



Peppertree Quarry – New Overburden Emplacement Modification

Section 75W
Modification Assessment
(MP 06_0074 MOD 5)



October 2019

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Cover photo

Peppertree Quarry (Source: Department of Planning, Industry and Environment, 2019)

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Executive Summary

Boral Resources (NSW) Pty Ltd (Boral) owns and operates the Peppertree Quarry, located approximately 10 kilometres southeast of the township of Marulan in the Goulburn Mulwaree local government area.

Boral is seeking to modify its project approval to establish a new overburden emplacement area, to the southwest of the existing quarry. The modification involves:

- extending the project approval boundary to capture the proposed Southwestern Overburden Emplacement (SWOE) area;
- clearing approximately 28 hectares of critically endangered ecological community (CEEC);
- constructing a new haul road, including an intersection with Marulan South Road;
- relocating an existing powerline; and
- minor changes to the approved site layout, including amendments to the approved Western Overburden Emplacement and removing a requirement to construct an earth bund.

The modification does not seek to change any other aspect of the approved operations.

The current project approval allows Boral to extract and transport up to 3.5 million tonnes per annum of hard rock material until 2038. Quarry products are transported by train to Sydney and other areas around NSW. Boral submits that the proposed modification is necessary for continued operations at the quarry, as the site's approved overburden emplacement capacity will be exhausted sooner than previously expected.

The Department publicly exhibited the modification from 8 November to 6 December 2018 and requested advice from relevant government agencies, including Goulburn Mulwaree Council. The Department received advice from 10 government agencies, and two submissions from members of the public objecting to or commenting on the proposal.

The Department identified that the key issues for the modification relate to biodiversity, Aboriginal heritage, noise and air quality, surface water, traffic and transport, and visual amenity. The Department's assessment has concluded that, whilst the modification would result in impacts to a CEEC, Boral has demonstrated the ability to suitably offset these impacts in accordance with the *NSW Biodiversity Offset Scheme*. The Department considers that any residual impacts could be appropriately managed or mitigated under the recommended conditions of approval. The modification would also continue to benefit the region and NSW through the efficient and effective supply of vital quarry products to the Sydney construction industry, the continued employment of 41 full time personal and continued support of local contractors and businesses who supply maintenance and other ancillary services to Boral. As such, the Department considers that the proposed modification should be approved, subject to the recommended conditions.



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1. Introduction

1.1 Background

Boral Resources (NSW) Pty Ltd (Boral), owns and operates the Peppertree Quarry (the quarry), located approximately 10 kilometres (km) to the southeast of the township of Marulan in the Goulburn Mulwaree local government area (see **Figure 1**).

Boral currently operates the Peppertree Quarry under a project approval (MP 06_0074) granted in February 2007 by the then Minister for Planning under the former Part 3A of the *Environmental Planning & Assessment Act 1979* (EP&A Act). This approval allows Boral to:

- extract, process and transport by train up to 3.5 million tonnes per annum (Mtpa) of hard rock material from the site, until 31 December 2038;
- transport quarry products by road in the case of an emergency, or with the approval of the Secretary; and
- transport overburden by haul truck to emplacement areas on site and at the adjacent Marulan South Limestone Mine and requires it to progressively rehabilitate the site.

Since its grant, the project approval has been modified four times (see **Table 1**).

Table 1 | Summary of previous modifications

Mod No.	Summary of Modification	Approval Date
MOD 1	Construction of an exploratory test pit	17 March 2009
MOD 2	Changes to the quarry's layout, including changes to the rail loop, the emplacement areas and a reduction in the footprint of the main water supply dam	3 November 2011
MOD 3	Construction of a powerline and an extension to the rail passing line	2 November 2012
MOD 4	Extension of the in-pit operation hours by six hours and to construct a new overburden emplacement area	24 August 2016

The quarry is located in a rural setting, with the site being bordered by Boral's Marulan South Limestone Mine to the south and Morton National Park to the east (see **Figure 1**). Nearby operations and land uses include rural properties, agricultural grazing, a turkey farm, agricultural lime manufacturing facility, and a fireworks storage facility.

Road access to the quarry is via Marulan South Road, a public road providing access from the Hume Highway to a small number of private rural properties and commercial enterprises along its 9 km length. To the northeast of the quarry, and across the Barbers Creek valley, is Long Point Road, a rural road that terminates at Long Point Lookout (see **Figure 1**).

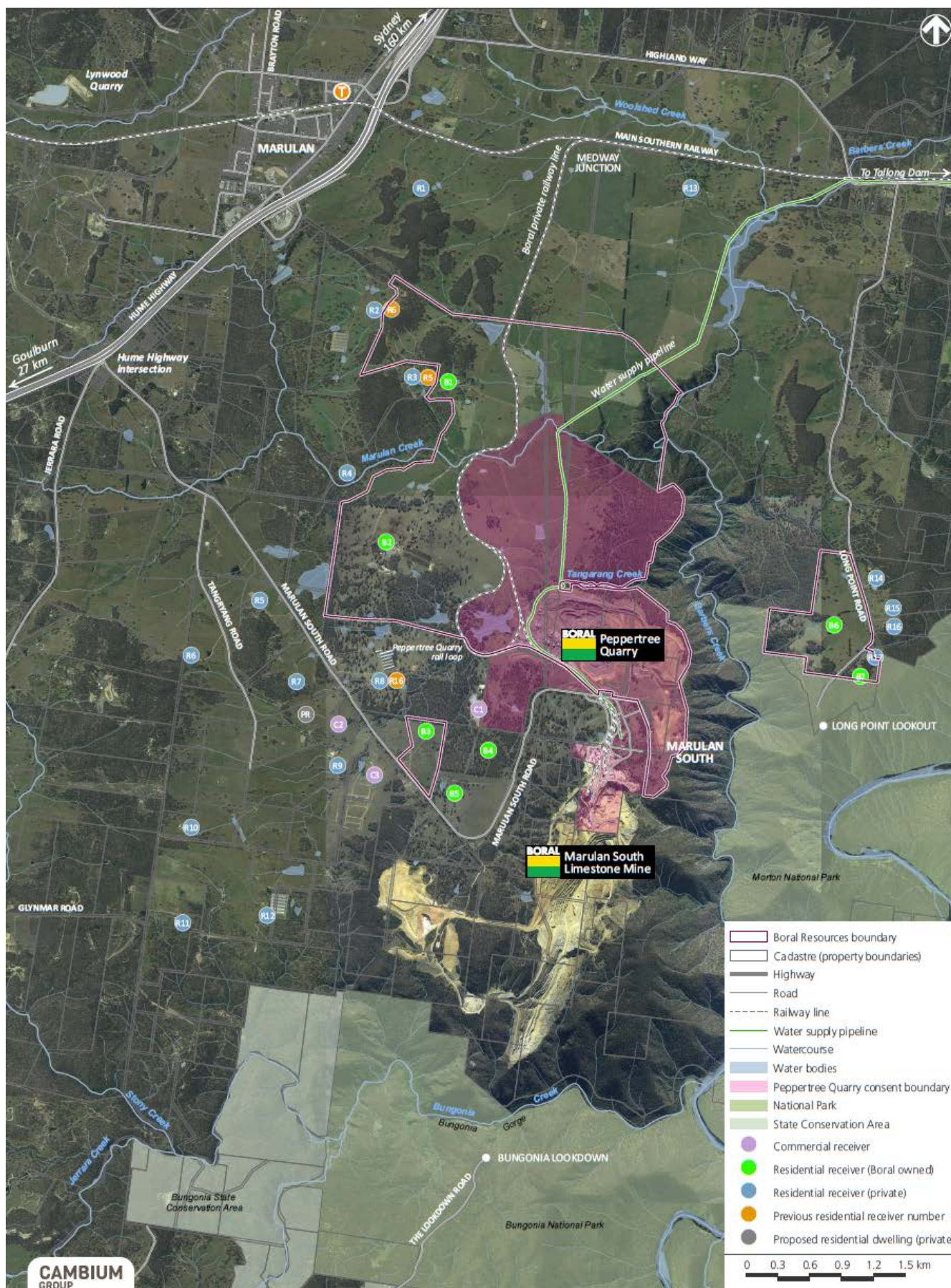


Figure 1 | Regional location of Peppertree Quarry

1.2 Interactions with Marulan South Limestone Mine

As noted above, the quarry is bordered by the Marulan South Limestone Mine (the mine), a long-standing open cut limestone and clay/shale mine which Boral Cement Limited (BCL) operates under Consolidated Mining Lease No. 16, Environment Protection Licence (EPL) 944, several development consents issued by the predecessors of Goulburn Mulwaree Council (Council) and continuing use rights. The quarry and the mine have vehicular access via Marulan South Road and have rail access via Boral's private rail line, which links the two sites to the Main Southern Railway at Medway Junction (see **Figure 1**).

BCL is currently seeking approval for continued operations at the mine site via a State Significant Development (SSD) application (SSD 7009). This application includes:

- a 30 year mine plan;
- a shared overburden emplacement area for both Peppertree Quarry and the mine, located on the southern side of Marulan South Road;
- a shared road sales stockpile area, located on the northern side of Marulan South Road;
- partial realignment and upgrading of Marulan South Road; and
- a water supply dam.

As the currently proposed mine plan does not allow for future overburden emplacement from Peppertree Quarry within the mine pit, Boral proposes to establish a new shared emplacement area for the two operations. However, as Peppertree Quarry will soon exhaust its overburden emplacement capacity, and SSD 7009 is unlikely to be determined for some time, Boral is seeking to modify MP 06_0074, to incorporate the proposed overburden area into the Peppertree Quarry project boundary, and allow emplacement activities to begin more quickly. The Department notes that if SSD 7009 were not be approved, Peppertree Quarry will be able to continue to operation independently of the mine.

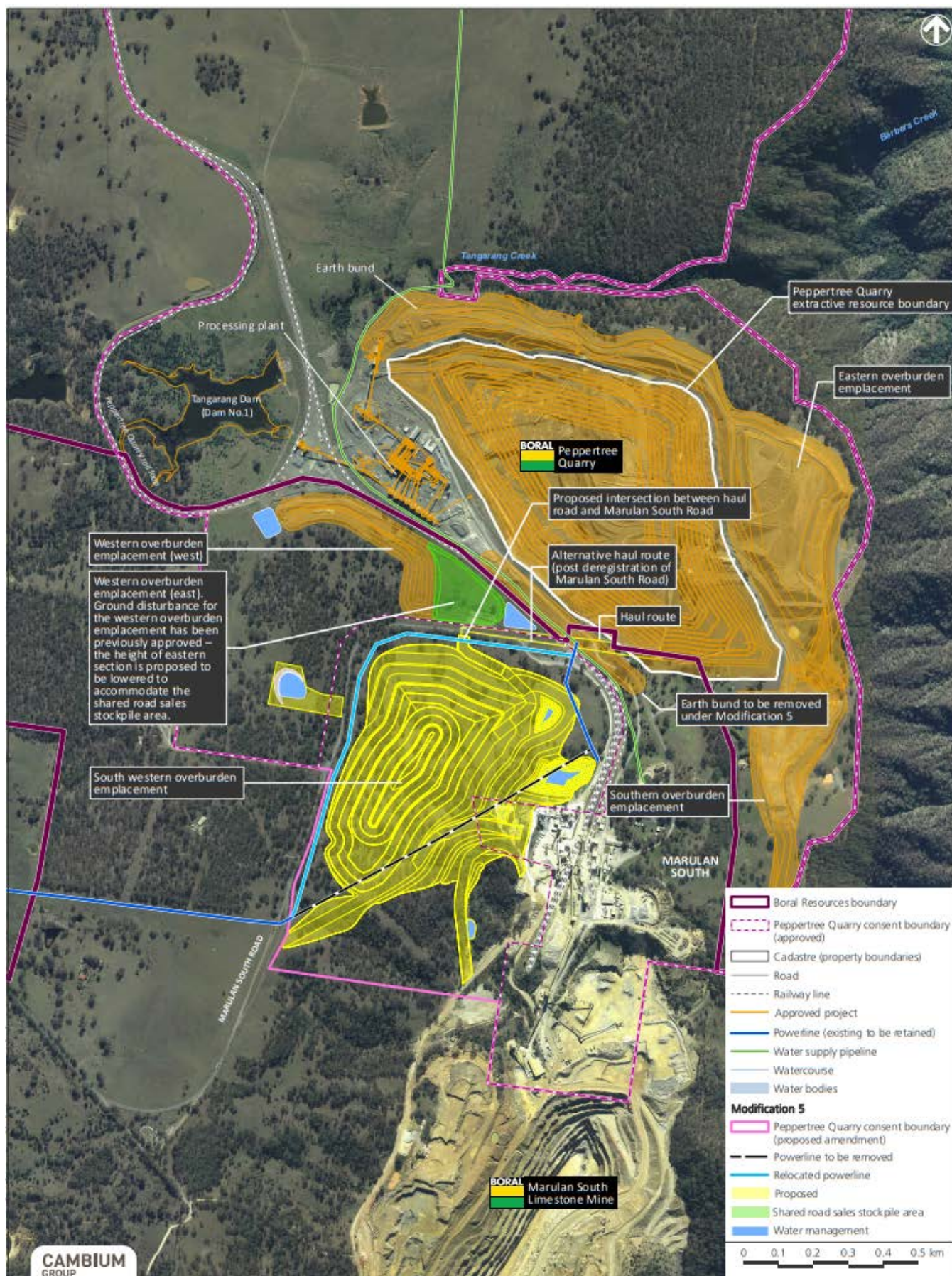


2. Proposed Modification

On 27 February 2018, Boral submitted an application to modify MP 06_0074 under section 75W of the EP&A Act. The modification application involves:

- establishing a new Southwestern Overburden Emplacement (SWOE) at the quarry;
- clearing approximately 28 hectares (ha) of critically endangered ecological community (CEEC);
- constructing a new haul road from the existing quarry pit to the SWOE;
- constructing a new intersection at Marulan South Road to allow the new haul road to extend to the SWOE;
- amending the design of the approved Western Overburden Emplacement (WOE), to accommodate a shared stockpile area between the quarry and the mine;
- removing the Western Earth Bund from the approved development;
- relocating a powerline which runs through the proposed SWOE site; and
- extending the approved quarry project boundary to the south to encompass the SWOE.

No changes are proposed with respect to approved methods of extraction, blasting frequency, processing, transport or stockpiling activities. A detailed description of the proposed modification is provided in Boral's Environmental Assessment (EA, see **Appendix A**). The SWOE would be located south of the existing WOE. The proposed location has been chosen to ensure no limestone or granodiorite resources are sterilised by emplacement activities (see **Figure 2**).



The development of the SWOE would also require associated changes to the project. These include the extension of the approved project boundary to the south to encompass the SWOE and the relocation of a powerline which currently runs through the site of the proposed SWOE. The relocated powerline would run along the eastern and southern side of Marulan South Road, where it would connect to an existing overhead powerline (see **Figure 2**).

Boral is also proposing amendments to the WOE (see **Figure 2**). As noted in **Section 1.2**, Boral intends to establish a future shared road sales stockpile area for the quarry and the mine on the northern side of Marulan South Road. Whilst the shared stockpile area forms part of SSD 7009, Boral is seeking to amend the approved WOE to also accommodate the planned stockpile area under MP 06_0074. As currently approved, the WOE comprises a 10 metre (m) high bund and a 30 m high triangular emplacement area. Boral is proposing to replace this triangular emplacement with approximately 2 m of emplaced overburden material, to create a foundation for the future shared stockpile area. Two sediment dams would also be established at each end of the WOE to catch and treat sediment-laden water, prior to rehabilitation of the batters.

Boral has determined that the Western Earth Bund (which is yet to be constructed) would no longer be required following the proposed modification, on the basis that the WOE and SWOE would together provide adequate noise mitigation for nearby receivers. Therefore, Boral proposes to remove the bund from the project approval.

Boral is also proposing to construct a new haul road to access the SWOE. This would link the southern extent of the quarry pit to the SWOE. The proposed haul road would be two lanes, approximately 20 m wide and 420 m long, running west from the pit to a proposed intersection with Marulan South Road, then south to the SWOE (see **Figure 2**). Boral is currently negotiating with Council to purchase and deregister the section of Marulan South Road between the quarry and 709 Marulan South Road (Aglime Fertiliser facility access road) (B4, see **Figure 1**). This would close this section of the Marulan South Road to the public.

The proposed intersection would allow haul trucks to cross Marulan South Road from the proposed haul road to the SWOE or alternatively travel east and west along Marulan South Road, allowing trucks to turn left in and right out of the SWOE (see **Figure 2**).



3. Statutory Context

3.1 Section 75W

The project was originally approved under Part 3A of the EP&A Act. The project is a transitional Part 3A project under Schedule 2 of the *EP&A (Savings, Transitional and Other Provisions) Regulation 2017*. The power to modify transitional Part 3A projects under section 75W of the Act as in force immediately before its repeal on 1 October 2011 is being wound up. However, as this modification request was made before the 'cut-off date' of 1 March 2018, the provisions of clause 3 of Schedule 2 continue to apply. Consequently, this report has been prepared in accordance with the requirements of Part 3A and associated Regulations, and the Minister (or delegate) may approve or disapprove the carrying out of the project under section 75W of the EP&A Act.

The proposed modification involves the establishment of a large overburden emplacement area outside of the approved project boundary. However, the proposal would not change any of the core elements of the project, including the approved mining methods, operational hours, or annual extraction volumes and processing rates. Consequently, the Department considers that the proposed modification is within the scope of section 75W, and may be determined accordingly.

3.2 Consent Authority

The Minister for Planning and Public Spaces is the approval authority for the application. However, the Executive Director, Energy and Resources may determine the application under the Minister's delegation of 11 October 2017, as there were fewer than 25 public objections, Council did not object to the proposal, and Boral has not declared any reportable political donations.

3.3 Other Approvals

3.3.1 Commonwealth Approval

On 15 October 2018, the Commonwealth Department of Environment and Energy (DoEE) determined the proposed modification to be a 'controlled action' under section 75 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), due to its potential impacts on matters of national environmental significance (MNES).

In making its determination, DoEE advised that the proposal is likely to have a significant impact on listed threatened species and communities (under section 18 and 18A of the EPBC Act). DoEE issued environmental assessment requirements for the proposal which were subsequently incorporated into the Secretary's Environmental Assessment Requirements (SEARs) issued on 16 October 2018.

The Commonwealth has accredited the NSW assessment process under section 75W of the EP&A Act, thereby enabling a single integrated assessment of the proposal by the Department for both State and Commonwealth purposes. In its determination dated 15 October 2018, DoEE agreed that the proposal may be assessed under this accredited process.

The Department has assessed the potential impacts of the proposal on the relevant MNES (see **Section 5.1** and **Appendix D**).

Following the State's determination of the application, the Department will make a recommendation to the Commonwealth Minister for the Environment in relation to the acceptability of the impacts on MNES for separate determination by the Commonwealth under the EPBC Act.

3.3.2 Other Licences or Approvals

Boral holds a Water Access Licence (WAL 10SL056926) under the *Water Management Act 2000* which enables it to take 145 megalitres of water from Tangarang Creek per year. It is not expected that the modification would require any variation to this licence.

The quarry's activities are also regulated under EPL 13088, granted under the *Protection of the Environment Operations Act 1997*. This EPL would need to be varied to reflect the proposed modification.

The proposed intersection construction would also require a separate approval from Council under section 138 of the *Roads Act 1993*.

3.4 Environmental Planning Instruments

A number of State Environmental Planning Policy's (SEPPs) and other environmental planning instruments (EPIs) apply to the modification, including:

- SEPP (Mining, Petroleum Production and Extractive Industries) 2007;
- SEPP No. 44 – Koala Habitat Protection (SEPP 44);
- SEPP (Sydney Drinking Water Catchment) 2011; and
- Goulburn Mulwaree Local Environmental Plan 2009.

The Department has considered the assessment of relevant EPIs in Boral's EA and assessed the proposed modification against their relevant provisions. The Department considers that the proposed modification can be carried out in a manner that is consistent with the aims, objectives and provisions of these EPIs.

3.5 Objects of the EP&A Act

The Minister or delegate must consider the objects of the EP&A Act when making decisions under the Act. The Department has assessed the proposed modification against the current objects of the EP&A Act. The objects of most relevance to the decision on whether or not to approve the proposed modification are found in section 1.3. They are:

- Object 1.3(a): to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources;
- Object 1.3(b): to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment;
- Object 1.3(c): to promote the orderly and economic use and development of land;
- Object 1.3(e): to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats;
- Object 1.3(f): to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage); and
- Object 1.3(j): to provide increased opportunity for community participation in environmental planning and assessment.

The Department considers that the proposed modification encourages the proper management and development of resources (Object 1.3(a)) and the promotion of the orderly and economic use of land (Object 1.3(c)), since the modification:

- involves a permissible land use on the subject land;
- promotes efficient use of resources, which have been determined to be significant from a State and regional perspective;
- would utilise Boral's existing facilities and infrastructure; and
- would provide ongoing socio-economic benefits to the community of NSW.

The Department has considered the principles of ecologically sustainable development (ESD, Object 1.3(b)) in its assessment of the proposed modification. The Department has also noted Boral's consideration of these matters and considers that the proposed modification is able to be carried out in a manner that is consistent with the principles of ESD. The Department's assessment has sought to integrate all significant environmental, social and economic considerations.

The Department's assessment of environmental and heritage impacts (Object 1.3(e) and(f)) is summarised in **Section 5** of this report. Overall, the Department considers that the modification as proposed has been designed to minimise potential environmental and heritage impacts, including impacts to biodiversity and CEECs where practicable.

The Department exhibited the modification application and made the accompanying EA publicly available (Object 1.3(j)). The outcomes of this consultation process are outlined in **Section 4**.



4. Engagement

The Department publicly exhibited the application and supporting documents from Thursday 8 November 2018 until Thursday 6 December 2018:

- on the Department's website;
- at Council's office in Goulburn; and
- at the Nature Conservation Council's office in Sydney.

The modification application was advertised in the *Sydney Morning Herald*, *Daily Telegraph*, *The Australian* and the *Goulburn Post*.

The Department directly notified adjoining and surrounding property owners and parties who previously made submissions in relation to the original project. The modification application was also referred to relevant government agencies and infrastructure providers.

4.1 Summary of Submissions

The Department received 12 submissions during the exhibition period, comprising:

- advice from 10 from government agencies;
- one public submission providing comments on the proposal; and
- one public submission objecting to the proposal.

Copies of all submissions are included in **Appendix B**.

4.2 Agency Advice

The **Office of Environment and Heritage** (OEH) did not object to the proposed modification. However, OEH requested further information with respect to biodiversity impacts. In particular, OEH requested evidence that avoidance and minimisation principles were implemented during the site selection process for the SWOE, and requested clarification regarding threatened flora and fauna survey methodology and the suitability of offsets to satisfy both Commonwealth and State requirements. In its Response To Submissions (RTS), Boral provided a revised Biodiversity Development Assessment Report (BDAR), to address concerns raised by OEH. Following the RTS, OEH noted that, while the chosen site for the SWOE represents the greatest loss to biodiversity values, it is satisfied the proposed offsets substantially meet the requirements of the Biodiversity Assessment Method (BAM) for both State and Commonwealth listed species and communities.

In its submission OEH also noted its satisfaction with Aboriginal consultation and assessment undertaken for the proposal.

The Department's consideration of biodiversity and Aboriginal heritage impacts is summarised in **Section 5.1** and **Section 5.2**, respectively.

Council did not object to the proposal but raised concerns that the EA had not adequately addressed the requirements of the *Biodiversity Conservation Act 2016* (BC Act). Council also recommended that Boral secure all biodiversity offsets required for the modification prior to determination of the application. As noted above, Boral provided a revised BDAR in its RTS, which detailed its Biodiversity Offset Strategy (BOS) for securing the offsets required for the modification. Biodiversity impacts are discussed further in **Section 5.1**.

Council also noted that negotiations in relation to the closure and purchase of Marulan South Road are continuing and recommended that they are finalised prior to works commencing. In its RTS, Boral raised no objection to the timing proposed by Council. Consequently, the Department has recommended conditions requiring Boral to purchase and close the affected section of Marulan South Road prior to hauling any overburden to the proposed SWOE. Traffic and transport issues are discussed further in **Section 5.6**.

Council also recommended that the EPA review the site's current EPL and Air Quality Management Plan prior to determination of the application. The Department notes that variations to EPLs and revisions to environmental management plans typically occur following determination of a modification application. The Department has consulted with EPA in relation to the proposal and EPA has not raised similar concerns in this regard.

Council also considered the visual impacts of the proposal to be acceptable.

The **Environment Protection Authority (EPA)** did not object to the proposal but raised concerns regarding the EA's Noise Impact Assessment (NIA). The EPA's primary concern related to the lack of wind data analysis undertaken in accordance with the new *Noise Policy of Industry 2017* (NPI). The EPA also requested that Boral consult directly with it to determine appropriate monitoring points for meteorological parameters. To address these concerns, Boral held a teleconference on 21 February 2019 and resubmitted an updated NIA as part of its RTS. Following the teleconference and RTS, the EPA recommended updated noise conditions to align with the NPI. It noted that it also had no further comments to make on the modification.

Noise impacts are discussed further in **Section 5.3**.

The EPA did not raise any concerns over the air quality impact assessment undertaken for the proposal.

WaterNSW advised that it was satisfied that water quality could be appropriately managed during the construction and operational stages of the project, subject to implementation of the mitigation measures outlined in the EA, including a revision of the sites existing Water Management Plan (WMP). However, WaterNSW did raise concerns regarding the lack of information presented on the physical characteristics of the SWOE, particularly with respect to its long-term geomorphological stability. In its RTS, Boral provided a review of the proposed physical characteristics, emplacement design and erosion management for the SWOE to address these comments. Following the RTS, WaterNSW noted its continued concern regarding the stability of the SWOE. Following a teleconference held on 12 March 2019, WaterNSW recommended conditions to monitor, and if necessary, remediate the SWOE to ensure it remains geomorphologically stable. Boral raised no objection to these proposed conditions. The Department has incorporated these requirements into the recommended conditions.

Surface water impacts are discussed in **Section 5.5**.

The **Department of Industry – Lands and Water (Dol)** did not object to the proposal. However, Dol recommended that the Biodiversity and Rehabilitation Management Plan (BRMP) and WMP be updated to address the proposed modification, in consultation with Dol and the Natural Resources Access Regulator (NRAR). This is reflected in the Department's recommended conditions.

Dol also noted that any proposed works on Crown land or Crown roads require authorisation prior to taking place. In its RTS, Boral noted the proposal does not seek to occupy or undertake works on Crown land or Crown roads.

Following the RTS, Dol advised that all matters raised had been adequately addressed.

NSW **Roads and Maritime Services (RMS)** did not object to the proposal. However, RMS recommended conditions to be applied in the event that Council approves the deregistration of Marulan South Road. In its RTS, Boral raised no objection to these recommended conditions. These proposals have been incorporated into the Department's recommended conditions.

The Department's consideration of traffic impacts is discussed in **Section 5.6**.

The Department's **Division of Resources and Geoscience** (DRG) did not object to the proposal and noted its satisfaction with Boral's consideration of potential resource sterilisation in the selection of the proposed SWOE location. DRG also requested that Boral consult with it with respect to the location of proposed biodiversity offset areas, in order to minimise potential resource sterilisation. In its RTS, Boral noted that the proposed offset sites do not provide it with future resource opportunities and confirmed that no mining leases have been issued for the sites. Following Boral's RTS, DRG noted the proponent's due diligence regarding the potential interaction of the proposed offset sites with mining leases and supported the proposed location of the SWOE, in respect of avoiding resource sterilisation.

The **Resources Regulator** made no specific comments regarding environmental management or rehabilitation of the proposal. However, as a portion of the SWOE would be located within the mine's existing mining lease area, the Resources Regulator noted that the mine's Mining Operations Plan would need to be amended following determination of the modification application. Boral noted this in its RTS and committed to forwarding this advice to the mine's management team for consideration. Following the RTS, the Resources Regulator noted its satisfaction with Boral's response.

The **NSW Rural Fire Service** (RFS) did not object to the proposed modification. However, RFS recommended that the proposal should address the aims and objectives of *Planning for Bushfire Protection 2006*, including the development of a Fire Management Plan (FMP).

The Department notes that existing conditions require Boral to ensure that the project is equipped to respond to any fires on-site and assist the RFS and emergency services as much as possible if there is a fire on-site. The Department has also recommended conditions requiring Boral to prepare an FMP, in accordance with *Planning for Bushfire Protection 2006* and in consultation with the RFS.

The **Heritage Council of NSW** advised that it had no comments regarding the proposed modification.

4.3 Public Submissions

Two public submissions were received during the exhibition period, one in the form of an objection and the other providing comment on the proposed modification (see **Appendix B**).

The first submission noted that the original project approval has already been modified on several occasions and expressed concern that environmental impacts of the proposal (including noise, dust, traffic and waste generation) are gradually increasing.

The Department's consideration of noise, air quality and traffic impacts are included in **Section 5.3**, **Section 5.4** and **Section 5.6**, respectively. The Department also notes that the proposed modification would not increase waste generation at the quarry. Rather, it seeks to provide for an alternative approach to the long-term management of overburden from approved operations.

The Department also considers that whilst the development has been modified on four previous occasions, these modifications have not significantly expanded the operation and have remained generally consistent with the original project approval. The Department also considers that whilst the proposed modification would increase the development footprint, the core elements of the project would remain the same (see **Section 3.1**). Additionally, the Department considers that having several modifications is not unusual for a project of this nature, as operational needs develop over time, and the EP&A Act makes deliberate provision for the modification of development consents and project approvals.

The first submission also raised concerns regarding the social impacts of the proposal, including the loss of rural lifestyle and amenity, and questioned the suitability of the proposed emplacement site, arguing that less intrusive and more appropriate locations are available to Boral. The Department has considered the potential social impacts throughout **Section 5** of this report, and specifically addresses socio-economic impacts in **Section 5.8**. The Department considers the proposed location of the SWOE to be a key issue and has provided further consideration regarding site suitability in **Section 5.1**.

The second submission did not object to the proposal. However, this submission noted that Boral had previously made a private commitment to provide a vegetation screen along the ridgeline between the 'Glenrock' property (R13) and the Peppertree Quarry. In its RTS, Boral noted that the SWOE would not be visible from the 'Glenrock' property, and that the requested tree planting is subject to a previous agreement which is beyond the scope of the proposed modification. Boral also committed to continue to liaise with the adjoining landowner in relation to this matter. The Department considers Boral's response to this matter to be acceptable.

4.4 Response to Submissions

On 4 March 2019, Boral submitted its RTS (see **Appendix C**). The RTS provided additional information in response to concerns raised by WaterNSW, EPA and OEH. It also acknowledged the recommendations provided by Council, DoI, RMS, DRG, the Resources Regulator and RFS, and provided responses to the two public submissions.



5. Assessment

In assessing the merits of the proposal, the Department has considered the:

- EA and RTS;
- agency and public submissions;
- existing conditions of approval, as previously modified;
- relevant EPIs, policies and guidelines; and
- requirements of the EP&A Act, including the objects of the Act.

The Department considers the key assessment issue is the suitability and potential impacts associated with the proposed location for the SWOE, which the Department has considered in terms of biodiversity, Aboriginal heritage, noise and air quality, surface water, traffic and transport, and visual amenity.

5.1 Biodiversity

The EA included a BDAR, which assessed the biodiversity impacts of the proposal in accordance with the BAM, as established under section 6.7 of the BC Act. As discussed in **Section 4.1**, OEH noted several aspects of the BDAR which required clarification. Consequently, Boral provided a revised BDAR in its RTS, the details of which are discussed below.

The revised BDAR focussed on the modification area (48.33 ha) (see **Figure 3**), which includes 39.69 ha of native vegetation and 8.64 ha of exotic pasture and infrastructure.

The BDAR included both fauna and habitat field surveys, and flora field surveys. The fauna and habitat surveys incorporated both targeted surveys and habitat-based assessment, conducted in February 2015, October 2015 and February 2018. The flora surveys incorporated walking meanders over 11 plots and transects across the

modification area, conducted in February 2015, February 2018, and in mid-2018. The Department and OEH considers the survey effort undertaken for the proposal to be rigorous and in accordance with relevant survey guidelines.

5.1.1 Matters of National Environmental Significance

On 15 October 2018, the Commonwealth DoEE determined the proposal to be a 'controlled action' under the EPBC Act, on the basis that it is likely to have a significant impact on threatened species and communities, including *White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland*, the Regent Honeyeater, the Large-eared Pied Bat and the Koala.

The Department considers that impacts on MNES have been adequately documented and assessed in the EA and the supplementary RTS (see **Appendices A and C**). The Department's assessment of these matters is summarised in **Sections 5.1.2 and 5.1.3** and **Appendix D**.

5.1.2 Threatened Species and Communities

Two native vegetation communities (see **Table 1**) were mapped within the proposed modification area. One of these communities is commensurate with *White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Box-Gum Grassy Woodland) and listed as CEEC under the BC Act and CEEC under the EPBC Act. No threatened flora species listed under either the BC Act or EPBC Act were recorded during the field surveys of the modification area.

Two threatened fauna species listed under the BC Act and/or EPBC Act were recorded during field surveys of the modification area. These species, and their current listing status, are as follows:

- Large-eared Pied Bat, listed as vulnerable under the BC Act and the EPBC Act; and
- Eastern Bentwing-bat, listed as vulnerable under the BC Act.

The BDAR also identified a number of additional threatened and vulnerable fauna species with potential to occur within the modification area, including the Regent Honeyeater, Fork-tailed Swift, Great Egret, Cattle Egret, Rainbow Bee-eater, Black-faced Monarch and Rufous Fantail. However, of these species, only the Koala and Large-eared Pied Bat were determined to be credit species requiring offsetting under the BC Act.

5.1.3 Assessment of Direct Biodiversity Impacts

The modification would involve clearing 39.69 ha of native vegetation within the site of the proposed emplacement area. The direct impacts of the modification on existing vegetation communities are summarised in **Table 2** and **Figure 3** below. Of the total vegetation to be disturbed, 27.68 ha comprises a CEEC.

Table 2 | Direct impacts of the modification by Plant Community Type (PCT)

PCT	Conservation Status	Total (ha)	PCT % cleared*
PCT1334 White Box - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands (SR670)	CEEC (BC Act) CEEC (EPBC Act)	27.68	92%
PCT778 Coast Grey Box - Stringybark dry woodland on slopes of the Shoalhaven Gorges - Southern Sydney Basin (SR534)	Not listed (Native Vegetation)	12.01	15%
Exotic pasture/Infrastructure	-	8.64	-
Total	-	48.33	-

*Percentage of IBRA region/subregion currently cleared.

The direct impacts of the proposal on listed threatened species and communities are discussed below.

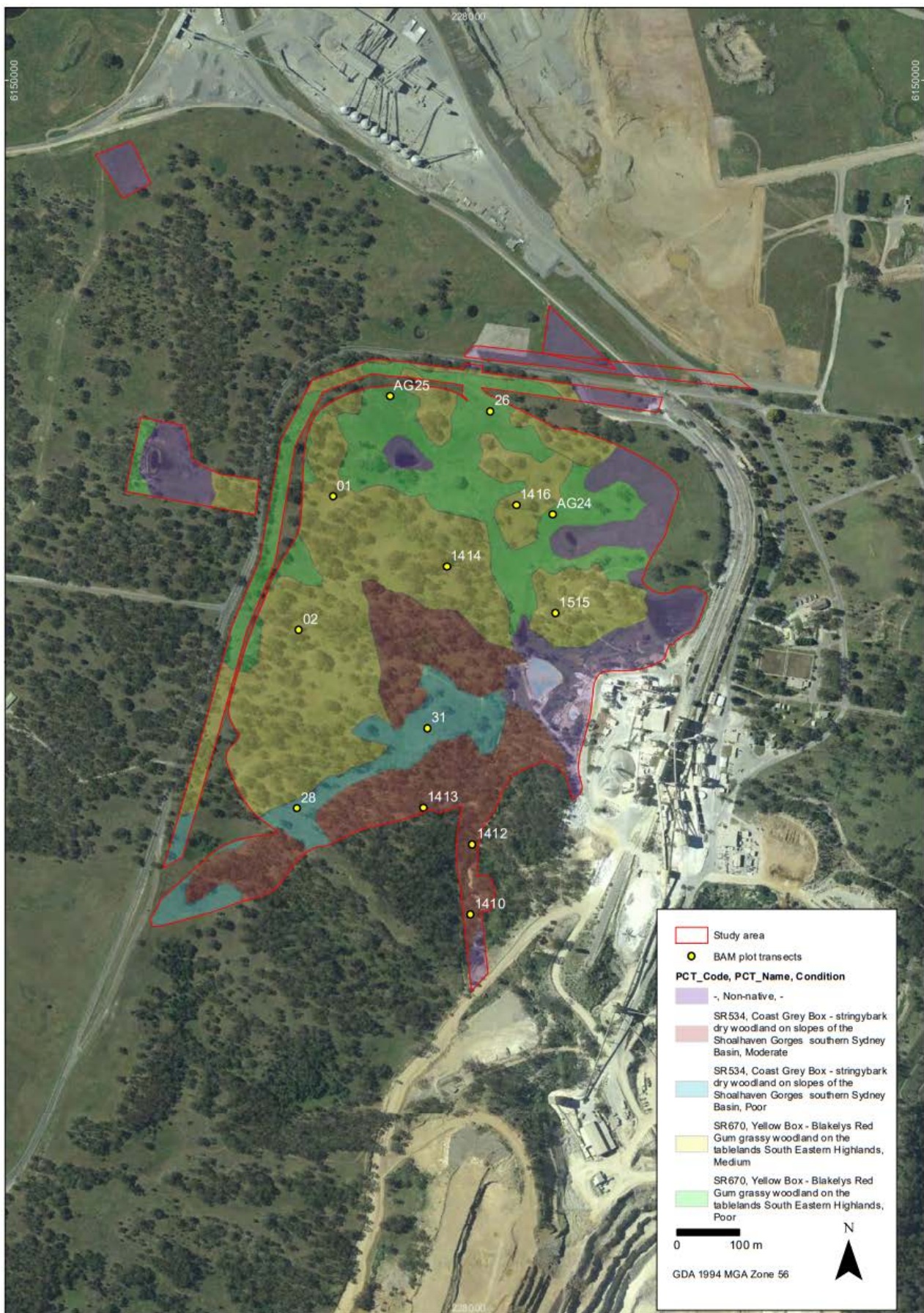


Figure 3 | Vegetation mapping

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC

The Box-Gum Grassy Woodland CEEC was historically widespread along the western slopes and tablelands of the Great Dividing Range, throughout southern Queensland, western New South Wales, the Australian Capital Territory and Victoria. However, now less than 5% remains in good condition, predominantly in small isolated patches. The area to be impacted as a result of the proposal is shown in **Figure 3**.

The current extent of Box-Gum Grassy Woodland CEEC within South Eastern NSW is estimated to be approximately 59,468 ha. The proposed modification would reduce the overall extent of the CEEC by 27.68 ha or 0.0005 percent.

The BDAR included an Assessment of Significance for the Box-Gum Grassy Woodland CEEC which indicated that a significant impact was likely to result from the proposed modification. The Department's consideration of mitigation measures and offsets for the proposed impacts to Box-Gum Grassy Woodland CEEC are discussed below (see **Section 5.1.5** and **Section 5.1.6**).

Coast Grey Box - Stringybark dry woodland on slopes of the Shoalhaven Gorges - Southern Sydney Basin

The Coast Grey Box - Stringybark dry woodland on slopes of the Shoalhaven Gorges - Southern Sydney Basin (PCT778) is not listed as a threatened ecological community under either the BC Act or EPBC Act. However, in accordance with the BAM, approximately 12 ha of this native vegetation would be offset via the retirement of ecosystem credits (**Section 5.1.6**).

Large-eared Pied Bat

The Large-eared Pied Bat is found mainly in areas with extensive caves or cliffs, from Bungonia in the NSW Southern Highlands to Rockhampton in Queensland's south. This species was recorded within the modification area during field surveys in February 2015. The proposal would impact 27.1 ha of potential foraging habitat for the species, however, no breeding habitat would be impacted by the proposal.

The BDAR included an Assessment of Significance under the EPBC Act which concluded that a significant impact is unlikely to occur as a result of the proposal. Boral has also proposed management measures to minimise potential impacts on fauna during clearing activities (**Section 5.1.5**).

Koala

The Koala is scattered across eastern Australia ranging from the Eyre Peninsula in South Australia to north-east Queensland. In New South Wales, the Koala's distribution occurs predominantly across the central and northern coasts with some populations located west of the Great Dividing Range. This species has been sporadically sighted across the modification area over the past decade. However, fauna surveys did not indicate continuous use of feed trees in the proposed modification area. Whilst the Koala was not recorded in the modification area during targeted surveys, the BDAR estimated that 27.1 ha of foraging and dispersal habitat would be impacted by the proposal.

The proposed modification would result in a 0.004 percent reduction in the area of occupancy for the species. However, there are also substantial areas of suitable habitat for the species in the nearby Bungonia National Park and Bungonia State Conservation Area, which are located approximately 1 – 4 km south of the quarry. The Bungonia Koala population is also separated from the modification area by the Bungonia Gorge. Consequently, the loss of the proposed modification area is unlikely to substantially affect habitat connectivity. Therefore, the BDAR concluded that the proposed modification is unlikely to result in a decline in the population or place the population at the risk of extinction.

The BDAR also considered the requirements of SEPP 44, which applies to the modification area. The BDAR noted that, whilst the modification area contains potential Koala habitat, this habitat is not considered 'core Koala habitat' due to the absence of a resident Koala population.

Boral has proposed management measures to minimise potential impacts during clearing activities (**Section 5.1.5**) and has developed a strategy to offset the impacts of the modification in accordance with the BAM (**Section 5.1.6**). On this basis, the Department considers that the proposed modification is unlikely to have a significant impact on the species.

Eastern Bentwing-bat

The Eastern Bentwing-bat occurs along the east and north-east coasts of Australia within caves and artificial tunnels. This species was recorded within the modification area during field surveys in February 2015. However, as no breeding habitat occurs within the modification area, the BDAR considered the Eastern Bentwing-bat as an ecosystem credit for offsetting purposes (**Section 5.1.6**). On this basis, the Department considers that the impacts to the Eastern Bentwing-bat will be minimised.

Regent Honeyeater

The Regent Honeyeater occurs across open forests and temperate woodlands of the inland slopes of south-east Australia. This species was not detected despite targeted surveys. However, potential significant impacts to the Regent Honeyeater arise from the clearing of 27.1 ha of suitable foraging habitat. As no breeding habitat occurs, ecosystem credits for PCT1334 and PCT778 that provide foraging habitat for the Regent Honeyeater have been calculated for offsetting purposes using the BAM (**Section 5.1.6**). On this basis, the Department considers that the impacts to the Regent Honeyeater will be minimised.

Other Threatened Species

The BDAR included Assessments of Significance for several threatened or migratory species listed under the EPBC Act, including the Fork-tailed Swift, Great Egret, Cattle Egret, Rainbow Bee-eater, Black-faced Monarch and Rufous Fantail, due to their potential to occur within the modification area.

These assessments concluded that a significant impact to any of these MNES is unlikely.

5.1.4 Assessment of Indirect Biodiversity Impacts

The proposed modification may cause a number of indirect impacts on biodiversity values. These include noise and dust generation during emplacement activities, increased erosion and associated impacts on downstream water quality and potential weed infestation.

The Department has assessed and recommended a range of conditions to minimise the noise, dust and water quality impacts of the proposed modification. These conditions are discussed in **Section 5.3**, **Section 5.4** and **Section 5.5**, respectively. Potential weed management measures are discussed below in **Section 5.1.5**.

5.1.5 Avoidance and Mitigation Measures

As discussed in **Section 4.2**, OEH requested further information demonstrating that avoidance and minimisation principles were applied during the site selection process for the SWOE. The RTS identified three alternative overburden emplacement locations (in addition to the preferred SWOE site) which were considered during the development of the proposed modification:

- Option 1 – located west-north-west of the rail loop in proximity to R4;
- Option 2 – located north of the quarry; and
- Option 3 – located north of Option 2.

Each of these locations as assessed against key environmental, social and economic assessment criteria, including consideration of noise, air quality, surface water, heritage, visual amenity, traffic and biodiversity impacts, greenhouse gas emissions, potential resource sterilisation and economic viability for each location.

The preferred SWOE site was considered to represent either an equal or better overall outcome across most key assessment criteria, including resulting in:

- reduced noise, air quality and visual impacts;
- reduced impacts to aquatic environments;
- reduced impacts to Aboriginal and historic heritage; and
- the prevention of resource sterilisation.

However, the proposed SWOE location would result in the clearing of 27.68 ha of CEEC and would therefore result in the least favourable biodiversity outcome of the potential overburden emplacement options. Consequently, Boral has proposed a range of mitigation and management measures, including:

- pre-clearance surveys, including engaging ecologists to supervise felling and capture and relocation of any displaced fauna;
- fencing and signposting, to delineate the boundary of vegetation clearing;
- employee education;
- dust suppression;
- progressive rehabilitation;
- weed and pest control programs;
- sign-posted speed limits and clear access tracks; and
- waste management.

The Department notes that whilst the proposed modification would involve substantial clearing, including the loss of CEEC, these impacts must be weighed against other considerations including noise and air quality impacts and the sterilisation of resources. On balance, the Department considers the SWOE to be the most appropriate location for an additional overburden emplacement.

Current conditions require Boral to conduct the following prior to undertaking any construction activities associated with the WOE:

- clearly marking out vegetation to be cleared;
- avoiding disturbance of any vegetation outside of the approved development footprint;
- only undertaking clearing activities following a recent fauna survey undertaken by a qualified ecologist;
- only undertaking felling of hollow bearing trees under the supervision of a qualified ecologist; and
- avoiding any unnecessary disturbance of CEEC and other native vegetation.

The Department has recommended that these conditions are updated to include any proposed construction activities associated with the SWOE. The Department has also recommended that the Biodiversity and Rehabilitation Management Plan (BRMP) is updated in consultation with OEH and Council to reflect the proposed modification and the proposed mitigation and management measures.

5.1.6 Biodiversity Offset Strategy

The RTS included a BOS to satisfy both State and Commonwealth requirements, prepared in accordance with the BAM. The proposed modification requires a total 585 ecosystem credits and 1218 species credits (see **Table 3** below).

To satisfy these requirements, Boral proposes to establish two Stewardship Sites under the Biodiversity Conservation Scheme, which would provide in-perpetuity protection and management of biodiversity values. The first is a property located within the Bungonia subregion, which Boral has purchased for offsetting purposes. The second is a private property which would contain four separate Stewardship Sites. Boral has indicated that the two properties would provide 100 percent of the required credits for the proposed modification (see **Table 4** below).

Table 3 | Ecosystem and species credits required

Plant Community Type PCT	Total (ha)	Ecosystem Credits Required
PCT 1334 White Box - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands (SR670)	27.68	428
PCT 778 Coast Grey Box – Stringybark dry woodland on slopes of the Shoalhaven Gorges -Southern Sydney Basin (SR534)	12.01	157
Species	Total Habitat Area (ha)	Species Credits Required
Koala	27.1	487
Large-eared Pied Bat	27.1	731

The Department notes that detailed BDARs have not been provided in relation to the offset areas. However, Boral has indicated that credit calculations have been completed for these properties and that these would be submitted to the Biodiversity Conservation Trust for verification as part of the Stewardship Agreement Process. Stewardship Agreements would also be finalised within 12 months of commencing work associated with the proposed modification.

Table 4 | Proposed stewardship sites

Property	Size	Applicable biodiversity values to offset the proposal	Percentage of offset liability met (State and Commonwealth)	Offset Ratio
Property 1 – Boral owned	Approximately 1,000 ha	- PCT 778 Coast Grey Box – Stringybark dry woodland on slopes of the Shoalhaven Gorges -Southern Sydney Basin (SR534) - Koala - Large-eared Pied Bat.	100%	1:37
Property 2 – Private owned	Approximately 360 ha	PCT 1334 White Box - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands (SR670) – associated TEC as listed under the BC Act and EPBC Act.	100%	1:13

OEH reviewed the revised BDAR and advised that the proposed BOS substantially meets the requirements of the BAM, and satisfies State and Commonwealth offsetting requirements.

5.1.7 Conclusion

The Department considers that the proposed modification has been designed to limit biodiversity impacts, taking into consideration the need to avoid noise, dust and other amenity impacts, reduce greenhouse gas emissions and avoiding heritage impacts and the sterilisation of resources. However, the Department notes the proposal

would result in significant impacts on biodiversity, including impacts to threatened ecological communities and fauna species listed under both the BC Act and EPBC Act.

The Department has carefully considered advice provided by OEH and the potential impacts on biodiversity values of the proposal detailed in the EA and the RTS. Following this review, the Department considers that these impacts could be suitably managed, mitigated and/or offset under the recommended conditions and the proposed BOS. The Department also considers the high offset ratios for the proposed impacts indicate Boral’s commitment to improving biodiversity outcomes for threatened species and communities, along with aligning the offset strategy to the Recovery Plans and Conservation Advices available for the impacted threatened species and communities. Overall, the Department considers the impacts of the proposal on biodiversity, including MNES, are acceptable, subject to the provision of satisfactory offsets, as proposed by Boral.

5.2 Aboriginal Heritage

The EA included an Aboriginal and Historic Heritage Impact Assessment (AHHIA) prepared by EMM Consulting Pty Ltd. This assessment involved consultation with members of the quarry’s Aboriginal Management Committee (AMC) and Registered Aboriginal Parties (RAPs), complemented by desktop studies, a search of OEH’s Aboriginal Heritage Information Management System (AHIMS), and an archaeological survey and test excavations within the project area and its surrounds undertaken in conjunction with the RAPs.

5.2.1 Impact to Aboriginal Heritage

The AHIMS search identified 112 Aboriginal sites in or near the modification area, including two sites recorded as part of the Aboriginal cultural heritage assessment for SSD 7009. A breakdown of the different types of sites identified in the AHIMS search can be seen below (see **Table 5**). The presence of such a high number of sites indicates that the landscape has high potential to contain significant Aboriginal objects.

Table 5 | Identified Aboriginal heritage sites

Site type	Number of sites	Percentage
Isolated find	49	44%
Open artefact site	54	48%
Aboriginal Quarry	1	1%
Shelter with art	1	1%
Culturally modified tree	5	4%
Stone arrangement	2	2%
Total	112	100%

A field survey was therefore undertaken within the modification area to identify Aboriginal sites or potential Aboriginal places. The EA reported that the survey effort was limited to some degree by low ground surface visibility and varying vegetation densities, however the study area was able to be successfully characterised. Three additional sites were discovered (see **Table 6** and **Figure 4**), indicating potential for further subsurface archaeological deposits to be present within the modification area.

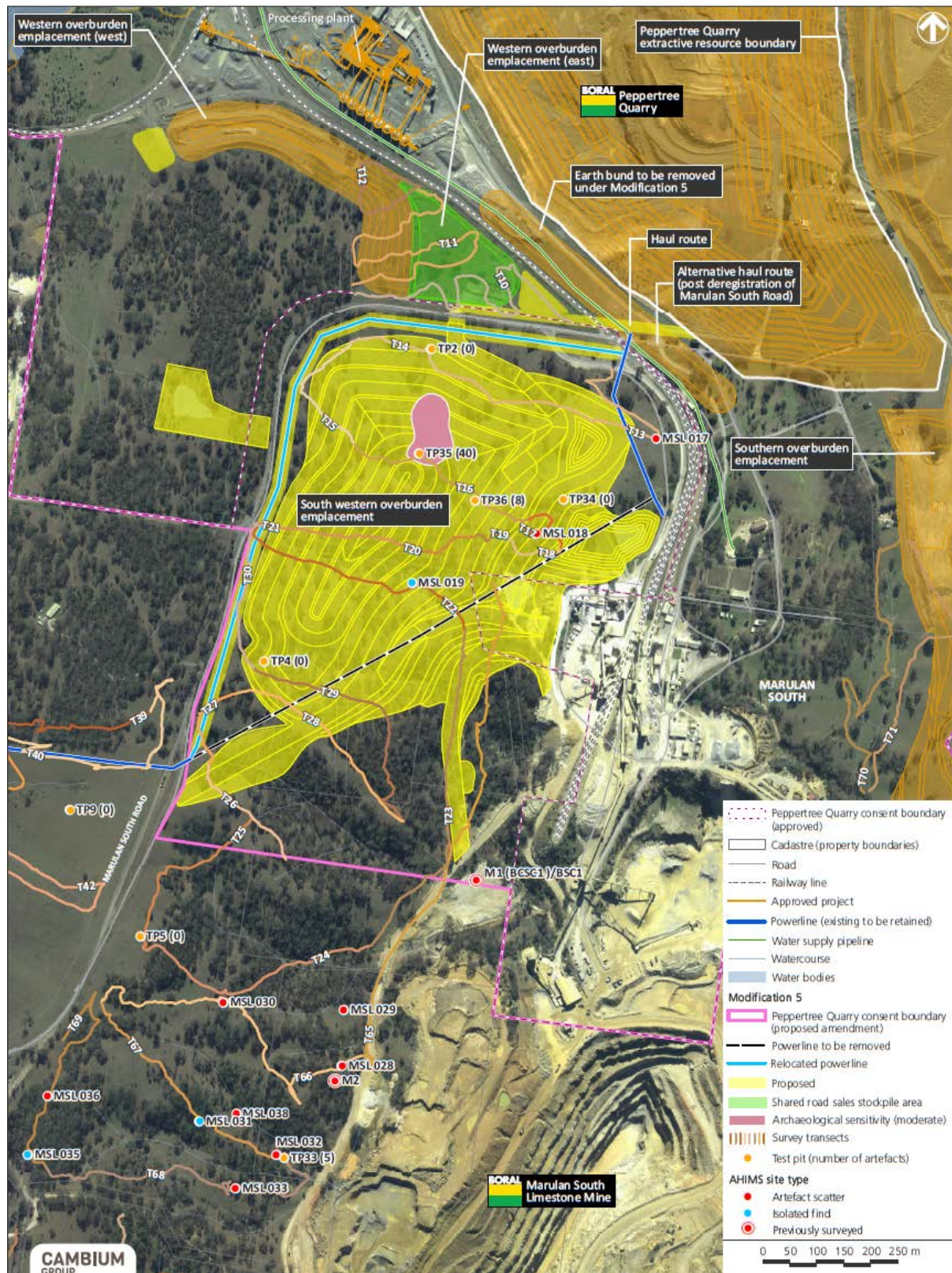


Figure 4 | Aboriginal heritage survey results

Consequently, five further test excavations were undertaken (TP2, TP4 and TP34, TP35 and TP36, see **Figure 4**) to further understand the modification area, test the predictive model and survey results, and determine the presence of any significant subsurface deposits. Whilst TP2, TP4 and TP34 contained no artefacts, TP36 contained eight artefacts (subsequently labelled as MSL 056) and TP35 contained 40 artefacts (subsequently labelled MSL 055). Artefacts were predominantly flakes or broken flakes and were determined to be of low to moderate scientific value.

Table 6 | Field survey findings

Site name	Site type	Landform	Description
MSL 017	Artefact scatter	Hill slope	One silcrete and one quartz flake in the ground exposed by a fallen eucalyptus tree
MSL 018	Artefact scatter	Spur	Six artefacts comprising five flakes and one core. Exposure is approximately 20m ² on a spur crest with a south-west aspect
MSL 019	Isolated find	Hill slope	One mudstone core located on a steep hill slope near an incised drainage line (artefact unlikely to be in situ)

The proposed modification has the potential to impact both discovered and undiscovered Aboriginal objects via areas being covered with overburden or the breaking of ground for construction of the proposed haul road, powerline and water management structures. Boral proposes to mitigate these impacts via the collection and relocation of all five sites in the modification area, including a salvage excavation of MSL 055. Collected Aboriginal objects would be stored at a secure temporary storage location prior to burial in designated locations in accordance with the site's Aboriginal Heritage Management Plan (AHMP).

OEH advised of its satisfaction with the Aboriginal consultation and assessment undertaken for the modification, noting that the assessment methodology is consistent with previous assessments undertaken for the project.

5.2.2 Conclusion

Whilst the proposed modification would result in increased disturbance of Aboriginal heritage values, the Department considers that the impacts of the proposal have been appropriately assessed and that the proposed salvage and reburial measures would suitably mitigate the impacts of the proposal.

Existing conditions require Boral to prepare and implement an AHMP in consultation with OEH and the RAPs. The Department has recommended conditions requiring Boral to update its AHMP to reflect the proposed modification.

5.3 Noise

The proposed development of the SWOE and changes to the overburden haul route have the potential to change noise emissions from the quarry and disturb surrounding receivers. The EA included a Noise Impact Assessment (NIA) prepared in accordance with the *Noise Policy for Industry* (NPI).

The existing project approval establishes operational noise criteria for the quarry, based on the now superseded Industrial Noise Policy (INP). The NIA establishes new Project Noise Trigger Levels (PNTLs), consistent with the NPI.

Table 7 provides a comparison of existing noise criteria and the new PNTLs under the NPI. In most cases, the PNTLs are higher than existing noise criteria. Other notable changes under the NPI include the assessment of low frequency noise and the application of noise criteria under all weather conditions.

5.3.1 Operational Noise Impacts

In February 2018, Boral conducted attended noise monitoring which confirmed that the quarry's current noise contribution at five representative receivers (R2, R3, R4, R8 and R9, see **Figure 1**) is less than 35 dB(L_{Aeq,15min}). Therefore, current operations are considered to comply with the existing noise criteria in **Table 7**.

The NIA modelled noise levels resulting from the modified operation to identify impacts at sensitive receivers. The modelled scenarios incorporated the worst-case noise impacts of current operations for both the day and night periods, in conjunction with:

- early overburden emplacement activities at the SWOE, with equipment and haul trucks at ground level; and
- overburden emplacement activities nearing completion, where haul trucks would be partially shielded by the SWOE.

It should be noted overburden emplacement is only proposed to occur during the day period. Temperature inversions were not incorporated into the modelling, as the NIA indicates that they occur less than 30% of the time. The NIA also modelled both 40 tonne trucks and 100 tonne trucks, as Boral is yet to determine which vehicle type would be used.

The modelled noise levels were compared to the new PNTLs to determine if operations, as proposed to be modified, would comply with the revised criteria (see **Table 7**). The NIA noted that predicted noise levels were found to be lower than previously recorded during attended monitoring at some locations, as noise mitigation measures (including dozer noise reduction, haul truck noise reduction, enclosure of overhead bins, enclosure of the rail loading facility and processing plants, and noise mitigation of the in-pit primary crusher) were incorporated into the modelling.

Overall, the NIA indicated that noise emissions from the quarry would remain significantly below the revised noise criteria in **Table 7**.

In its advice, EPA raised concerns that the NIA did not include an analysis of wind data in accordance with Fact Sheet D2 of the NPI and recommended a number of updates to existing conditions to align with the NPI. In the RTS, Boral provided an updated NIA addressing Fact Sheet D2. Following submission of the RTS and subsequent discussions with Boral, EPA advised that it had no further comment to make on the proposal, subject to its recommended conditions being adopted.

The Department notes that the EPA's recommended conditions reflect typical conditions for an EPL, including detailed guidance for assessing compliance under the NPI. It is the Department's preference not to include such detail in conditions of approval, but rather to require compliance with the NPI more broadly. As such, the EPA's advice has not been fully incorporated into the Department's recommended conditions. However, the Department has adopted the EPA's recommended noise criteria, which are more conservative than the recommended PNTLs shown in **Table 7**. As predicted noise levels in the NIA are well below the PNTLs, the Department considers that the more conservative noise criteria (shown in bold in **Table 7**) are appropriate and achievable.

5.3.2 Low Frequency Noise

The NIA included an assessment of low frequency noise, in accordance with the NPI. The NPI requires the difference between C-weighted and A-weighted sound levels to be less than 15 dB, or else a correction factor must be applied, depending on site specific circumstances. Boral assessed the likelihood of low frequency noise emissions from the quarry. The NIA predicted that the level at R8 (most-affected receiver) would be below the threshold level in all frequency bands. As such, the Department considers that low frequency noise is unlikely to impact any privately-owned residence near Peppertree Quarry.

Table 7 | Predicted operational noise levels (dB(A))

Receiver ID	Predicted noise levels – day shift* beginning of project				Predicted noise levels – day shift* end of project				Predicted noise levels – night shift**		
	8*100 t trucks (L _{Aeq} , 15min)	12*40 t trucks (L _{Aeq} , 15min)	Current Noise Criterion	PNTL	8*100 t trucks (L _{Aeq} , 15min)	12*40 t trucks (L _{Aeq} , 15min)	Current Noise Criterion	PNTL	Night time operations (L _{Aeq} , 15min)	Current Noise Criterion	PNTL
R1	19	18	35	40	19	18	35	40	16	35	38
R2	28	27	35	40	28	27	35	40	24	35	38
R3	31	31	35	40	31	30	35	40	28	35	38
R4	29	27	35	40	29	28	35	40	23	35	38
R5	30	29	35	40	30	29	35	40	28	35	38
R6	26	25	35	40	28	27	35	40	20	35	38
R7	32	31	35	40	33	32	35	40	28	35	38
R8	37	36	41	40	38	37	41	40	32	35	38
R9	31	30	35	40	35	34	35	40	26	35	38
R10	27	26	35	40	30	29	35	40	22	35	38
R11	24	23	35	40	24	23	35	40	16	35	38
R12	25	24	35	40	24	23	35	40	17	35	38
R13	23	22	35	40	23	21	35	40	18	35	35
R14	29	28	35	40	30	29	35	40	24	35	35
R15	30	28	35	40	31	30	35	40	23	35	35
R16	29	27	35	40	30	29	35	40	21	35	35
R17	30	28	35	40	31	29	35	40	20	35	35

* Day Shift (7am to 7pm)

** Night Shift (7pm to 7am)

*** **Bold text:** Proposed noise criterion based on EPA advice

5.3.3 Sleep Disturbance

Whilst the proposed modification is unlikely to result in an increase to sleep disturbance impacts (as no changes to hours of operation are proposed), the NIA included an assessment of the predicted $L_{A_{max}}$ night time noise levels for completeness, as modifications to current overburden emplacements may result in changes to acoustic shielding at some privately-owned residences. The NIA predicted that all $L_{A_{max}}$ noise levels would remain well below the sleep disturbance criteria at all privately-owned residences, and therefore a detailed maximum noise level assessment under the NPI was not required. The Department considers that modified quarry operations are unlikely to result in sleep disturbance at privately-owned residences.

5.3.4 Land Acquisition

Noise impacts were also assessed against the *NSW Voluntary Land Acquisition and Mitigation Policy* (VLAMP). The NIA indicated that predicted operational noise levels would not exceed PNTLs at any privately-owned residence or on more than 25% of any privately-owned land. Therefore, no acquisition or mitigation rights are triggered under the VLAMP. However, the Department notes that the existing project approval provides voluntary acquisition rights for receivers R3, R2 and R8 (see **Figure 1**), in the event noise levels exceed the criteria specified in the approval. The Department recommends that these rights be retained, out of consideration for landowners.

5.3.5 Cumulative and Residual Impacts

The NIA noted that predicted noise levels would comply with the intrusive noise levels under the NPI and therefore no further assessment of cumulative noise was required. The NIA also predicted that following the implementation of all feasible and reasonable mitigation measures, the proposed modification would not result in the need for any receiver-based treatment or control. The Department considers the assessment of cumulative and residual impacts in the NIA to be adequate and notes that any cumulative or residual impacts which also result from the proposal could be sufficiently managed under the recommended conditions and an updated Noise Management Plan (NMP).

5.3.6 Conclusion

While the development of the proposed SWOE and changes to the overburden haul route would result in changes to operational noise levels, the Department accepts that the proposed mitigation measures would allow Boral to comply with the EPA's recommended noise criteria. The Department has recommended updated conditions to align with the NPI and advice provided by the EPA, and to reflect current standards. These conditions require Boral to prepare an updated NMP for the site. The Department considers that the noise impacts of the proposed modification would be suitably managed under the recommended conditions and an updated NMP.

5.4 Air Quality

The proposal has the potential to impact on air quality through the development of the proposed SWOE and haul road, the amended WOE and the relocation of the powerline. The EA therefore included an Air Quality Impact Assessment (AQIA), prepared by Todoroski Air Sciences Pty Ltd, which assessed the potential air quality impacts of the proposal.

The AQIA considered the impacts of dust deposition, total suspended particles (TSP), PM_{10} (particles with a diameter of less than $10\ \mu m$) and $PM_{2.5}$ (particles with a diameter of less than $2.5\ \mu m$).

Boral has operated an air quality monitoring system at the quarry and the mine since 2011. The system includes two High Volume Air Samplers (HVAS), which measure either TSP or PM_{10} , and six dust deposition gauges. The AQIA used data from this monitoring system, the system at Lynwood Quarry (10 km to the northwest), and the OEH

monitors at Bargo (73 km to the northeast) and Wollongong (87 km to the east-northeast) to assist in characterising the background air quality of the area. Regional PM_{2.5} data from the Wollongong monitoring station was used as no equivalent local PM_{2.5} data was available. The Department notes that this approach is likely to provide a more conservative assessment of impacts, since PM_{2.5} concentrations in Wollongong are likely to be substantially higher than at the quarry.

Both the quarry and mine also operate automatic weather stations. The data from these stations indicate that the typical wind flow in the area is on an east-west axis with the strongest winds in summer being predominantly from the east and the strongest winds in winter being predominantly from the west.

5.4.1 Existing Air Quality

Air quality monitoring conducted at the quarry since 2011 has found that, on average, the annual PM₁₀ levels have been consistently below the EPA's applicable criterion of 25 µg/m³. Monitoring of annual average TSP levels was also found to be consistently lower than the EPA's criterion of 90 µg/m³. The AQIA identifies several isolated exceedances of the maximum 24-hour PM₁₀ criterion, with the largest exceedance occurring in December 2015. The AQIA notes that these exceedances are likely a result of the location of the quarry's HVAS monitor, which is located close to quarrying and mining activities, and close to Aglime's lime processing facility which commenced transport of lime by truck in November 2015.

Annual average dust deposition levels were generally below the criterion of 4g/m²/month, with higher readings attributed to the location of dust gauges and the contamination of samples with bird droppings and/or insects.

5.4.2 Predicted Air Quality

The AQIA modelled the air quality impacts of a single worst-case scenario based on the proposed maximum production rate, with dust generating activities occurring at the closest possible locations to nearby receivers. In this scenario, the existing approved eastern, southern and western overburden emplacement areas are assumed to have been completed and the new SWOE is in operation. Current dust emissions from the mine were also included in the model to assess the potential for cumulative impacts.

The AQIA assessed the impacts of this scenario both incrementally and cumulatively for seventeen private residential receivers, seven Boral-owned residential receivers, three commercial receivers and a proposed residential receiver (see **Figure 1**).

The predicted emissions remain substantially below all relevant criteria, except at a Boral-owned property (B4), where cumulative annual average PM₁₀ concentrations were predicted to exceed the relevant criterion by 1.4 µg/m³. However, this receiver is subject to a tenancy agreement which incorporates negotiated noise and dust levels, and is presently vacant.

Air quality impacts were also assessed against the VLAMP. The proposed modification is not predicted to result in any exceedances of EPA criteria at any privately-owned residences, or on more than 25% of any privately-owned land. Consequently, no acquisition or mitigation rights are triggered under the VLAMP. The Department recommends that acquisition rights afforded under the current project approval be removed, as they do not reflect contemporary policy.

Boral currently employs a number of mitigation measures at the quarry in accordance with the site's Air Quality Management Plan (AQMP) to ensure that impacts of quarrying and processing operations are minimised. These measures include actively relocating the primary crusher, dust suppression sprays, progressive rehabilitation and meteorological monitoring to enable proactive management of quarrying operations.

As noted in **Section 4.2**, the EPA raised no concerns with respect to air quality.

5.4.3 Greenhouse Gas (GHG) Emissions

GHG emissions were assessed in the EA for the original project. As the proposal would not increase annual production or transport rates, no substantial increase to GHG emissions is predicted. Boral has also committed to continue to monitor and report on GHG emissions in accordance with the *National Greenhouse and Energy Reporting Act 2007*. The Department has recommended conditions requiring Boral to take all reasonable steps to minimise GHG emissions. The Department considers that GHG emissions would be suitably managed under this recommended condition.

5.4.4 Conclusion

The Department considers that the assessment of the proposal's predicted air quality impacts has been appropriately undertaken and that Peppertree Quarry, as modified, could operate within existing impact assessment criteria. Although the modification would result in only minimal changes to air quality, the Department has taken the opportunity to review and update the existing air quality conditions to reflect contemporary standards. The recommended conditions would require Boral to:

- comply with contemporary air quality criteria, including updated PM₁₀ criteria and additional PM_{2.5} criteria, in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*;
- minimise the cumulative impacts generated by the proposal and the mine; and
- prepare a contemporary AQMP which reflects the modified operation.

The Department considers that the air quality impacts of the proposed modification can be suitably managed under the recommended conditions and an updated AQMP.

5.5 Surface Water

The quarry is located within the Shoalhaven River Catchment. Prior to the establishment of the quarry, the site generally drained to Tangerang Creek, which flows intermittently just north of the quarry pit eastwards to Barbers Creek. The quarry is regulated under the *Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources* (2011). Boral has an existing WAL to take 145 megalitres/year from the Barbers Creek Management Zone.

The exposed surfaces of the SWOE, WOE and haul road have the ability to increase surface water flows or erode during high rainfall events, with the potential to impact local waterways and the Shoalhaven River. As such, the EA included an assessment, undertaken by Advisian Pty Ltd, to assess surface water impacts from the proposal on the quantity and quality of downstream surface waters. The Surface Water Assessment (SWA) also considered whether the proposed modification would have a neutral or beneficial effect (NorBE) on water quality, in accordance with the requirements of the *State Environmental Planning Policy (Sydney Drinking Water Catchment)* 2011 (the Drinking Water SEPP).

5.5.1 Current Surface Water Management System

Surface water at the quarry is currently managed in accordance with the Peppertree Quarry Water Management Plan (WMP). Under the WMP, surface water is managed via multiple sediment basins which capture water from the disturbed areas of the quarry and diversions which direct clean water away from disturbed areas. Most of the water captured is pumped or drained to the quarry pit, Dam K or Dam I, where it is used for dust suppression, reuse in operations or discharged to Tangerang Creek to maintain environmental flows.

Boral maintains a comprehensive surface water monitoring network within and around the quarry and the mine, including monitoring sites:

- on Tangarang Creek, both upstream and downstream of Dam 1;
- on Marulan Creek, providing data on the water quality of runoff from the open grazing land north of the quarry site;
- upstream and downstream of Barbers Creek; and
- on the Shoalhaven River.

A review of monitoring data in the EA indicated that, under current operations, water quality downstream of the quarry is commonly better than the water quality upstream.

5.5.2 Proposed Surface Water Management

The proposed SWOE area naturally drains in a south-easterly direction towards the mine pit. The area impacted by the modified WOE currently drains in a northerly direction, with the north-western section draining towards Dam 1 and the south-eastern and central sections draining toward the quarry pit.

The proposed surface water management system for the SWOE and modified WOE areas is shown in **Figure 5**. Under the proposed modification, the SWOE would drain into three catchments (A, B and C). These catchments would drain as follows:

- Catchment A would drain into an existing sediment basin, and would be pumped into the Kiln Dam or else overflow to a tributary of Tangarang Creek;
- Catchment B would drain into a new sediment basin and would be pumped to or overflow into the Kiln Dam; and
- Catchment C would drain into a natural drainage line and then into the mine where it will be captured by the mines existing surface water management system.

Boral has indicated that, as runoff from Catchment C would flow to the mine, no additional erosion and sediment controls would be required for that catchment and this would be reflected in the mines updated Erosion and Sediment Control Plan (ESCP). However, the Department considers that, as SSD 7009 or its associated ESCP is yet to be approved, an interim WMP for Catchment C would be required to mitigate and manage any potential surface water impacts. The Department has recommended a condition to this effect.

The modified WOE would drain into six catchments. These catchments would drain as follows:

- Catchment 1 would divert clean water around the WOE towards Dam 1;
- Catchment 2 and Catchment 4 would drain to a pipe under the WOE and discharge to sediment basin P2, and subsequently be dewatered to Dam 1 via a bioswale;
- Catchment 3 and Catchment 5 would also discharge to sediment basin P2 and be dewatered to Dam 1 via a bioswale; and
- Catchment 6 would drain to a new sediment basin P1, which would then be dewatered into the in-pit sump and then be pumped into the Heritage Dam.

The sediment basins have been designed to capture and accommodate runoff from a 95th percentile, five-day rainfall event, with an allowance for up to 50 percent additional storage for sediment. The SWA also indicated that these sediment basins would be operated to ensure 'air space' is restored within five days of any rainfall event. In order to do so, water would be taken from the SWOE sediment basins and transferred to the Kiln Dam for use in dust suppression and limestone processing at the mine. Water from the WOE sediment basins would be transferred and used for dust suppression and operational reuse at the quarry, or released to the environment via Tangarang Creek.

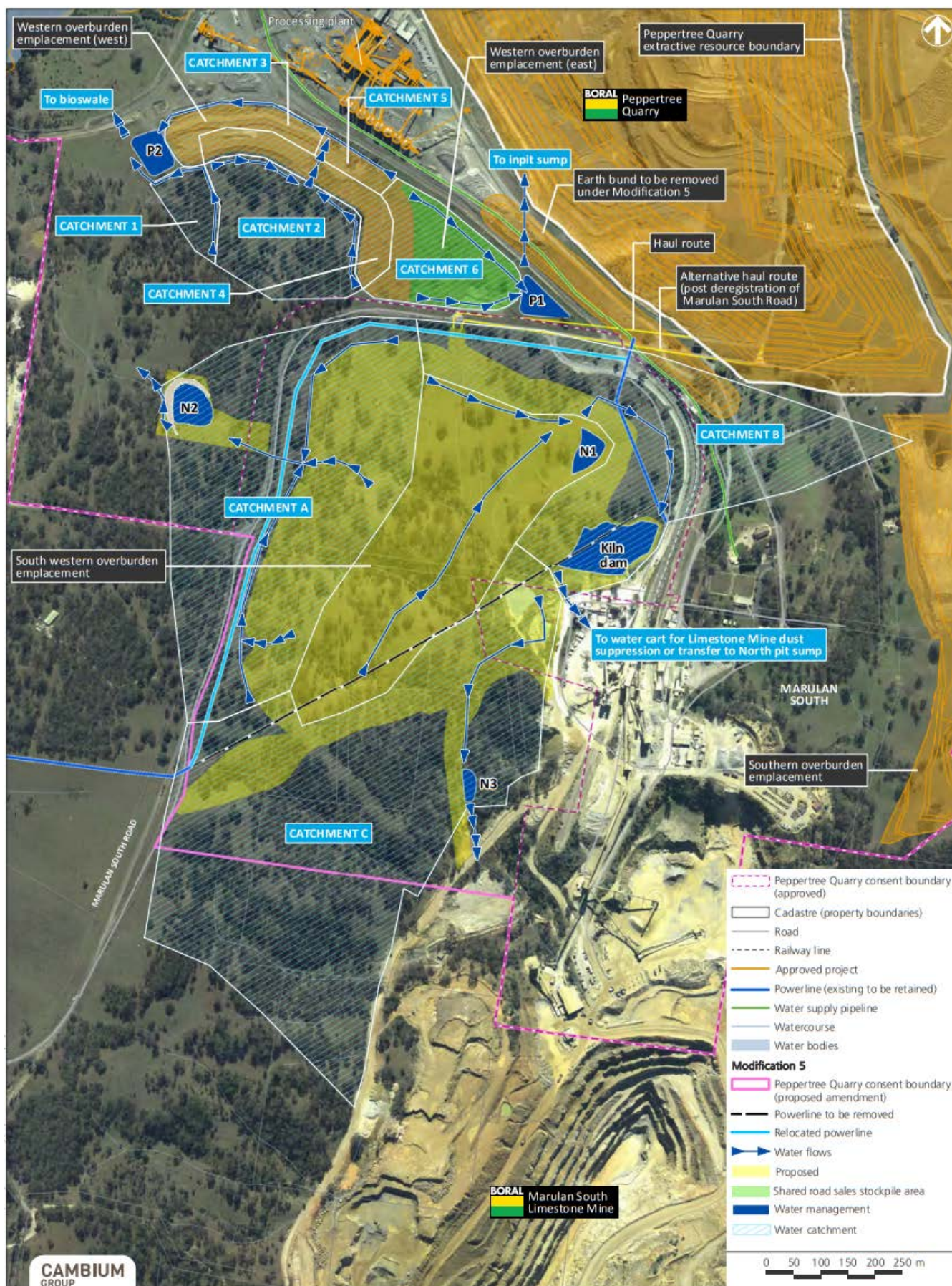


Figure 5 | Proposed water management system

5.5.3 Surface Water Impacts

The SWA indicated that during significant rainfall events (ie exceeding the 95th percentile five -day design capacity of the sediment basins), Sediment Basin N2 would overflow to a tributary of Tangarang Creek (see **Figure 5**). This is expected to occur up to twice per year. However, as the Tangarang Creek tributary discharges to Dam 1, which forms part of the existing water management system, impacts to downstream users are considered unlikely. Surface water runoff from the modified WOE would also be treated via a bioswale (i.e. a sloping vegetated channel) prior to discharge into Dam 1. The assessment also noted some discharges from Dam 1 may occur during or after significant rainfall events, however this is likely to be diluted by surface water flows from other parts of the landscape.

As discussed in **Section 4.2**, WaterNSW is satisfied that water quality can be appropriately managed during the construction and operational stages of the proposal, subject to implementation of the mitigation measures outlined in the EA and through the development and application of a revised WMP.

WaterNSW raised initial concerns regarding the lack of information provided in the EA on the physical characteristics of the SWOE. Specifically, these concerns related to the long-term geomorphological stability of the SWOE and whether rates of erosion from the SWOE would be greater than those currently occurring on the site. In response to these concerns, a Geomorphology Report for the SWOE was provided in the RTS. This report noted that the proposed SWOE incorporates several design features (including slope battering, limited bench heights, dedicated drainage channels, revegetation and soil stabilisation) to ensure the long-term stability of the emplacement, with similar erosion rates predicted as for the surrounding natural landscape.

However, following its review of the RTS and further discussions with Boral, WaterNSW reiterated its concerns regarding the long-term stability of the SWOE. Consequently, WaterNSW recommended conditions, including monitoring of the geomorphological stability of the SWOE. The Department has incorporated ongoing monitoring of geomorphological stability in its recommended conditions.

Existing conditions require Boral to manage discharges, environmental flows and sediment dams associated with the development. In particular, these conditions require Boral to conduct monitoring both upstream and downstream of the quarry in Tangarang Creek and Barbers Creek, to ensure the quarry can demonstrate NorBE on receiving waters. The conditions also require Boral to provide Tangarang Creek with environmental flows equivalent to 10% of average daily flows, and monitor impacts to both surface and ground water against specific performance criteria contained in the WMP. The Department has recommended conditions which would require Boral to revise its WMP to reflect the modification.

The Department considers that Boral has designed the proposed modification to avoid impacts on downstream water, and is of the view that the proposal can be carried out in a manner that satisfies the NorBE requirements of the Drinking Water SEPP. The Department considers that the surface water impacts of the proposed modification can be suitably managed under existing and modified conditions, a revised WMP and an interim WMP for catchment C of the SWOE.

5.6 Traffic and Transport

Access to Peppertree Quarry for all traffic, including heavy vehicles, is via Marulan South Road, which intersects with the Hume Highway approximately 9 km to the north-west (see **Figure 1**). Boral also operates a private rail line which connects the quarry to the Main Southern Railway, approximately 6 km to its north. No changes to rail transportation are proposed.

As Boral is seeking to purchase and deregister a section of Marulan South Road between the Peppertree Quarry and Aglime Fertiliser's access road (B4, see **Figure 1**) and subsequently construct a new intersection on Marulan South Road, the EA included a Traffic Impact Assessment (TIA). The TIA included an assessment of:

- current traffic generation from both the quarry and the mine;
- traffic impacts of the proposed haul road intersection on Marulan South Road (in the event that this section of road is not deregistered); and
- the future intersection treatment options.

5.6.1 Traffic Generation

The TIA provided traffic generation data for both the quarry and the mine. The TIA stated that under current operations, a total of 538 vehicle movements occur on an average weekday, including 190 heavy vehicle movements. Peppertree Quarry accounts for up to 70 light vehicle movements and 40 heavy vehicle movements per day. These 40 heavy vehicle movements mostly comprise fuel, equipment and other general deliveries, along with movements of contractor vehicles.

Under existing conditions, all quarry products must be transported from the site by rail. However, Boral may seek written approval from the Secretary to transport quarry products via road in emergencies or exceptional circumstances. Boral currently uses this exception to provide donated scalp material (ie crusher fines) to neighbouring residents along Marulan South Road, local community projects and to staff for personal use.

The proposed modification does not seek to change traffic volumes generated by the quarry. Consequently, no changes to existing traffic management conditions are proposed. However, the Department is of the view that the existing requirement to obtain written approval each time scalp material is transported by road creates an unnecessary administrative burden. Given the infrequency of truck movements, and the local community benefits associated with the donation of scalp materials, the Department has recommended updated conditions to establish a daily cap for vehicle movements (ie no more than two truck dispatches per day) to facilitate in the donation of scalp material. Any additional truck movements would require written approval. Boral has agreed to the Department's recommended conditions.

5.6.2 Marulan South Road Intersection

Up to 28 truck loads of overburden would be transported across Marulan South Road to the SWOE per hour, using the proposed intersection (ie a totally of up to 56 movements per hour). The TIA included two designs for the proposed intersection. These designs are shown in **Figure 6** and are described as follows:

- Option 1 (if Marulan South Road is deregistered) – trucks would leave the quarry and travel along the closed road, before turning left into the SWOE; and
- Option 2 (if Marulan South Road remains open to the public) – the proposed haul road would run parallel to Marulan South Road and across Marulan South Road at the intersection into the SWOE.

Boral has also indicated that traffic signals may be installed if the section of Marulan South Road between the Peppertree Quarry and the Aglime Fertiliser access road is deregistered.

The TIA concluded that the proposed intersection would have a relatively minor impact, with the Level of Service (LOS) remaining at A along Marulan South Road. The Department notes that, whilst it is currently a public road, the affected section of Marulan South Road is rarely used by the general public, and virtually all traffic on it is associated with Boral's operations.

The TIA also noted that, following closure and deregistration of Marulan South Road, and the installation of the proposed traffic signal-controlled intersection, the intersection would have a good operation, with the LOS also remaining at A.

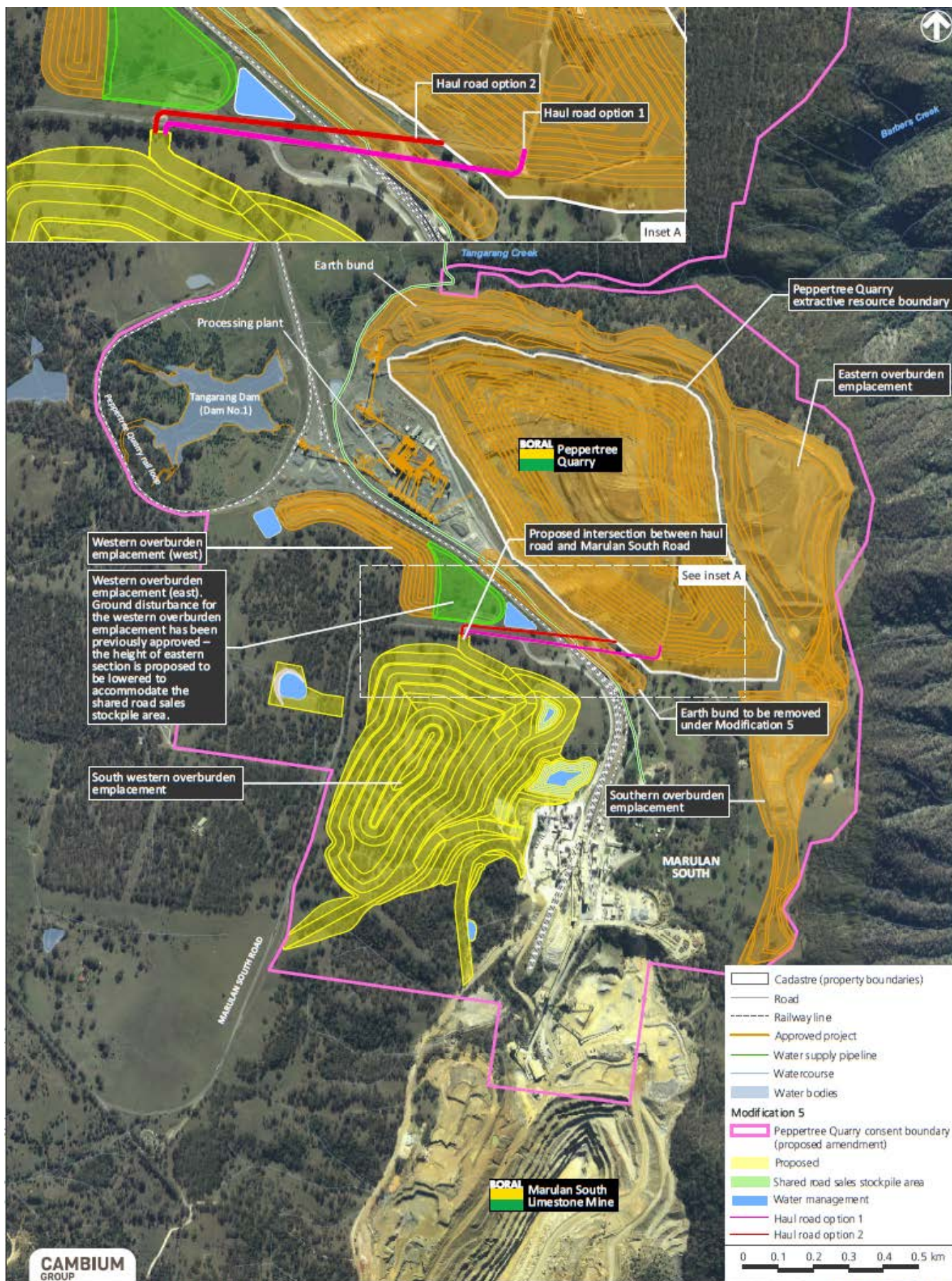


Figure 6 | Proposed haulage scenarios

RMS raised no concerns regarding the proposed deregistration of Marulan South Road or the proposed intersection and provided recommended conditions for both design scenarios (with either controlled or uncontrolled access to the quarry). In the RTS, Boral accepted the recommended conditions noting that the deregistration process for the road is currently under way.

As discussed in **Section 4.2**, Council noted its preference for Option 1, requesting that all road closure requirements and works be finalised prior to hauling any overburden to the proposed SWOE. The Department also considers this to be the preferred option, as it would present the best safety outcome for the proposal, whilst providing certainty for the final haulage scenario.

To ensure Option 1 is pursued without imposing unnecessarily restrictions on the operation, the Department has recommended a condition restricting the use of Option 2 for the transport of overburden until no later than 31 December 2020, or as otherwise agreed by the Secretary. This provides an appropriate transitional arrangement while the closure Marulan South Road is being pursued and is coupled by conditions requiring the Applicant to make suitable arrangements for the safety of public road users, to the satisfaction of Council and the RMS.

5.6.3 Conclusion

The Department considers that the traffic impacts of the proposal have been adequately assessed in the TIA. Existing conditions require Boral to prepare and implement a construction traffic management plan for the project to the satisfaction of the RMS and Council. The Department has recommended updated conditions to reflect the proposed modification, the recommendations made by RMS and Council, and to establish a daily cap for vehicle movements transporting donated scalp material. On this basis, the Department considers that there would be negligible traffic impacts associated with the proposed modification. Any impacts resulting from the proposal could be suitably managed under existing and modified conditions.

5.7 Visual Impacts

The EA included a Visual Impact Assessment (VIA) which assessed the impacts of the proposed modification on surrounding sensitive receivers and key public vantage points. The VIA analysed topographic and cadastral data and aerial images for select potential viewpoints. The terrain of these viewpoints was subsequently modelled in two and three dimensions. Photomontages were then developed to assess the visual impact of the proposed SWOE, modified WOE and realigned powerline.

5.7.1 Impact of the SWOE, WOE and Powerline

The proposed SWOE would cover approximately 44 ha and would reach approximately 650 m AHD in height (58 m above current ground level).

Receivers R10, R14, R15 and a viewing point (VP21) near Long Point Lookout (a non-residential receiver to the east of the quarry) (see **Figure 7**) were predicted to experience 'medium' visual impacts due to the establishment of the SWOE. However, these impacts are expected to reduce to 'low' at all receivers following revegetation of the SWOE, with exception of VP21 which would remain at a 'low/medium' visual impact. Photomontages from the worst-affected receiver (VP21) before and after the revegetation of the SWOE and its surrounds are shown in **Figure 8** below. Overall, the VIA determined that the visual impact of the proposal on the landscape would be low, as the SWOE would not be visible from most sensitive receivers.

The Department considers that the height and visual exposure of the SWOE would not be significantly different to current views, in that existing overburden emplacements at the quarry are currently approved to a maximum height of 630 m AHD.

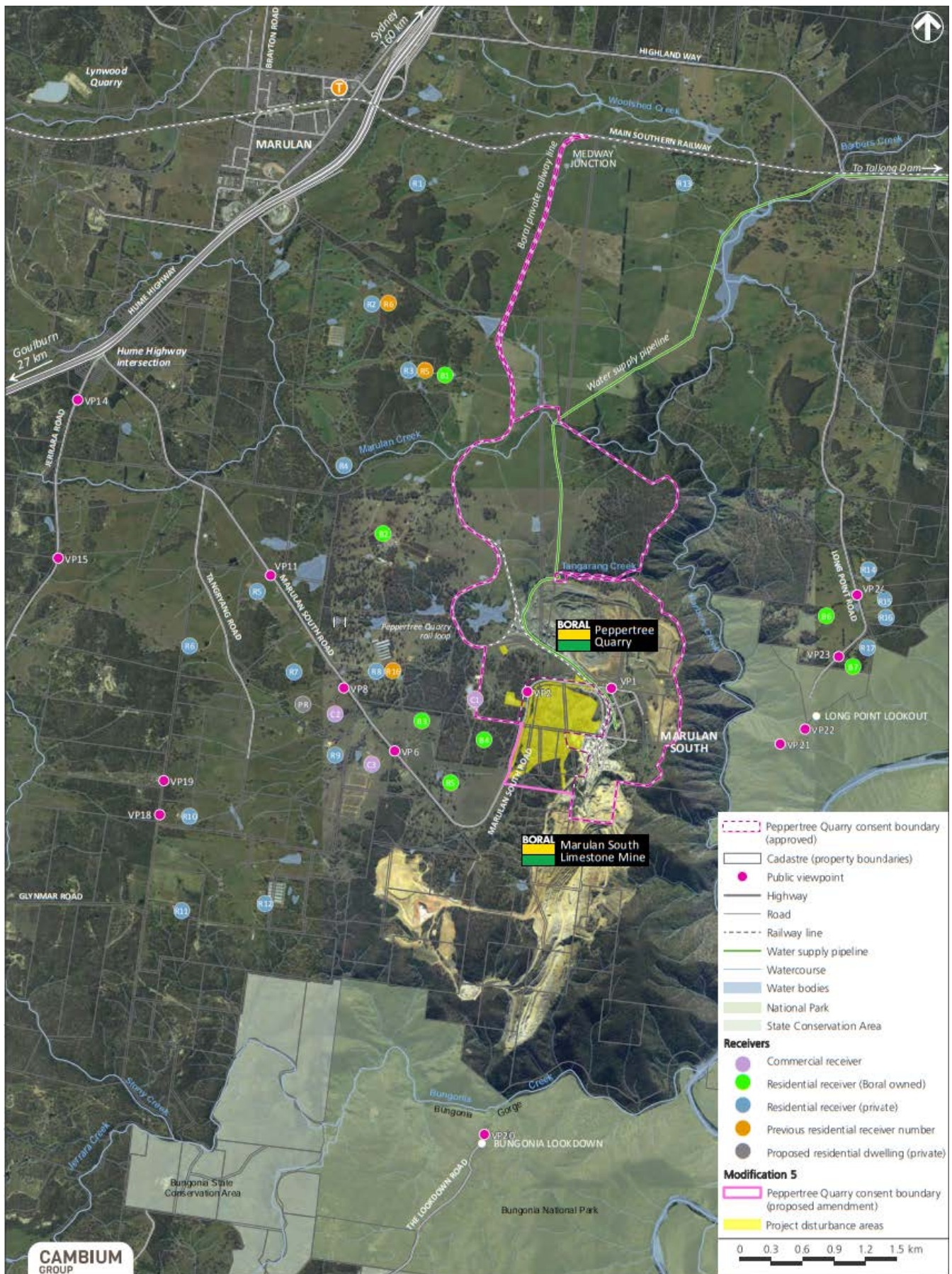


Figure 7 | Visual impact receivers



Figure 8 | Photomontage of impacts at receiver VP21 before and after revegetation of the SWOE

The WOE is an already approved feature of the quarry. The proposed modification would result in a minor visual benefit with the visibility of the quarry's processing area and rail load-out facility being reduced by the modified design.

The VIA also concluded that the proposed re-alignment of the high voltage powerline would be of low visibility, with views being confined to the Marulan South Road corridor. No changes to night-time lighting are proposed as part of the modification and, as such, no additional visual impacts are expected.

To minimise the visual impacts of the modification, Boral proposes to continue to implement progressive rehabilitation in accordance with the site's BRMP.

5.7.2 Conclusion

Existing conditions require Boral to minimise the visual impacts of the quarry and revegetate overburden emplacements, emplacement extensions and bunds as soon as practicable. Accordingly, the Department considers that no additional visual impact or amenity conditions are necessary. Progressive rehabilitation would continue to have the most influence over minimising visual impacts and these activities would be addressed under existing conditions and the updated BRMP.

While the proposed modification involves establishment of a substantial new overburden emplacement area in a previously undisturbed area, the Department considers that the proposed landform would be developed to be consistent with the shapes, forms, lines and colours of the neighbouring landscape, including currently approved overburden emplacements. Consequently, the Department considers that the proposed modification would remain compatible with the surrounding visual environment and would not significantly increase the visual impacts of the approved project.

5.8 Other Issues

Other impacts associated with the modification are considered to be minor or negligible. **Table 8** summarises the Department's assessment of these impacts.

Table 8 | Summary of other issues raised

Issue	Findings	Recommended Condition
Groundwater	- The establishment of the SWOE and modifications to the WOE only require minor excavations, which are not expected to impact on groundwater. - Dol raised no concerns over groundwater impacts. - Existing conditions require Boral to review, and if necessary, amend its WMP, which includes a Groundwater Monitoring Program, following approval of this modification to ensure they remain suitable for the project.	No changes considered necessary to existing conditions.
Historic Heritage	- The AHHIA identified no items of significance within the modification area and as such no further assessments were undertaken. - The Heritage Council raised no concerns regarding the proposal and Council did not provide any comments with respect to local heritage matters.	No changes considered necessary to existing conditions.

- The Department considers that the modification is unlikely to materially affect historic heritage items and the management of potential impacts could be achieved by updating current management plans to reflect the proposed modification.

Socio Economic

- The key issues of concern for the local community are largely related to amenity, including noise, air, runoff and visual impacts.
- These issues have been considered in detail in this report, and the Department considers that there would be no significant increase in these impacts as a result of the proposed modification.
- The Department considers that the amenity impacts of the project (including the proposed modification) would be suitably managed under existing and recommended conditions.
- The proposed modification would facilitate continued operations at the quarry, thereby enabling the long-term supply of construction materials to Sydney and the Greater Sydney region.
- The Department considers that this socio-economic benefit could be achieved without substantially increasing the environmental impact of the quarry.
- The Department has taken the opportunity to update existing conditions with respect to noise, air quality, water management and visual impacts, to reflect current standards.

Public Infrastructure

- Essential Energy did not provide a response directly to the Department. However, it wrote to Boral requesting the powerline be removed from the modification or alternatively be excluded from the conditions of approval.
- The Department has previously addressed these concerns in relation to other projects affecting Essential Energy's infrastructure. However, the Department contacted Essential Energy during the assessment process to further discuss this matter.
- Following these discussions, Essential Energy agreed that no revisions to the proposed conditions were necessary.
- No changes considered necessary to existing conditions.



6. Evaluation

The Department has assessed the merits of the proposed modification in accordance with the requirements of the EP&A Act. The modification application and accompanying EA and RTS demonstrate that the proposed modification would result in limited impacts to the environment and to nearby receivers, relative to the approved project, subject to satisfactory implementation of the proposed mitigation and offset measures.

The Department considers that the environmental impacts of the proposed modification can be appropriately managed through the recommended conditions of approval. The predicted impacts on biodiversity (including both State and Commonwealth listed threatened species and communities) would be suitably offset under Boral's

Biodiversity Offsets Scheme. Boral would also be required to comply with updated noise and air quality performance criteria, and updated surface water and erosion monitoring requirements.

The Department considers that the project, as modified, would continue to provide benefits to the region by supplying construction materials, namely hard rock material, for the Sydney and Greater Sydney markets. The Department is therefore satisfied that the proposed modification is in the public interest and should be approved.

The Department has drafted a notice of modification (see **Appendix E**) and a consolidated version of the project approval (see **Appendix F**), as amended. The Department has also taken the opportunity to fully update the project approval to reflect its current drafting standards.

Boral has accepted the proposed modified conditions of approval.



7. Recommendation

It is recommended that the Executive Director, Energy and Resources, as delegate of the Minister for Planning and Public Spaces:

- **considers** the findings and recommendations of this report;
- **determines** that the modification falls within the scope of section 75W of the EP&A Act;
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to grant approval to the application;
- **modifies** the approval MP 06_0074;
- **signs** the attached approval of the modification (**Appendix E**).

Recommended by:

Melissa Anderson

Environmental Assessment Officer
Resource Assessments

Recommended by:

Matthew Spratt

A/Director
Resource Assessments



8. Determination

The recommendation is: **Adopted by:**

Mike Young

A/Executive Director
Energy and Resources



Appendices

Appendix A – Environmental Assessment

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=9144

Appendix B – Submissions

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=9144

Appendix C – Response to Submissions

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=9144

Appendix D – Consideration of Matters of National Environmental Significance

Refer to page 38 of this report

Appendix E – Notice of Modification

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=9144

Appendix F – Consolidated Approval

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=9144

Appendix D – Consideration of Matters of National Environmental Significance

In accordance with the Bilateral Agreement between the Commonwealth and NSW Governments, the Department provides the following additional information, required by the Commonwealth Minister in deciding whether or not to approve a proposal under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

D1. IMPACTS TO LISTED THREATENED SPECIES AND COMMUNITIES

The proposed action involves the disturbance of 39.69 ha of native vegetation and 8.64 ha of previously cleared land and non-native vegetation. Of the native vegetation proposed to be cleared, approximately 27.68 ha is commensurate with *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* CEEC, as listed under the EPBC Act as critically endangered. Some areas of native vegetation proposed to be cleared also provide (or have the potential to provide) habitat and foraging resources for three threatened fauna species which are listed under the EPBC Act: the Regent Honeyeater, Large-eared Pied Bat and Koala. A summary of the likely impacts of the proposed action on MNES is provided in **Table D1**.

Table D1 | Summary of likely impacts on CEECs and threatened species listed under the EPBC Act

MNES	EPBC Act Status	Impact Area (ha)	Nature of Impact
<i>White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland</i>	Critically endangered	27.68	Direct clearing of vegetation community
Large-eared Pied Bat (<i>Chalinolobus dwyeri</i>)	Vulnerable	27.1	Clearing of potential foraging habitat
Koala (<i>Phascolarctos cinereus</i>)	Vulnerable	27.1	Clearing of potential occupiable habitat
Regent Honeyeater (<i>Anthochaera phrygia</i>)	Critically endangered	27.1	Clearing of potential foraging habitat

The Proponent's BDARs¹ identify that the proposal would clear potential and/or known habitat for threatened species which could, in the absence of appropriate management measures, result in significant impacts on MNES.

D2. DEMONSTRATION OF 'AVOID, MITIGATE, OFFSET' FOR MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE (MNES)

The EA and RTS (see **Appendix A** and **Appendix C**) describe a number of measures and refinements that have been made to reduce disturbance of threatened flora species, ecological communities and fauna habitat, and to avoid direct impacts on fauna species. In particular, the RTS provides a detailed overview of the site selection process. This is discussed further in **Section 5.1.5** of this report.

There are no direct impacts proposed outside of the proposed disturbance boundaries. The Department's recommended conditions require the proponent to clearly identify the proposed disturbance boundaries prior to the commencement of work and ensure there is no clearing of native vegetation adjacent to the proposed disturbance areas. For impacts within or close to the proposed disturbance boundary, where avoidance is not practicable, the Proponent has proposed a range of targeted mitigation measures, including undertaking pre-clearance surveys, relocation of displaced fauna, landform establishment, habitat augmentation, and fencing and signposting. Where the proposal is considered likely to have indirect impacts on MNES (ie from noise, light, dust,

¹ Including the Proponent's BDAR in the EA provided Appendix A and the Revised BDAR in the RTS provided in Appendix C.

erosion, weeds and feral animals), the Proponent has also proposed to undertake a number of mitigation or management actions that would reduce the extent of these impacts (see **Section 5.1.4** of this report).

To account for any residual impacts that cannot be addressed through the proposed avoidance and mitigation measures, the Proponent has provided a comprehensive and targeted Biodiversity Offset Strategy (BOS). This strategy includes the establishment of two Biodiversity Stewardship Sites, will provide like-for-like offsets for the area of proposed disturbance (see **Table D2**).

OEH and the Department consider that the proposed BOS satisfies offsetting requirements for MNES. Further detailed consideration and assessment of the likely impacts for individual fauna species and the adequacy of the proposed offsets package is provided in **Section 5.1** of this report.

Table D2 | Summary of impact and offset areas for MNES

MNES	Impact Area (ha)	Offset Area (ha)	Offset Ratio
<i>White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland</i>	27.68 (known habitat)	360	1:13
Large-eared Pied Bat (<i>Chalinolobus dwyeri</i>)	27.1 (potential habitat)	1000	1:37
Koala (<i>Phascolarctos cinereus</i>)	27.1 (potential habitat)	1000	1:37
Regent Honeyeater (<i>Anthochaera phrygia</i>)	27.1 (potential habitat)	1360	1:50

D3. REQUIREMENTS FOR DECISIONS ABOUT THREATENED SPECIES AND ENDANGERED ECOLOGICAL COMMUNITIES

In accordance with section 139 of the EPBC Act, in deciding whether or not to approve, for the purposes of a subsection of either section 18 or section 18A of the EPBC Act, the taking of an action and what conditions to attach to such an approval, the Commonwealth Minister must not act inconsistently with certain international environmental obligations, Recovery Plans, or Threat Abatement Plans. The Commonwealth Minister must also have regard to any relevant approved Conservation Advice.

D.3.1 Australia's International Obligations

Australia's obligations under the *Convention on Biological Diversity* (Biodiversity Convention) include the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

The recommendations of this report are not inconsistent with the Biodiversity Convention, which promotes environmental impact assessment (such as this process) to avoid and minimise adverse impacts on biological diversity. Accordingly, the recommended conditions require avoidance, mitigation and management measures for listed threatened species and communities and that all information related to the proposed action is publicly available to ensure equitable sharing of information and improved knowledge relating to biodiversity.

Australia's obligations under the *Convention on Conservation of Nature in the South Pacific* (Apia Convention) include encouraging the creation of protected areas which together with existing protected areas would

safeguard representative samples of the natural ecosystems occurring therein (particular attention being given to endangered species), as well as superlative scenery, striking geological formations and regions. Additional obligations include using best endeavours to protect fauna and flora (special attention being given to migratory species) so as to safeguard them from unwise exploitation and other threats that may lead to their extinction. The Apia Convention was suspended on 13 September 2006. Nonetheless, Australia's obligations under the Convention have been taken into consideration. The recommended approvals are not inconsistent with the Convention which generally aims to promote the conservation of biodiversity.

The *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES) is an international agreement between governments which seeks to ensure that international trade in specimens of wild animals and plants does not threaten their survival. The recommended approvals are not inconsistent with CITES as the proposed action does not involve international trade in specimens of wild animals and plants.

D.3.2 Recovery Plans and Approved Conservation Advices

The Department's assessment report provides a detailed and comprehensive assessment of the potential impacts of the proposed action on listed threatened species and communities under the BC Act and the EPBC Act. In accordance with the accredited assessment process, the Department has taken into consideration approved Conservation Advices and Recovery Plans for the species and communities which would be impacted by the proposed action.

National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Department of Environment, Climate Change and Water NSW 2010)

The National Recovery Plan considers the conservation requirements of the ecological community across its known range and identifies actions to be undertaken to ensure the long-term viability of the ecological community, by promoting its recovery and minimising the risk of extinction. The Bungonia State Conservation Area, which abuts the Peppertree Quarry, is identified in the National Recovery Plan as a conservation reserve known to contain the ecological community.

The objectives of the plan are to:

- achieve no net loss in the extent and condition of the ecological community throughout its geographic distribution;
- increase the protection of sites in good condition;
- increase the landscape function of the ecological community through management and restoration of degraded sites;
- increase transitional areas around remnants and linkages between remnants; and
- bring about enduring changes in participating land manager attitudes and behaviours towards environmental protection and sustainable land management practices to increase extent, integrity and function of the CEEC.

The proposed action would result in the clearing of approximately 27.68 ha of vegetation which conforms to this CEEC. To compensate for this loss, the BOS has focused on establishing two Stewardship Sites which would provide in-perpetuity protection and management of biodiversity values. A 360 ha privately owned property would provide in excess of 100 percent of the offset requirements for the *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* CEEC.

The Department and OEH consider that the proposed offset package is adequate, and consistent with the objectives of the Recovery Plan, as it would result in the long-term conservation of a significant area of the community in southern New South Wales.

National recovery plan for the Large-eared Pied Bat *Chalinolobus dwyeri* (Department of Environment and Resource Management 2011)

The National Recovery Plan considers the conservation requirements of the Large-eared Pied Bat across its known range and identifies actions to ensure its long-term viability. The Bungonia State Conservation Area, which abuts the Peppertree Quarry, is identified in the National Recovery Plan as a conservation reserve known to contain the species.

The proposed action would result in the clearing of approximately 27.1 ha of potential foraging habitat for the Large-eared Pied Bat. To address these potential impacts, the Proponent's BOS includes direct land-based offsets containing suitable Large-eared Pied Bat foraging habitat that occurs within the Bungonia subregion. A 1000 ha Boral owned property would provide in excess of 100% of the offset requirements for the Large-eared Pied Bat.

The Department considers that the proposed offsets package is consistent with the primary conservation objectives of preventing further population decline and improvement in quality and quantity of habitat to maximise survival and reproductive success. The Department therefore considers that the proposed action would not be inconsistent with the National Recovery Plan, subject to the timely and successful implementation of the proposed offset strategy.

Approved Conservation Advice for *Phascolarctos cinereus* (combined populations in Queensland, New South Wales and the Australian Capital Territory) (Department of Sustainability, Environment, Water, Population and Communities 2012)

The Conservation Advice for the Koala was approved by the Commonwealth Minister on 30 April 2012. The Advice identifies that major threats to the Koala are loss and fragmentation of habitat, vehicle strike, disease, and predation by dogs. Drought and incidences of extreme heat are also known causes of mortality. The Conservation Advice identifies local and regional priority actions that could be implemented to support the recovery of the species including measures to prevent habitat loss, disturbance and modification, prevent animal predation and communicate conservation information.

The proposed action would result in the clearing of approximately 27.1 ha of vegetation which provides potential foraging and dispersal habitat for the Koala. The Proponent's BOS includes land-based offsets aligned to the Conservation Advice, containing like-for-like foraging and dispersal habitat, within the Bungonia subregion. A 1000 ha Boral owned property would provide in excess of 100 percent of the offset requirements for the Koala.

The Department considers that the proposed offsets package is consistent with the primary conservation objectives of reducing the rate of further population decline and habitat loss. The Department therefore considers that the proposal would not be inconsistent with the approved Conservation Advice for the Koala, subject to the timely and successful implementation of the proposed offset strategy.

National Recovery Plan for the Regent Honeyeater (*Anthochaera phrygia*) (DoEE 2016)

The National Recovery Plan considers the conservation requirements of the Regent Honeyeater across its known range and identifies actions to ensure its long-term viability. The Recovery Plan provides information on habitat requirements, ecology, distribution, conservation status, key threats, management issues, research and monitoring, captive breeding and translocation, and community education.

Conservation Advice *Anthochaera phrygia* Regent Honeyeater (DoEE 2015)

The Conservation Advice for the Regent Honeyeater was approved by the Commonwealth Minister on 25 June 2015 and identifies the main threat as disease. The Conservation Advice identifies local and regional priority actions that could be implemented to support recovery of the species.

The objectives of both documents are to:

- reverse the long-term population trend of decline and increase the numbers of Regent Honeyeaters to a level where there is a viable, wild breeding population, even in poor breeding years; and
- maintain key Regent Honeyeater habitat in a condition that maximises survival and reproductive success, and provides refuge during periods of extreme environmental fluctuation.

The Regent Honeyeater was not recorded despite targeted surveys being undertaken, however the proposed action would result in the clearing of approximately 27.1 ha of vegetation which is considered potential foraging habitat for the Regent Honeyeater. To address these potential impacts, the Proponent's BOS includes direct land-based offsets for PCT1334 and PCT778 that provide foraging habitat for the Regent Honeyeater. A 1000 ha Boral-owned property and 360 ha private property would provide a total offset of 1,360 ha of suitable potential foraging habitat for the Regent Honeyeater within the Bungonia subregion, to compensate for an impact of 27.1 ha.

The Department considers that the offsets package is consistent with the primary conservation objectives of reversing the long-term trend of population decline and maintaining key habitat to maximise survival and reproductive success. The Department therefore considers that the proposal would not be inconsistent with the approved Conservation Advice or Recovery Plan for the Regent Honeyeater, subject to the timely and successful implementation of the Proponent's BOS.

D.3.3 Threat Abatement Plans (TAPs)

The Department has considered the approved Threat Abatement Plans (TAPs) under the EPBC Act, available at <http://www.environment.gov.au/biodiversity/threatened/threat-abatement-plans/approved>, along with any current draft revisions to these plans. The relevant TAPs are set out below:

Regent Honey Eater

- Threat Abatement Plan for competition and land degradation by rabbits (DoEE 2016).

Rabbits have direct impacts on native flora and fauna, including from grazing on native vegetation, preventing regeneration and competing with native fauna for habitat and food. Rabbits can also have indirect and secondary effects on the predation of native fauna, for instance by supporting populations of introduced predators or by denuding vegetation and thereby exposing fauna species to increased predation. The ecology of rabbits, including digging and browsing habits, leads to a loss of vegetation cover and consequent slope instability and soil erosion, which further degrades fauna habitat.

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC

- Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads (Department of Sustainability, Environment, Water, Population and Communities 2011);
- Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (*Sus scrofa*) (DoEE 2017); and
- Threat abatement plan for disease in natural ecosystems caused by *Phytophthora cinnamomi* (DoEE 2018).

The Department notes that cane toads are not currently present within the Southern Highlands of NSW and it is unlikely that the range of this invasive species will ever extend to this region. It is very unlikely that this threat is pertinent to the proposal.

Feral pigs are opportunistic omnivores and will consume animal material including small mammals, birds and reptiles, and all parts of plants including roots and foliage. Ecological parameters also affected by feral pigs include plant species composition and succession, nutrient and water cycles, and water quality. Impacts can be direct, such as through predation and digging, or indirect, through long-term changes in species composition.

Phytophthora cinnamomi is a pathogen which has the ability to cause plant disease and plant death.

The proposed action may:

- increase the amount of disturbed and modified habitats, which rabbits tend to colonise, and lead to an increase in rabbit populations;
- facilitate the spread or lead to a higher abundance of feral pigs (and other unmanaged or feral fauna) through the clearance and modification of habitat; and
- facilitate the spread of *Phytophthora cinnamomi*, via the transport of pathogen-laden water, organic material and/or soil.

The Department's recommended conditions require the Proponent to consider relevant TAPs in the development of an updated Biodiversity and Rehabilitation Management Plan (BRMP) for the site. This would include detailed strategies for the control of weeds and feral animals. With these measures in place, the Department considers that the proposed action would not be inconsistent with the TAPs for disease caused by *Phytophthora cinnamomi* or for predation and disturbance by feral pigs.

The Department notes that there are no TAPs identified as being relevant for the Koala or Large-eared Pied Bat.

D4. SOCIO-ECONOMIC ASSESSMENT

The EA included a thorough assessment of potential social impacts across the document, however, the Department notes that, as the proposal has been assessed as a transitional Part 3A project under Schedule 2 of the *EP&A (Savings, Transitional and Other Provisions) Regulation 2017* (see **Section 3.1**) a full Social Impact Assessment was not required to be undertaken.

The EA noted key issues of concern for the local community which largely related to amenity, including noise, air, site runoff and visual impacts. The Department has considered these issues in detail in **Section 5** above, and considers there would be no significant increase in these impacts as a result of the proposal. The Department also considers that amenity impacts associated with the proposal would be suitably managed under existing and recommended conditions.

The Department notes the proposal would also result in economic benefits to the local community and State of NSW as a whole, including:

- a capital investment of \$1,500,000; and
- 20 additional jobs during construction.

The proposal would facilitate continued operations at the quarry, thereby enabling the long-term supply of construction materials to Sydney and the Greater Sydney Region. The Department considers that the socio-economic benefits associated with the proposal could be achieved without a substantial increase to environmental impacts.

D5. ADDITIONAL EPBC ACT CONSIDERATIONS

In addition to the key matters discussed above, **Table D3** contains a range of further mandatory considerations, factors to be taken into account and factors to have regard to under the EPBC Act.

Table D3 | Additional Considerations for the Commonwealth Minister under the EPBC Act

EPBC Act section	Consideration	Conclusion
Mandatory considerations		
136(1)(b)	Social and economic matters are discussed in the EA, the RTS and Section 5.8 .	The Department considers that the proposed action would result in a range of benefits for the local and regional economies and would allow for the continued and valuable production of a range of quarry products in the region.
Factors to be taken into account		
136(2)(a)	Principles of ecologically sustainable development (ESD), including the precautionary principle, have been taken into account, in particular in: - long and short-term economic, environmental, social and equity considerations relevant to this decision; - conditions that restrict environmental impacts, impose monitoring and adaptive management requirements and reduce uncertainty concerning the potential impacts of the proposal; - conditions requiring the proposal to be operated in a sustainable way that protects the environment for future generations and conserves MNES; - advice provided within this report which reflects the importance of conserving biological diversity and ecological integrity in relation to the controlling provisions for this proposal; and - mitigation measures to be implemented which reflect improved valuation, pricing and incentive mechanisms that promote a financial cost to the Proponent to mitigate the environmental impacts of the proposal.	The Department considers that, subject to the recommended conditions of approval, the proposed action could be undertaken in a manner that is consistent with the principles of ESD.
136(2)(e)	Other information on the relevant impacts of the action.	The Department is not aware of any relevant information not addressed in this assessment report. The Department considers that all information relevant to the impacts of the proposal has been taken into account.
Factors to have regard to		
	Bioregional plans	There is no relevant bioregional plan.

Considerations on deciding conditions

134(4)	Must consider: - information provided by the person proposing to undertake the action or by the designated Proponent of the action; and - desirability of ensuring as far as practicable that the condition is a cost-effective means for the Commonwealth and the person taking the action to achieve the object of the condition.	Documentation provided by the Proponent is provided at Appendix A and Appendix C of this report. These documents are available on the Department's website at http://majorprojects.planning.nsw.gov.au/ The Department considers that the recommended conditions of approval (see Appendix E) are a practicable and cost-effective means to achieve their purposes. The conditions have been prepared following careful consideration of material provided by the Proponent and following consultation with DoEE.
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D6. CONCLUSIONS ON CONTROLLING PROVISIONS

D.5.1 Threatened Species and Communities (sections 18 and 18A of the EPBC Act)

For the reasons set out above and in **Section 5.1**, the Department considers that the impacts of the action on threatened species and communities are acceptable, subject to implementation of the avoidance and mitigation measures described in the EA and supplementary RTS, and compliance with the recommended conditions of approval.

The Department considers that the following conditions of the recommended Notice of Modification (**Appendix E**) provide a suitable regulatory framework to avoid and minimise and manage impacts to listed threatened species and communities:

Category	Condition
Threatened Species Protection	B52
Habitat Management Area	B53
Biodiversity Offset Strategy	B54 – B56
Rehabilitation Objectives	B57
Progressive Rehabilitation	B58
Biodiversity and Rehabilitation Management Plan	B59 – B61
Quarry Exit Strategy	B68
Waste	B71
Liquid Storage	B72
Dangerous Goods	B73
Bushfire Management	B75
Environmental Management Strategy	D1 – D3
Management Plan Requirements	D4
Adaptive Management	D5
Revision of Strategies, Plans and Programs	D6 – D8
Incident Notification	D9
Annual Review	D11, D12
Independent Environmental Audit	D13, D14
Monitoring and Environmental Audits	D15

Accordingly, the Department recommends that the Commonwealth Minister require Boral to implement the above conditions of the modified development approval, where they relate to the management of potential impacts on listed MNES under the EPBC Act.

D7. OTHER PROTECTED MATTERS

The Commonwealth DoEE determined that other matters under the EPBC Act are not controlling provisions with respect to the proposed action. These include migratory species, Ramsar Wetlands, World Heritage properties, National Heritage places, Commonwealth marine environment, whether the referring party is a Commonwealth agency or undertaken on Commonwealth land, nuclear action, Great Barrier Reef Marine Park, Commonwealth Heritage places overseas and a water resource in relation to coal seam gas or large coal mining development.

D8. CONCLUSIONS

The Department considers that the recommended conditions would provide suitable protection for MNES under the EPBC Act. The Department notes that, if approved, the proposal would be referred to the Commonwealth Minister for the Environment for determination under the EPBC Act.