved Quarry Layout

The quarry site is bounded by Boral Cement's limestone mine and works to the south, Boral Cement's railway line to the west, and the Barbers Creek gorge and Morton National Park to the east.

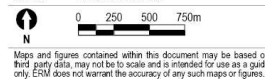
A small number of rural properties are located to the north and west of the site including poultry farms, limestone processing industries and a fireworks factory. Since project approval, a new residential dwelling has been constructed in the immediate vicinity of the project site (Receiver 16 – see Figure 3). The railway line separates these properties from the project site. Rural residential properties are also located to the east of the project site, separated from it by the Barbers Creek gorge.

The railway line on the western boundary of the project site joins the Main Southern Railway Line at Medway Junction, to the east of Marulan, and the road network in the vicinity of the site is dominated by Marulan South Road and the Hume Highway.



- Legend**
- ◆ Receiver Locations
 - Noise Logger Locations
 - ⊕ Weather Station
 - Quarry Location
 - Boral Cement Property Boundary
 - Boral Peppertree Property Boundary
 - Proposed Dam Location
 - Proposed Plant Location
 - Cadastre
 - Tangarang Creek

Client:	Boral
Project:	Peppertree Quarry
Drawing:	0118026s_Sect75W_G016_R0.mxd
Date:	27/10/2011
Drawn By:	SQW
Reviewed By:	RS
Projection:	GDA 1994 MGA Zone 56
Scale:	Refer to scale bar



Maps and figures contained within this document may be based on third party data, may not be to scale and is intended for use as a guide only. ERM does not warrant the accuracy of any such maps or figures.

Figure 5.1
Location of Noise Receivers
 Environmental Resources Management Australia Pty Ltd
 Brisbane, Canberra, Hunter Valley, Melbourne, Perth,
 Port Macquarie, Sydney



Figure 3: Proposed Quarry Layout and Receiver Locations

2 PROPOSED MODIFICATION

On 23 March 2011, Boral applied to modify its project approval under section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act). A detailed design study undertaken by Boral has identified potential improvements to the layout of the site infrastructure. The proposed modifications are depicted in Figure 3 and described in full in the Environmental Assessment (EA) submitted in support of the application (see **Appendix B**). The proposed modifications and their merits are discussed below.

Rail Loop and Embankment Construction

The proposed rail loop and embankment would be constructed off the existing Boral Cement railway line and allow for the separation of rail movements from Boral Cement's limestone mine and the Quarry, providing flexibility in the event of disruptions to planned scheduling. By reducing the use of the existing curved railway line, the rail loop would provide greater separation distance from residential receivers.

Relocation of Rail Loading Facility, Tertiary Processing Plant and Stockpiling Areas

The rail loading facility, processing plant and stockpiling areas would be moved adjacent to the proposed new rail loop and would be located approximately a further 250 metres (m) away from the most affected residential receiver, reducing noise and dust impacts at receivers located to the southwest.

Overburden Emplacement Construction

The proposed overburden emplacement to the west of the quarry pit includes an extension to form a bund which would shield surrounding receivers from quarry emissions and would be approximately 30 m high with a capacity of approximately 1 million cubic metres. It would be constructed predominantly within areas previously approved for the construction of the tertiary processing plant and rail loading facility, and would provide for additional overburden storage, substantially reducing the volume of overburden required to be transported to the southern pit of the limestone mine, reducing associated dust emissions by a significant 85% at full production. The overburden emplacement would also allow for operational flexibility to control noise and dust during adverse wind conditions by directing overburden trucks to either the western or eastern emplacements, minimising potential noise and dust impacts on nearby receivers.

Water Storage Dam Reduction

The proposed substantial reduction in the capacity of the main water storage dam (Dam 1) from 245 megalitres (ML) to 112 ML reflects predicted reductions in the project's water use but still provides sufficient capacity to service predicted water demand, with minimal potential for water shortages during periods of dry weather. The reduced dam capacity would reduce the dam footprint, reducing the existing approved removal of 2.6 hectares (ha) of Box Gum Grassy Woodland by 0.8 ha.

Inclusion of Additional Residential Receiver

The proposed inclusion of a newly constructed residential dwelling (Receiver 16) in the project approval would allow its potential impacts from the project to be taken into account and appropriate impact assessment criteria applied to emissions.

3 STATUTORY CONTEXT

3.1 Consent Authority

The Minister has delegated his functions to determine Part 3A applications to the Department where:

- the local council has not made an objection, and
- there are less than 25 public submissions objecting to the proposal, and
- a political disclosure statement has not been made in relation to the application.

There have been 2 submissions received from the public and council has not made an objection to the proposal. There has also been no political disclosure statement made for this application or for any previous related application, and no disclosure has been made by any person who has lodged an objection to this application. Accordingly the application is able to be determined by the Director, Mining & Industry Projects under delegation.

3.2 Modification

The existing project is a transitional Part 3A project for the purposes of clause 3 of Schedule 6A of the EP&A Act, and consequently section 75W of the Act, as in force immediately before its repeal on 1 October 2011 and as modified by Schedule 6A, continues to apply to modifications of the project.

The proposed changes associated with the modification application would not change the purpose of the project for which approval was originally granted, namely as a quarry. In addition, the modified project would remain within the approved quarrying footprint, and there would be no change to the approved life

of the quarry. The Department is satisfied that the proposed changes can be appropriately considered under section 75W as an application to modify the existing project approval.

4 CONSULTATION

Under section 75W, the Department is not required to advertise the application. However, after accepting the EA for the proposed modification, the Department:

- made the EA publicly available on the Department's website;
- notified relevant State and local government authorities by letter; and
- notified adjoining property owners and previous objectors by letter (organised by Boral).

The Department received 8 submissions on the proposal including (see **Appendix C**):

- 6 from public authorities; and
- 2 from the general public.

A summary of the issues raised during the consultation process is provided below.

4.1 Public Authorities

The **Office of Environment & Heritage** (OEH) raised concerns in relation to potential noise impacts and impacts on biodiversity. Additional information provided by Boral has addressed these concerns and the OEH has subsequently indicated that it is able to support the project, subject to the adoption of a range of recommendations in relation to noise and biodiversity.

The **Department of Trade & Investment, Regional Infrastructure & Services** (DTIRIS) did not object to the proposal but advised that a riparian buffer zone should be established and maintained at least 20 m on either side of Tangarang Creek downstream of the proposed rail embankment.

The **NSW Office of Water** (NOW), part of the Department of Primary Industries, did not object to the proposal but advised that Boral must adhere to its existing *Water Act 1912* licence, and recommended conditions of approval in regards to preparation of surface water and groundwater management plans, licensing and maintenance of riparian buffers.

The **Sydney Catchment Authority** (SCA) did not object to the proposal but advised that it should be constructed and operated in a manner that does not affect the quality of ground and surface water beyond the boundaries of the site. The SCA also recommended that the Water Management Plan should be updated to reflect the proposed modifications.

The **NSW Heritage Council** did not object to the proposal.

The **Australian Rail Track Corporation Ltd** (ARTC) did not object to the proposal and noted that the proposed rail siding does not include any works within the ARTC rail corridor.

Goulburn Mulwaree Council did not make a submission on the proposal.

4.2 Community

Two submissions were made by members of the public, with one objecting to the modification application. The submissions expressed concerns over Boral's assessment of the impacts of the proposal. One submission was in the form of four successive letters, which focussed on a perceived insufficient buffer zone between the submitter's property and the quarry and assertions that the modification EA contained anomalies, inconsistencies and factual errors. Boral provided a specific and comprehensive response to these submissions on 25 October 2011 (see **Appendix D**). In later telephone submissions, the same submitter drew the Department's attention to a clear error in the scale used on a number of figures included within the project's original EA. One of these figures was included in the current project approval, again with the scaling error. Boral has subsequently acknowledged this error and provided an amended figure for inclusion in modified conditions of consent.

Boral has subsequently provided formal responses to the issues raised in submissions (see **Appendix D**). The Department has considered all issues in the submissions and Boral's response to these issues in its assessment.

5 ASSESSMENT

5.1 Noise

The EA includes an assessment of existing noise levels and potential noise impacts associated with the modification, undertaken by Environmental Resources Management Australia (ERM) in accordance with the *NSW Industrial Noise Policy* (INP).

The assessment found that the proposed modification would result in an increase in noise at surrounding noise receivers. Typical overburden operations would involve even distribution of the overburden fleet hauling to, and dumping at, both the eastern and western emplacements. To reduce the potential for noise exceedances, Boral proposed to manage overburden operations by alternating the haulage of trucks to either the Eastern or Western Overburden Emplacements, depending on wind direction. In addition to the noise mitigation measures proposed for the original project, Boral proposed to refine on-site noise mitigation measures and plant operating procedures where practical.

Even so, the assessment found that the proposed modification, particularly during specific overburden operations during the daytime shift (7.00 am to 7.00 pm), would cause minor exceedances of the existing noise impact assessment criteria during calm conditions by 1 dB(A) at Receivers 1 and 5. When undertaken under prevailing wind conditions, similar operations would cause exceedances of up to 3 dB(A) at multiple receivers. Processing, rail loading and product transportation during the night-time shift (7.00 pm to 7.00 am) would cause an exceedance of 1 dB(A) at Receiver 3 during prevailing wind conditions. Boral therefore proposed that increased noise limits for Receivers 1, 2, 3, 4 and 5 be incorporated into the project approval.

OEH did not support Boral's proposed increased noise limits and recommended that the originally approved noise impact assessment criteria should not be increased. Boral has since reviewed the significant noise contributing mobile equipment and their respective noise emissions and operational needs with respect to loading and overburden operations, and has revised the noise model first applied to the modification. The revised noise model results showed that, with the substitution of quieter loading equipment for overburden and extraction operations and the application of additional mitigation to mobile equipment, additional noise reductions could be achieved and the existing noise impact assessment criteria could be complied with (broadly speaking) during prevailing weather conditions. That is, predicted noise levels are within 2 dB(A) of existing criteria for all residential receivers, which is in accordance with the INP. Boral has therefore accepted that existing noise impact assessment criteria for Receivers 1, 2, 3, 4 and 5 should not increase. The OEH is satisfied with this approach.

The Department has recommended a condition requiring Boral to develop and implement a comprehensive noise management system that uses a combination of predictive meteorological forecasting and noise monitoring data to guide the day-to-day planning of quarrying operations, and the implementation of both proactive and reactive noise mitigation measures to ensure compliance with noise impact criteria and other relevant conditions. The Department believes that a proactive, effectively-implemented system would act as an early warning system to identify and manage potential exceedances and thus reduce potential exceedances. The noise management system would form part of a comprehensive Noise Management Plan for the project, which would also allow the Director-General to direct the use of real time and supplementary attended noise monitoring if required.

An additional residential dwelling (Receiver 16) has been constructed since the project approval, in close proximity to the quarry (see Figure 3). This receiver was not able to be considered in the original noise assessment and is therefore not currently subject to appropriate noise performance criteria under conditions 4 and 5 of the project approval. Boral has proposed to incorporate the new receiver into the project approval with a practical and achievable Project Specific Noise Limit (PSNL) derived in accordance with INP methodology and reflective of the ambient noise environment. Receiver 16 is in close proximity to Receiver 3 and is a similar distance from Marulan South Road which is considered to be the primary non-industrial contributor to existing background noise at these locations. Therefore the Relative Background Level (RBL) of 34 dB(A) $L_{A90(15 \text{ min})}$ and resulting PSNL of 39 dB(A) $L_{Aeq(15 \text{ min})}$ (ie RBL + 5 dB(A)) determined for Receiver 3 is considered to also be appropriate for Receiver 16.

The application of this derived daytime PSNL for Receiver 16 would result in an exceedance by the project of up to 2 dB(A). This exceedance is attributable to overburden operations in the proposed western emplacement and would only be experienced when northeast winds are approaching 3 metres per second. The existing operational noise impact assessment criteria in the project approval are based on either applying PSNLs or else the actual operational noise emission levels which could realistically be achieved. Boral has proposed a noise impact assessment criterion of 41 dB(A) $L_{Aeq(15 \text{ min})}$ at Receiver 16 for daytime operations. OEH supports this proposed noise limit and has recommended a noise limit of 35 dB(A) $L_{Aeq(15 \text{ min})}$ for night time operations, which is consistent with that for all other noise receivers. The

assessment also identified that the maximum operational noise levels at Receiver 3 would decrease by 2 dB(A) to 42 dB(A) $L_{Aeq(15 \text{ min})}$ for daytime operations, and it is proposed to reduce the relevant criterion in the project approval by a similar amount.

The Department is satisfied that Boral has assessed the potential noise impacts of the modification in accordance with the relevant guidelines. No residential receiver is predicted to be subject to noise emissions greater than 5 dB(A) over the assessed PSNLs, and consequently no residential receiver can receive the benefit of conditions permitting land acquisition at the request of the landowner.

The Department has recommended that the proposed noise impact assessment criterion for Receiver 16 is incorporated into the project approval and the criterion for Receiver 3 is decreased for daytime operations to reflect predicted improved project environmental performance. Overall, the Department is satisfied that, with implementation of a comprehensive Noise Management Plan including noise monitoring and an active management system which includes an early warning alert system to identify and manage potential exceedances, the impacts of the modified project would be appropriately minimised, managed and monitored to ensure compliance with the noise limits. The Department has also recommended that conditions concerned with land acquisition and independent review of impact assessment criteria exceedance be updated, to reflect current standard conditions.

5.2 Air Quality

The EA includes an assessment of potential air quality impacts associated with the modification, undertaken by PAEHolmes, and based on the maximum production rate of 3.5 Mtpa, to reflect the worst-case dust conditions.

The modification would result in the potential for wind erosion from the proposed western emplacement area, which would add a further 3.5 ha of exposed area, leading to additional dust emissions of approximately 11,519 kilograms per year (kg/year). Wind erosion from the proposed areas of additional bunding around the extraction pit would also add approximately 8,611 kg/year of dust emissions.

The proposed modification's potential dust emissions would be offset by the proposed shortened route of overburden and weathered material haulage on unsealed roads. The approved project includes hauling such material to the south pit of Boral Cement's existing limestone mine, south of the project site (approximately a 14 km return trip). Boral has proposed to haul overburden and weathered material to the proposed western emplacement area instead (approximately a 2 km return trip), reducing haulage dust emissions by 85%; a reduction of approximately 495,000 kg/year at full production. The proposed relocation of the tertiary crushing plant an additional 250 m further away from Receivers 2 and 3 would also reduce the potential for short term exceedances of the 24-hour PM_{10} impact assessment criterion.

The assessment predicted that, under the proposed modification, annual average PM_{10} , Total Suspended Particulates (TSP) and dust deposition levels would not exceed the approved air quality impact assessment criteria and would be generally similar to those of the original project, with some receivers experiencing a slight increase in dust levels and others a slight decrease.

The assessment also predicted cumulative air quality impacts of the combined effects of the modified project, the limestone mine and other local sources of dust. A conservative approach was adopted for the assessment of cumulative impacts in the modeling with the addition of background monitoring and a modeled contribution from the limestone mine. This involves an element of double counting as the existing emissions from the limestone mine are already included in the background monitoring data.

The results showed that the cumulative annual average PM_{10} , TSP and dust deposition levels would also not exceed approved air quality impact assessment criteria and would be generally similar to those of the original project. The assessment also predicted 24-hour average PM_{10} cumulative impacts for the modified project. This involved adding the same synthetic data set, used in the original EA, for each 24-hour period to the model predictions for operations at the modified project and limestone mine, for the closest receivers (Receivers 2, 3 and 16). This modelling predicts an isolated number of exceedances of the $50 \mu\text{g}/\text{m}^3$ criterion at each of these receivers: 3 days per year for Receiver 2; 5 days per year for Receiver 3; and 1 day per year for Receiver 16. The maximum modelled exceedance is $15 \mu\text{g}/\text{m}^3$.

PAEHolmes notes that the original project also exceeded the $50 \mu\text{g}/\text{m}^3$ increment criterion and considers the new assessment to be conservative, given that a proportion of the limestone mine emissions are already captured in the monitoring data, leading to the double counting mentioned above. To seek to overcome this problem, the same model was rerun with the modified project's operations only (ie excluding the limestone mine), with the results showing no exceedances of the $50 \mu\text{g}/\text{m}^3$ 24-hour average PM_{10} level. PAEHolmes considers the actual cumulative 24-hour average PM_{10} concentration lies somewhere between these two scenarios. The Department acknowledges the inherent conservatism of the model and considers that Boral would need to cautiously operate the modified quarry at a level that

would ensure that the cumulative 24-hour average PM₁₀ air quality criterion is not exceeded at Receivers 2, 3 and 16.

Accordingly, the Department has recommended a condition requiring Boral to develop and implement a comprehensive air quality management system that uses a combination of predictive meteorological forecasting and air quality monitoring data to guide day-to-day planning of quarrying operations and the implementation of both proactive and reactive air quality mitigation measures to ensure compliance with air quality impact criteria and other relevant conditions. The Department believes that a proactive, effectively-implemented system would act as an early warning system to identify and manage potential exceedances and thus reduce potential exceedances.

The air quality management system would form part of a comprehensive Air Quality Management Plan for the project, which would include an air quality monitoring program which uses a combination of high volume samplers and dust deposition gauges to evaluate the performance of the project and support the air quality management system. It would also allow the Director-General to direct the use of real time air quality monitoring if required. The Department has also recommended that the project's other air quality conditions are updated to reflect current best practice for the regulation of air quality.

Boral considers potential air quality impacts of the construction of the proposed infrastructure modifications would not significantly alter potential emissions associated with the approved construction activities and would be managed through the implementation of appropriate construction site management measures and the approved mitigation measures, which include watering stockpiles and keeping exposed areas to a minimum.

The Department is satisfied that Boral has conservatively assessed the potential air quality impacts of the modification in accordance with relevant guidelines. The Department considers that the proposal is unlikely to result in significant air quality impacts, subject to the continued implementation of existing dust mitigation measures. Overall, the Department is satisfied that, with implementation of a comprehensive Air Quality Management Plan, the impacts of the modified project would be appropriately minimised, managed and monitored to ensure compliance with appropriate air quality limits.

5.3 Other Issues

The Department's assessment of five other significant issues is summarised in the table below. All other issues have been reviewed by the Department and are considered to have negligible environmental impacts over and above those already assessed and approved for the project, and do not warrant discussion in this report or further management measures or conditions.

Issue	Consideration
<i>Flora and Fauna</i>	<p>The modification would involve the clearing of additional areas of vegetation, however would not create additional impacts to those previously assessed for the original project.</p> <p>The revised site for the site infrastructure is located within areas of exotic grassland and isolated stands of trees. The proposed new bund extending the Western Overburden Emplacement would result in the removal of some scattered trees lying in areas that mark the transition to Box Gum Grassy Woodland, which is an endangered ecological community listed under the <i>Threatened Species Conservation Act 1995</i> and a critically endangered ecological community listed under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>. Boral has therefore proposed fencing the adjacent Box Gum Grassy Woodland prior to constructing the bund to ensure it is not disturbed. OEH supports this measure. The Department has recommended conditions requiring clear and secure marking out of the boundary of the proposed emplacement and bund, to avoid disturbing Box Gum Grassy Woodland and other native vegetation.</p> <p>To minimise potential impacts on native fauna, the Department has also recommended conditions requiring Boral to only undertake clearing of vegetation on the site of the Western Overburden Emplacement and bund following recent fauna survey undertaken by a suitably qualified expert. Related conditions require Boral to seek to avoid clearing during the breeding season for birds and bats (August to November).</p> <p>The construction of the proposed rail loop and embankment would cut across an approved Habitat Management Area (HMA). The purpose of the HMA is to compensate for the clearing of 2.6 ha of Box Gum Grassy Woodland to construct a water storage dam (Dam 1). The existing project approval requires the HMA to be established around remnant Box Gum Grassy Woodland to be retained in the northwest of the site and to include a 20 m wide buffer around the periphery of Dam 1 and Tangarang Creek. The HMA would involve establishment of tree, shrub and groundcover species which are characteristic of the Box Gum Grassy Woodland community. It would have the benefit of improving the east-west vegetation link along Tangarang Creek between the woodland vegetation to the west and northwest of the railway line and project site and the vegetation in Barbers Creek gorge and Morton National Park to the east.</p>

Issue	Consideration
	<p>The proposed reduction in the footprint of Dam 1 would reduce the existing approved removal of 2.6 ha of Box Gum Grassy Woodland by 0.8 ha (over 30% reduction). This reduction could permit Boral to seek approval to reduce the size of the HMA, although Boral has proposed to retain the HMA's overall size (12.5 ha) by substantially widening the required 20 m wide buffer on the southern dam wall. The reconfigured HMA would still include the establishment of a 20 m wide buffer around the remaining periphery of Dam 1 and Tangarang Creek and the modified project would remain compliant with condition 24 of the project approval, providing an environmental flow to Tangarang Creek that is equivalent to 10% of average daily flows. This would ensure the ecological impact of reduced water flows to downstream flora and fauna would remain minimal.</p> <p>The Department acknowledges that the east-west link would be intersected by the proposed rail loop and embankment but is satisfied that Boral's proposal to compensate for this impact through the retainment of the approved HMA size and substantial widening of the 20 m wide buffer is a suitable offset. Train movements on the railway line would be limited, and a culvert will permit movement of aquatic and other species along the creek beneath the embankment.</p> <p>Given that the proposed infrastructure would be constructed within areas of exotic grassland and isolated strands of trees, and that no significant stand of native vegetation would be impacted, the Department is satisfied that the potential clearing impacts of the modification would be minor. The Department is also satisfied that Boral would be able to avoid potential impacts to fauna utilising the areas of the proposed modification, by carrying out the required fauna survey and limiting clearing to approved periods, and that with the implementation of an updated Landscape and Rehabilitation Management Plan, the impacts of the modified project on flora and fauna would be appropriately minimised and managed.</p>
<i>Surface Water</i>	<p>The modification would result in the reduction of the size and capacity of the approved water storage dam (Dam 1).</p> <p>The Shoalhaven River and its tributaries are subject to an Order made under section 22BA of the <i>Water Act 1912</i>, which effectively places an embargo on new water entitlements within the catchment, to protect existing water supplies and environmental flows. Boral has therefore re-assessed its overall site water demand and has reduced its earlier estimates of maximum yearly water usage from 255 megalitres per year (ML/year) to 145 ML/year (equates to a 43% reduction in overall site water demand). This would allow the capacity of Dam 1 to be substantially reduced, from 245 ML to 112 ML, with the reduced dam size still providing sufficient capacity to service predicted water demand, with minimal potential for water shortages during periods of dry weather. Boral has also resolved potential licensing issues through the purchase and transfer of existing licensed surface water allocations, resulting in the modified project having a negligible impact on total water supply within the Shoalhaven catchment.</p> <p>The modified project would cause an average reduction in catchment flows of approximately 189.8 ML/yr, equating to less than 0.8% of the total flow within the Shoalhaven River, and again remain compliant with condition 24 of the project approval, providing an environmental flow to Tangarang Creek that is equivalent to 10% of average daily flows.</p> <p>The SCA considers that the proposal has the potential to achieve a neutral effect on water quality, provided that the project Water Management Plan is updated to reflect the proposed catchment areas, drainage paths and basin sizes. Boral has since provided an updated Water Management Plan as part of its response to submissions report.</p> <p>Given that the surface water requirements of the project would be reduced under the proposed modification and that no additional impacts are predicted, the Department is satisfied that the potential surface water impacts of the modification would be positive and, with the implementation of the updated Water Management Plan, any potential surface water impacts of the modified project would be appropriately minimised, managed and monitored.</p>
<i>Aboriginal Heritage</i>	<p>The modification has the potential to impact four of 10 additional Aboriginal sites identified during geotechnical works undertaken in July 2010. These new sites are located within the footprint of the proposed relocated tertiary processing plant, rail locating facilities and new rail loop.</p> <p>Boral has prepared an Aboriginal Heritage Management Plan in consultation with OEH and local Aboriginal groups. The Plan sets out requirements for further archaeological assessment and Aboriginal community needs. Boral has advised that the newly identified Aboriginal sites would be subject to archaeological testing and possible open area excavation as they are located within areas judged to have high potential for subsurface archaeological deposits. ERM archaeologists, working with representatives of local Aboriginal groups, have recently completed subsurface excavation and salvage with the artefacts recovered now awaiting analysis.</p> <p>Given that the newly identified Aboriginal sites would be subject to thorough analysis before being disturbed, and that local Aboriginal groups would be given an opportunity to decide on their outcome, the Department is satisfied that, with the implementation of an updated Aboriginal Heritage Management Plan, impacts of the modified project on Aboriginal heritage would be appropriately minimised, managed and monitored.</p>

Issue	Consideration
<i>Traffic and Transport</i>	<p>The traffic assessment undertaken for the original project found that construction vehicles would have minimal impacts on the capacity of the local road network. The modification would involve an increase in construction vehicles along the local road network (Marulan South Road and its intersection with the Hume Highway) for the construction of the proposed rail loop, which would be undertaken concurrently with broader quarry construction activities. This temporary increase would be of limited scale and short duration.</p> <p>The construction of the new rail loop would allow for the separation of rail movements from Boral Cement's limestone mine and the modified Peppertree Quarry and provide flexibility in the event of disruptions to planned scheduling. The rail line has the capacity to readily service the cumulative rail movements for both operations. The proposal would not increase the approved number of rail movements (up to four daily).</p> <p>Given that rail movements would still remain within the approved daily number and that the additional impacts to the local road network are of limited magnitude and for a short period, the Department is satisfied that the proposed modification would have minor road traffic impacts and positive rail traffic impacts.</p>
<i>Visual Amenity</i>	<p>The modification would result in erection of a new overburden emplacement (the Western Overburden Emplacement and extension) south of the rail line, although these would be located predominantly within the footprint of the previously approved processing plant and rail loading facility, which are now to be relocated. The emplacement would be visible from a section of Marulan South Road, however this section of road is used only to service the quarry and nearby limestone mine and therefore does not represent a sensitive viewpoint. Further, Boral has proposed to progressively stabilise and revegetate the outer perimeter of the proposed emplacement.</p> <p>The proposed emplacement and relocated processing area would also be visible from the northwest, along the edge of the existing rail line. The closest residential receiver is located approximately 1.3 km further west of this viewpoint, with dense woodland in between, resulting in minimal potential visibility. The intervening terrain and Eastern Overburden Emplacement and bund would shield the proposed Western Overburden Emplacement and relocated processing area from viewing from locations to the east.</p> <p>Given that the additional components of the modification would predominantly be installed within the footprint of approved infrastructure, and that there is minimal potential visibility from surrounding residential receptors, the Department is satisfied that the potential visual impacts of the modification would be very low. Nevertheless, the Department has recommended a condition requiring Boral to revegetate the Eastern and Western Overburden Emplacements and their extensions and the various on-site bunds, as soon as practicable.</p>

6 RECOMMENDED CONDITIONS

The Department has prepared recommended conditions for the modification. These conditions included amended noise criteria in respect of Receivers 3 and 16 and conditions to implement management plans for noise and air quality and associated active management systems. The conditions also included correction of the scaling error identified by the member of the public, conditions to manage potential vegetation impacts associated with adjacent construction of the Western Overburden Emplacement and extension, and a condition to revegetate overburden emplacements and bunds. The Department also comprehensively updated the conditions to reflect current best practice for the regulation of quarries in NSW. Boral has reviewed and accepted these conditions.

7 CONCLUSION

The Department has assessed the proposed modification in accordance with the relevant requirements of the EP&A Act, including the objects of the Act and the principles of ecologically sustainable development. The assessment found that the environmental impacts of the modified project would not be significantly different from the project as originally approved. Indeed, there are a number of reduced environmental impacts including considerable reduction in annual water demand and water storage dam capacity, which in turn leads to a reduction in the existing approved removal of Box Gum Grassy Woodland by over 30%. Noise and dust emissions would also be reduced for receivers located to the southwest by the reduced use of the curved railway line and relocation of the rail loading facility, processing plant and stockpiling areas. Dust emissions associated with the approved haulage of overburden to the southern pit of the limestone mine would be reduced by 85% at full production, due to the establishment of a second overburden emplacement closer to the quarry site.


Overall, the Department is satisfied that, with the implementation of the recommended conditions and the proposed mitigation measures, the impacts of the proposed modification are minor and can be adequately mitigated, managed, and/or compensated for. The Department is satisfied that the benefits of


the proposal outweigh any residual costs, and that it is in the public interest and should be approved, subject to conditions.

8 RECOMMENDATION

It is RECOMMENDED that the Director, Mining and Industry Projects, as delegate of the Minister:

- **consider** the findings and recommendations of this report;
- **determine** that the proposed modification is within the scope of section 75W of the EP&A Act;
- **approve** the proposed modification under section 75W of the EP&A Act; and
- **sign** the attached Notice of Modification (**Appendix E**).


Howard Reed
Manager, Mining Projects
3.11.11

 3/11/11
David Kitto
Director, Mining and Industry Projects