

S4.55(2) Modification Report

Karuah Pit Consolidation Project
Modification 11 (MOD 11)

Project Approval MP 09_0175

Various Lots, Blue Rock Close, Karuah

Prepared on behalf of Karuah East Quarry Pty Limited

Document Control Sheet					
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Ref: 11819-Section 4.55(2) Modification Application

Limitations Statement

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Unless otherwise specified in this report, information and advice received from external parties during the course of this project was not independently verified. However, any such information was, in our opinion, deemed to be current and relevant prior to its use. Whilst all reasonable skill, diligence and care have been taken to provide accurate information and appropriate recommendations, it is not warranted or guaranteed and no responsibility or liability for any information, opinion or commentary contained herein or for any consequences of its use will be accepted by ADW Johnson or by any person involved in the preparation of this assessment and report.

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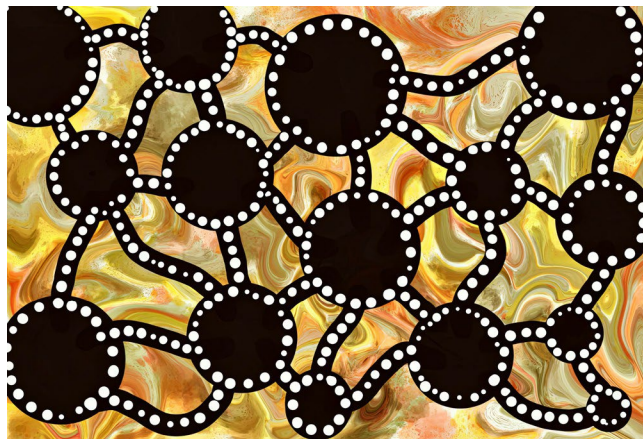
The Client should be aware that this report does not guarantee the approval of any application by any Council, Government agency or any other regulatory authority.

Acknowledgement of Country

We, ADW Johnson, acknowledge the Traditional Custodians of the land where we live and work, the country of Awabakal, Darkinjung and the Eora Nation.

We recognise their continuous connection to the land and waters of our beautiful regions. We pay our respects to Aboriginal and Torres Strait Islanders Elders past, present and emerging.

Artwork created by Joe Griffin, a proud Aboriginal man, descendant of the Awabakal people.



Executive Summary

Karuah East Quarry Pty Limited (KEQPL) owns and operates the Karuah East Quarry (KEQ), located approximately 5 km northeast of the village of Karuah, in the MidCoast local government area. KEQ produces a high-quality andesite resource which is supplied to construction, infrastructure, and other development projects across Greater Newcastle, the Hunter Valley and Mid-North Coast regions.

KEQPL propose to modify the State Significant Development (SSD) consent MP09_0175 for the KEQ under the provisions of Section 4.55(2) of the *NSW Environmental Planning and Assessment Act 1979*. The Section 4.55(2) application will be known as MOD 11, Karuah Pit Consolidation Project.

The Applicant has recently acquired Lot 11 DP 1024564 (Lot 11), enabling KEQPL (and affiliated companies) to control all landholdings within the Karuah Quarry Complex, which currently consists of two (2) operational quarries, including the Karuah East Quarry (KEQ) which extracts resource from Lot 12 DP 1024564 (Lot 12) and Lot 13 DP 1024564 (Lot 13) and the Karuah Hard Rock Quarry (KHRQ) which extracts resource from Lot 11 under separate (SSD) Development Consents.

The acquisition allows the Applicant to readily extract previously sterilised andesite resource from the remnant dividing high wall between the KEQ (Lot 12) and the KHRQ (Lot 11) extraction pits forming a Consolidated Extraction Area (CEA).

The purpose of this modification is to enable the extraction of previously sterilised andesite resource from the remnant dividing highwall as well as within other disturbed / cleared areas from the KEQ site in a coordinated approach with the KHRQ.

The Application (MOD 11) has been lodged concurrently with a reciprocal Section 4.55(2) modification to the separate KHRQ Development Consent (DA 265-10-2004) to facilitate the Karuah Pit Consolidation Project.

The overall Karuah Pit Consolidation Project (i.e. the modification of both of the KEQ and KHRQ consents) will secure the extraction of remaining in-situ resource of approximately 28.47 million tonnes (Mt) of material as measured from LiDAR contours captured in September 2024, inclusive of stockpiled overburden and currently approved resource that has not yet been extracted in accordance with the respective approvals, broken down as follows:

- KEQ – 23.22 Mt; and
- KHRQ – 5.25 Mt.

Incrementally, at the KEQ site, this correlates to an estimated total extraction of 28.33 Mt (i.e. life of quarry extraction) inclusive of extraction already completed and in-situ remaining resource (calculated from surface contours captured in September 2024).

Background

Project Approval MP09_0175 for the KEQ was granted for the KEQ on 17 June 2014 under the provisions of Section 75J of the EP&A Act 1979. Key features of the Project Approval include:

- Quarrying operation is permitted on the site until 31 December 2034;
- Establishment and use of quarry plant and associated infrastructure;
- The extraction (excluding overburden), processing, stockpiling and transport of quarry products is limited to 1.5 million tonnes in any calendar year;
- Roadworks to secure access to the site including upgrade and extension of Blue Rock Close, realignment of the Andersite Road and Blue Rock Close intersection and adjust road markings at Branch Lane and Andersite Road intersection;
- A total permitted disturbance area of 40.18ha;
- Establishment of land-based biodiversity offsets on Part Lot 13 DP 1024564, Lot 14 DP 1024564, Lot 5 DP 838128 (Eastern Biodiversity Offset Area) and part Lot 201 DP 1042537 (Western Biodiversity Offset Area);

- Conditions apply to manage / mitigate potential impacts associated with a range of environmental conditions including noise; blasting; air quality; soil and water; transport; biodiversity; heritage; emergency and hazards management and waste; and
- Progressive rehabilitation of the subject site.

The project was transitioned to a State Significant Development (SSD) under the provisions of Clause 6 Schedule 2 of the Environmental Planning and Assessment (Savings, Transitional and other Provisions) Regulation 2017 on 25 January 2019. The Project Approval has been modified on five (5) previous occasions.

The KEQ was approved to operate as a stand-alone quarry operation on lands adjoining the KHRQ in June 2014 and is well established and operational. The KEQ is operated by Karuah East Quarry Pty Limited (KEQPL), a company affiliated with HQPL, who operate the KHRQ.

During assessment of the KEQ application, one of the items that was considered by the Environment Assessment (ADW Johnson, January 2013) and the Department's assessment was alternate ways to extract the known resource from Lot 12 and Lot 13 (which now contains the KEQ pit). At the time of preparation of the original KEQ application, one (1) alternate option considered was extending the KHRQ from Lot 11 directly into Lot 12 and Lot 13; however, this was not possible because at that time HQPL only had rights conferred under specific licence terms with the landowner of Lot 11. The terms of the licence did not provide a legal right of way across Lot 11 for extraction of material within Lot 12 and Lot 13. Efforts were made by the Applicant to secure access across Lot 11; however, an agreement was unable to be achieved. Therefore, the Applicant had no other option than to pursue a stand-alone quarry on Lot 12 and 13 (the KEQ site).

The approval of the KEQ resulted in the side-by-side operation of two (2) independently operated quarries, being the KHRQ and the KEQ, with a remnant dividing highwall located in between the quarry pits consisting of sterilised material. This outcome was understood by KEQPL that the removal of the remnant structure could readily occur, subject to appropriate approvals. Lot 11 was recently acquired by the Applicant and removal of the dividing highwall can now proceed.

Proposal

The proposal seeks to modify the Project Approval for KEQ as follows:

- Concurrently modify both the KEQ and KHRQ consents to extract the known resource contained within already disturbed areas of Lot 11, Lot 12 and Lot 13 including the dividing highwall, within the currently approved extraction depths of RL45 at KEQ and RL65 at KHRQ.
- Minor extension and overlap of extraction boundary of both KEQ (into Lot 11) and KHRQ (into Lot 12) extraction areas to holistically encompass the highwall structure, inclusive of appropriate safety offsets.
- Extension of the KEQ extraction area to the west (highwall removal) and to the south and east within currently disturbed / cleared land to optimise available resource for extraction.
- Material sourced from the overlapping area of the CEA will be transported by internal haul road to either the KEQ or KHRQ for processing, stockpiling, sale and transport to market within currently approved throughput rates.
- A minor extension of 4,690 m² to the KEQ disturbance area. This area is located along the north-eastern boundary of the approved KEQ site and is highly degraded and comprised entirely of exotic grasses and disturbed vegetation that has been historically cleared and managed to support a now redundant powerline corridor (infrastructure has been previously removed). This area is proposed to form a minor extension of the approved disturbance area and is incorporated into the consolidated extraction area. With the inclusion of this area, the total site disturbance area of KEQ will increase nominally from 40.18 ha to approximately 40.65 ha (an increase of 1.2%).
- Environmental safeguards incorporated into Management Plans that are in place for the KEQPL operation will be reviewed and updated to accommodate the proposal.
- Staged retirement of biodiversity offset credits. The proposed MOD 11 development generates the need to retire one (1) ecosystem credit. Flexibility is sought in the Project Approval to retire the single MOD 11 credit independently of the current offset obligations generated by the previous MOD 10 approval.

- Changes to approved blasting activity as follows:
 - Reduction in blasting frequency to limit the number of blasts to a maximum of two (2) blasts per week in total between KEQ and KHRQ (currently a cumulative total of three (3) blasts per week is approved (two at KEQ and one at KHRQ).
 - Approved blasting hours at KEQ are proposed to be extended by one (1) hour to occur between the hours of 9am and 5pm (Monday to Friday) to provide improved flexibility during blasting of the dividing highwall and align with proposed arrangements at KHRQ.
- Revised final landform resulting in a free-draining landscape of the CEA, reduced geotechnical risks over the long-term and a landform with greater consistency with the existing surrounding environment.

No change is necessary to the Project Approval as it relates to annual extraction, processing and transport rates (capped at 1.5 Mtpa).

Key Environmental Investigations

Detailed investigations of the existing environment and potential impacts of the proposed modification have been undertaken consistent with those confirmed with NSW Planning during the proposed modification's scoping process and as confirmed within the Environmental Assessment Requirements issued on 1 October 2025. Specialist consultant reports were commissioned where necessary. The following is a summary of the key matters investigated:

- Aboriginal Cultural Heritage;
- Air Quality;
- Blasting and Vibration;
- Biodiversity;
- Noise;
- Traffic and Transport;
- Water Resources, including Surface Water and Groundwater;
- Visual Amenity; and
- Rehabilitation and final landform.

The findings of the environmental assessments undertaken confirm that the site is suitable to accommodate proposed modification.

Consultation

In establishing the environmental parameters and scope of the proposed modification, consultation has been undertaken with key public agencies, including:

- NSW Planning;
- NSW Environment Protection Authority;
- Conservation Programs, Heritage and Regulation (CPHR) Group within the NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW);
- Water Group within NSW DCCEEW;
- Heritage NSW;
- Transport for NSW; and
- MidCoast Council.

In addition to agency consultation, the Applicant has also consulted with the following stakeholders:

- Joint Karuah Quarry Complex Community Consultative Committee (CCC) which acts for both the KHRQ and the KEQ; and
- Registered Aboriginal Parties.

Further opportunity for involvement of both government agencies and the community will occur during the public exhibition phase of the assessment.

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Section 1

Introduction

1.0 Introduction

1.1 Introduction

ADW Johnson has been commissioned by Karuah East Quarry Pty Limited (KEQPL) to prepare a Section 4.55(2) Application to modify the State Significant Development (SSD) approval (SSD Approval 09_0175) for the Karuah East Quarry (KEQ). The Section 4.55(2) application will be known as MOD 11, Karuah Pit Consolidation Project.

The purpose of the modification is to enable the extraction of the previously sterilised andesite resource from the remnant dividing highwall as well as within other disturbed areas from the KEQ site in a coordinated approach with the adjoining Karuah Hard Rock Quarry (KHRQ).

This application seeks to modify the project approval under Section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.2 Application Details

Table 1: Application Details

REPORT PREPARED BY:	
Name:	ADW Johnson Pty Ltd Unit 7, 335 Hillsborough Road WARNERS BAY NSW 2282
Contact:	Mat Radnidge – Senior Town Planner Ph: (02) 4978 5100 Email: mathewr@adwjohnson.com.au Website: www.adwjohnson.com.au
PROJECT DETAILS:	
Description of Proposal:	Modification (MOD 11) under Section S4.55(2) of the Environmental Planning and Assessment Act 1979 to Project Approval MP09_0175 (as Modified). Proposed Karuah Pit Consolidation Project.
Applicant Name:	Karuah East Quarry Pty Limited
Applicant Address:	Karuah East Quarry Pty Limited C/- ADW Johnson Pty Ltd Unit 7, 335 Hillsborough Road WARNERS BAY NSW 2282
Property Description - Lands Listed within MP09_0175	Lot 12 DP 1024564 (Karuah East Quarry site). Lot 13 DP1024564 (Karuah East Quarry site). Lot 202 DP1042537 (approved roadworks). Lots 26 and 27 DP1024341 (approved roadworks). Lots 16 and 17 DP 1024564 (approved roadworks).
Property Description – New Land to be added to MP09_0175	Lot 11 DP1024564 (Extent of Remnant Highwall within Lot 11 and safety buffer).

1.3 Summary of Approved Project

1.3.1 Site and Locality

The Karuah East Quarry (KEQ) is located off the Pacific Highway (accessed via The Branch Lane interchange, Andersite Road and Blue Rock Close), approximately 5 km northeast of the village of Karuah on the following lands:

- Lot 12 & Lot 13 DP 1024564 (the KEQ site);

- Lot 202 DP 1042537, Lots 26 & 27 DP 1024341 and Lots 16 & 17 DP 1024564 (quarry access via an extension of Blue Rock Close); and
- Lot 14 & Part Lot 13 DP 1024564, Lot 5 DP 838128 (Eastern Biodiversity Offset Area); and
- Part Lot 201 DP 1042537 (Western Biodiversity Offset Area).

Figure 1 below shows the location of the site in its regional and local context.

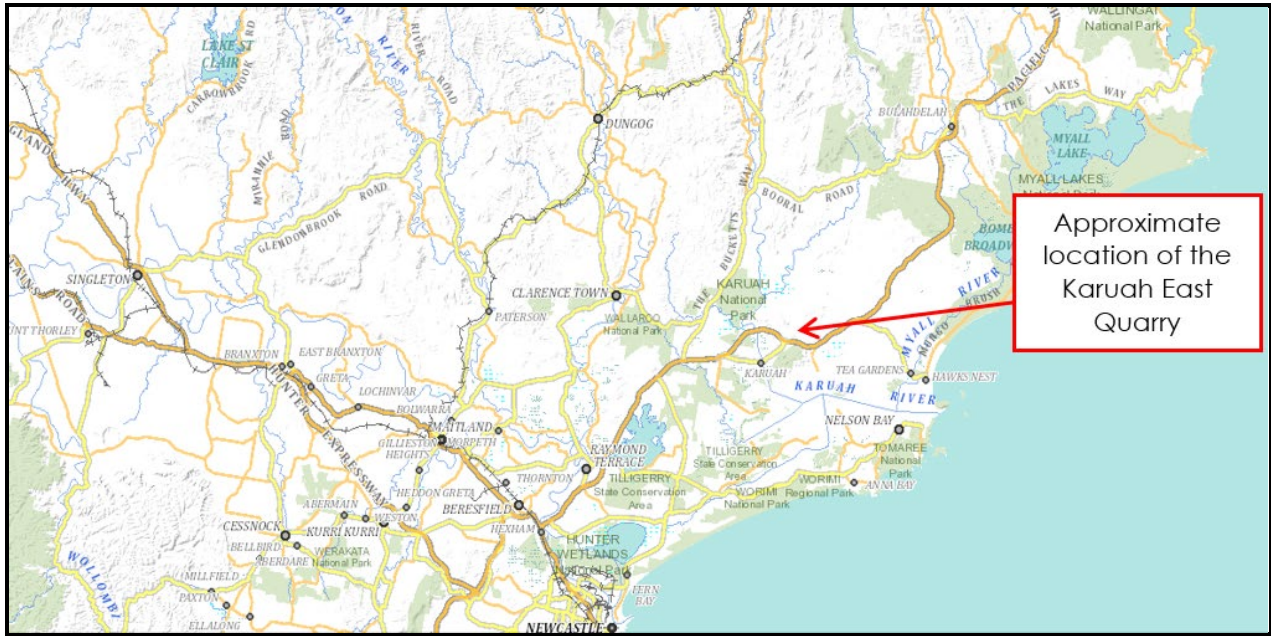
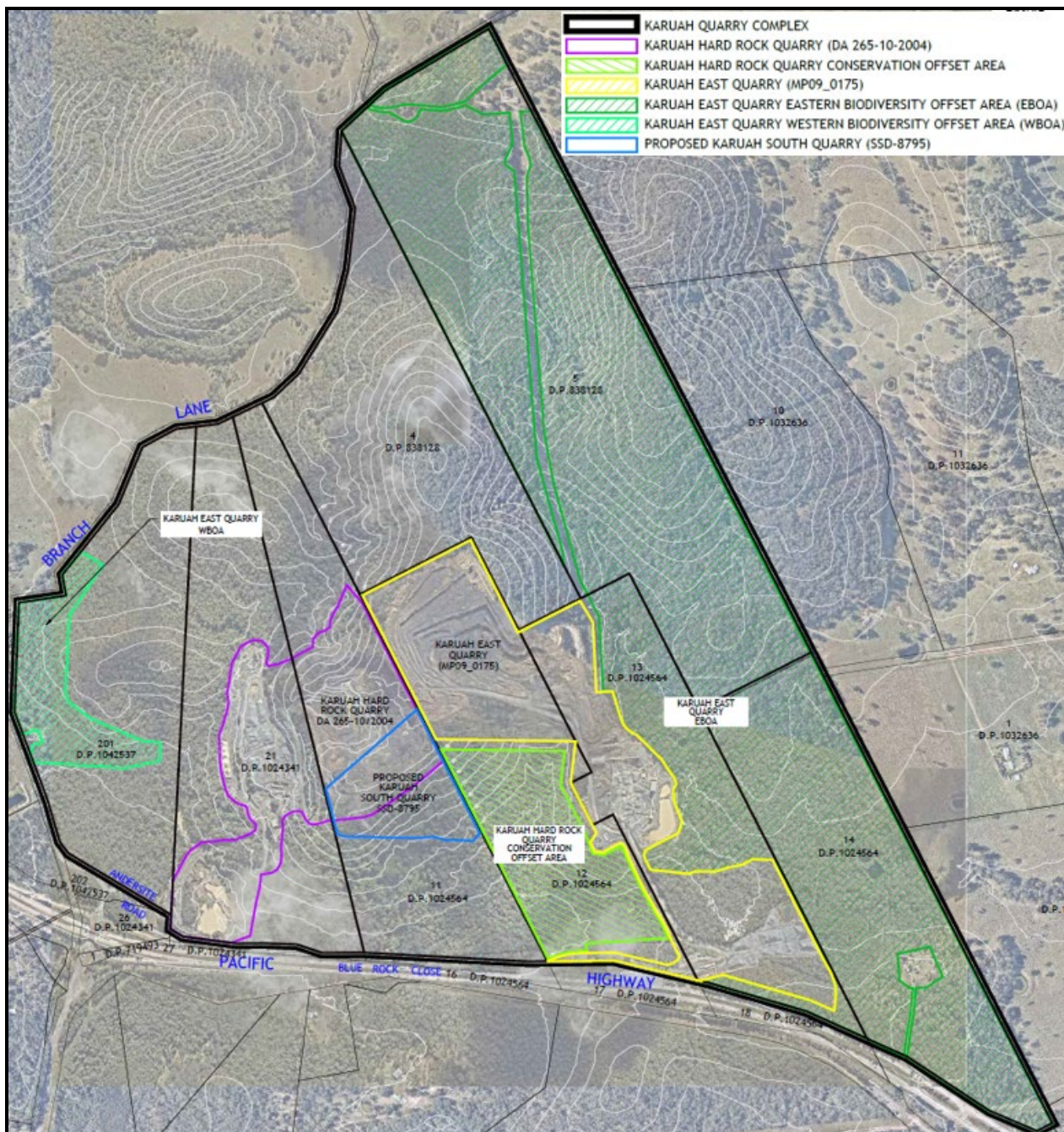


Figure 1: Location Plan Showing Site in a Broad Regional Context

Figure 2 below shows the location of the Karuah East Quarry and KHRQ in their local context within the Karuah Quarry Complex. In particular, the figure shows:

- The Karuah East Quarry (MP 09_0175);
- The Karuah Hard Rock Quarry (DA 265-10-2004);
- Proposed Karuah South Quarry (SSD 17_8795);
- The Eastern and Western Biodiversity Offset Areas established for the KEQ; and
- The Conservation Offset Area established for the KHRQ.



1.3.2 Summary of Project Approval

Project Approval MP09_0175 was granted for the KEQ on 17 June 2014 under the provisions of Section 75J of the EP&A Act 1979.

The key features of the Project Approval include:

- Quarrying operation is permitted on the site until 31 December 2034;
- Establishment and use of quarry plant and associated infrastructure;
- The extraction (excluding overburden), processing, stockpiling and transport of quarry products is limited to 1.5 million tonnes in any calendar year;
- A total permitted disturbance area of 40.18 ha;

- Roadworks to secure access to the site including upgrade and extension of Blue Rock Close, realignment of the Andersite Road and Blue Rock Close intersection and adjust road markings at Branch Lane and Andersite Road intersection;
- Establishment of a land based biodiversity offset on Part Lot 13 DP 1024564, Lot 14 DP 1024564, Lot 5 DP 838128 (Eastern Biodiversity Offset Area) and part Lot 201 DP 1042537 (Western Biodiversity Offset Area);
- Conditions apply to manage / mitigate potential impacts associated with a range of environmental conditions including noise; blasting; air quality; soil and water; transport; biodiversity; heritage; emergency and hazards management and waste; and
- Progressive rehabilitation of the subject site.

Existing and approved site improvements include:

- Quarry pit (extraction area);
- Crushing plant and processing infrastructure;
- Wash plant and workshops;
- Stockpiling areas;
- Internal haulage roads;
- Weighbridge office;
- Weighbridge (two weighbridges approved);
- Stormwater management infrastructure including three (3) dams;
- Parking areas for light and heavy vehicles;
- Administration office;
- Amenity facilities;
- Other minor structures; and
- Fencing and access gates.

A number of management plans are in place at KEQ to ensure satisfactory environmental performance and these include:

- Environmental Management Strategy;
- Air Quality Management Plan;
- Blast Management Plan;
- Biodiversity Offset Area Management Plan;
- Heritage Management Plan;
- Landscape & Rehabilitation Management Plan;
- Noise Management Plan;
- Pollution Incident Response Management Plan;
- Transport Management Plan; and
- Water Management Plan.

Modification 1 (MOD 1) to the Project Approval was approved on 27 April 2018 under the provisions of Section 75W of the EP&A Act. The modification approved a nominal extension to the approved area of disturbance by 2,500m² to allow for improved vehicle manoeuvring in proximity of the crushing plant and processing area.

Modification 2 (MOD 2) to the Project Approval was granted consent on 19 December 2018 under the provisions of Section 75W of the EP&A Act. MOD 2 approved a 1.133 ha increase to the site disturbance area to allow for improved environmental management and improved operational safety (for quarry vehicles), in particular the separation of light and heavy vehicles movements along the internal north south haulage road.

Modifications 3 – 7 were withdrawn.

On 25 January 2019 the KEQ project was transitioned to a State Significant Development (SSD) under the provisions of Schedule 2 Clause 6(1) of the *Environmental Planning and Assessment (Savings, Transitional and other Provisions) Regulation 2017*.

Modification 8 (MOD 8) to the Project Approval was granted consent on 22 December 2020 under the provisions of S4.55(1A) of the EP&A Act. MOD 8 approved revised operational acoustic criteria in line with the *NSW Noise Policy for Industry 2017*. MOD 8 also formalised a number of industry best practice acoustic mitigation measures that have been installed at the quarry.

Modification 9 (MOD 9) to the Project Approval was granted consent on 2 December 2021 under the provisions of Section 4.55(1A) of the EP&A Act. MOD 9 extended the approved operating hours of the KEQ.

Modification 10 (MOD 10) was approved on 18 May 2023 under the provisions of S4.55(2) of the EP&A Act. MOD 10 is the latest amendment to the Project Approval and provides approval to increase the disturbance area of the KEQ by 7.17 ha (bringing the total disturbance area of the KEQ to 40.18ha). The purpose of MOD 10 is to increase the approved disturbance area to establish additional stockpiling areas, facilitate improved surface water management, construct a new administrative building and extend the vehicle manoeuvring and parking at site.

The development layout, as approved by MOD 10 (refer to Appendix 1 of MP09_0175) is reproduced below.

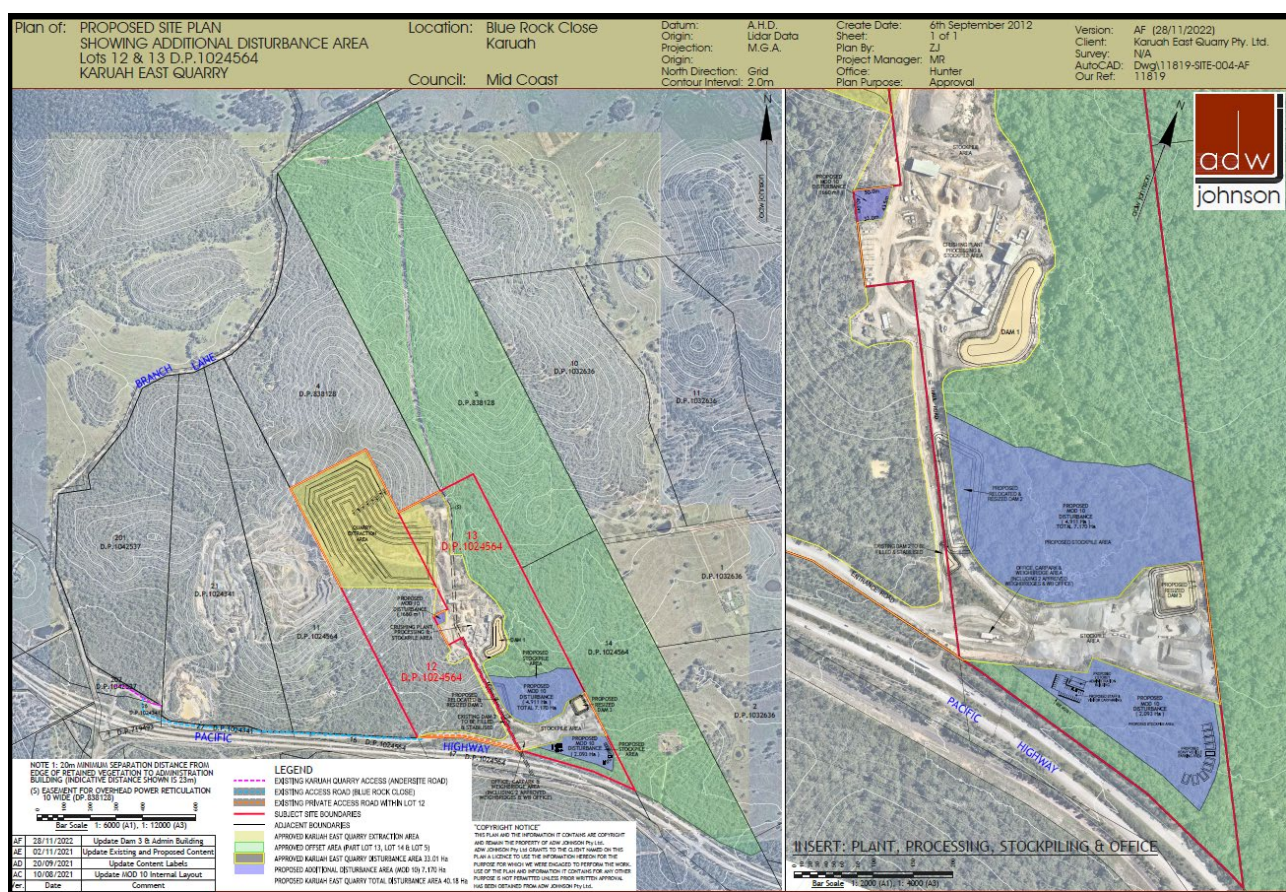


Figure 3: MOD 10 Approved Development Layout

None of these modifications have involved adjustment to approved extraction area footprint, annual extraction rates or total resource to be extracted at the KEQ.

1.4 Background to Proposed Modification & Why Modification Is Required

The KEQ was approved to operate as a stand-alone quarry operation on lands adjoining the KHRQ, Lot 12 and Lot 13 DP 1024564, on 17 June 2014 (refer MP09_0175 (as amended)). The KEQ is well established and operational in accordance with MP09_0175 (as amended). The KEQ is operated by Karuah East Quarry Pty Limited (KEQPL), a company affiliated with HQPL, who operate the KHRQ.

During assessment of the KEQ application, one of the items that was considered by the Environment Assessment (ADW Johnson, January 2013) and NSW Planning's assessment was alternate ways to extract the known resource from Lot 12 and Lot 13 (which now contains the KEQ pit). At the time of preparation of the original KEQ application, one alternate option considered was extending the KHRQ from Lot 11 directly into Lot 12 and Lot 13; however, this was not possible because at that time HQPL only had rights conferred under specific licence terms with the landowner of Lot 11. The terms of the licence did not provide a legal right of way across Lot 11 for extraction of material within Lot 12 and Lot 13. Efforts were made by the Applicant to secure access across Lot 11; however, an agreement was unable to be achieved. Therefore, the Applicant had no other option than to pursue a stand-alone quarry on Lots 12 and 13 (the KEQ site).

The approval of the KEQ resulted in the side-by-side operation of two (2) independently operated quarries, being the KHRQ and the KEQ, with a remnant dividing highwall located in between the quarry pits (refer to **Figure 2** above) consisting of sterilised material. This outcome was understood by KEQPL that the removal of the remnant structure could readily occur, subject to appropriate approvals. Lot 11 was recently acquired by the Applicant, eliminating previous land ownership constraints and the removal of the dividing highwall can now proceed.

Separately, it is noted that the former owner of Lot 11 previously submitted a separate SSD Application for the proposed Karuah South Quarry (SSD-8795) (KSQ) over part-Lot 11 which has not yet been determined. The KSQ proposal seeks to establish a third standalone quarry operation entirely on Lot 11 extracting remaining resource south of the current KHRQ extraction area.

The KSQ is proposed to be a conventional drill and blast operation with rock collected and processed onsite situated on the current KHRQ pit floor. Processed product is proposed to be stockpiled onsite with a loader used to load trucks for transport off-site when required. The proposed hours of operation are 5:00am to 6:00pm Monday to Friday and 5:00am to 1:00pm Saturday with only product loading and transport activity to occur between 5:00am and 7:00am. The proposed annual production limit is 600,000 tonnes.

Following acquisition of Lot 11 DP 1024564, KEQPL (and affiliated companies) is also the proponent for the proposed KSQ. In relation to the consideration of cumulative impacts, the following is noted:

- If approved, KSQ will not commence operations until after operations at KHRQ have ceased;
- HQPL are currently reviewing the business case for the proposed KSQ; and
- Any future revision or amendment to the proposed KSQ project will be supported by updated documentation that accounts for the proposed Karuah Pit Consolidation Project.

Accordingly, there are no cumulative impacts generated by the currently proposed KSQ associated with the proposed Karuah Pit Consolidation Project.

1.5 Findings of Analysis of Alternatives Considered

The need for the proposed development is a logical outcome noting that it will facilitate the extraction of a known high quality andesite resource located between two (2) established quarry operations in an orderly and efficient manner and provide an improved final landform for which rehabilitation can proceed. Due to previous land ownership constraints (which have recently been resolved), application to remove the remnant dividing highwall has not been possible until now.

Various project alternatives were considered, with the findings summarised below (refer to **Section 7.2** for further detail).

Consolidated Pit Design and Process to Remove Remnant Dividing Highwall

The most appropriate way to extract the dividing highwall is to establish an 'overlapping consent' via an extraction area of KEQ and KHRQ that holistically encompasses the entirety of the remnant highwall as well as a suitable safety buffer, with materials processing able to be undertaken at either existing quarry plant to capitalise on operational efficiencies.

The most appropriate way to undertake the proposal (inclusive of highwall removal) in terms of practicality, efficiency and safety considerations is through a coordinated and incremental staged approach as follows:

- Stage 1: Extract the current top benches of the remnant highwall (RL135m) down to RL90m (currently lowest KEQ bench at the time of writing (April 2026)), forming a single extraction level/area on Lot 12. This approach is needed to safely remove the peak of the dividing highwall and make the extraction area level with the current KEQ extraction area.
- Stage 2: Extract Lot 12 from RL90m (currently lowest KEQ bench at the time of writing (April 2026)), down to RL65m in line with KHRQ pit floor and KEQ boot-bin levels, forming a single extraction level/area over the entire Consolidated Extraction Area.
- Stage 3: Extract final benches at KEQ (Lots 12 & 13) from RL65m down to RL45m. The KHRQ pit floor is to remain at RL65m.

It was also a logical outcome to extend the KEQ pit to the east and south (within already approved disturbed areas of the KEQ) to optimise extraction of known resource within the disturbance footprint of the established quarry as well as incorporate the small, disturbed and contiguous area east of the KEQ (associated with a now redundant powerline corridor) into the KEQ footprint.

Operational Coordination & Consent Harmonisation

It was considered that non-aligned operational hours, blasting restrictions and life of quarry timeframes would result in operational inefficiencies. Accordingly, it is proposed to align the operating hours and life of quarry timeframes with the currently consented KEQ limits and align blasting hours and frequencies between both sites (cumulative reduction to two blasts per week combined between both quarries between 9 am – 5 pm weekdays).

To practically and efficiently complete highwall removal, the ability to process material extracted from the highwall at either the KEQ or KHRQ is considered essential.

Do Nothing Option

The 'do nothing' option will result in the remnant dividing highwall remaining in place long term and all of the identified benefits of the project will be lost. These include visual amenity, safety, long term rehabilitation improvements, as well as the loss of supply of a proven high-quality resource to the market that can be extracted in a highly efficient manner noting that two (2) established quarry operations (operated by affiliated companies) are located either side of the remnant highwall. The opportunity to maintain local employment and contribute to the growth of the local and regional economies will be lost.

To secure the known amount of andesite resource as identified within the proposal, additional land disturbance would be required elsewhere (either within the Karuah Quarry Complex or elsewhere). The proposal can be delivered with only minor impacts to exotic grassland and 0.05 ha of heavily disturbed vegetation (that formed part of a now redundant powerline corridor). This opportunity would be lost if the 'do nothing' option was to occur.

The 'do nothing' option will result in a medium-term postponement to the completion of rehabilitation at the adjoining KHRQ in accordance with the current KHRQ Rehabilitation and Closure Plan (RCP) which has in part progressed including the side casting of topsoil material across the northern and eastern highwalls. In accordance with the RCP, rehabilitation would be completed between June 2027 to 2030 and this would include the establishment of a large flooded void within the former extraction area and revegetation activities. It is considered that postponing rehabilitation activities in the medium term at KHRQ to accommodate the removal of the highwall is outweighed by the significantly improved long term rehabilitation outcome that includes the establishment of a free draining landscape that is revegetated with native vegetation to achieve greater consistency with the surrounding woodland environment.

The 'do nothing' outcome is considered to be inconsistent with the objectives of the EP&A Act 1979, which seeks to facilitate orderly and efficient development of land.

1.6 Structure of Report

This S4.55(2) Assessment Report has been prepared in accordance with NSW Planning's *State Significant Development Guidelines – Preparing a Modification Report*. The format is as follows:

- **Section 1:** Introduction to the Proposal;
- **Section 2:** Strategic Context;
- **Section 3:** Description of the Proposed modification;
- **Section 4:** Statutory Context;
- **Section 5:** Engagement with the Community and Relevant Government Authorities;
- **Section 6:** Environmental Assessment of the Proposed Modification;
- **Section 7:** Project Justification; and
- **Section 8:** Conclusion.

Section 2

Strategic

Context



2.0 Strategic Context

The KEQ site is strategically located with excellent access to major development centres across Greater Newcastle, the Hunter Valley and Mid-North Coast regions, with direct access available to the Pacific Highway (via The Branch Lane interchange). Additionally, the site is well separated from any areas of significant urban development resulting in minimal land use conflicts.

The KEQ and KHRQ sites are known to contain a high-quality andesite resource. Material produced by the quarries include armour and gabion rock; concrete, drainage, and asphalt aggregates; manufactured sands, road bases and other fill products to support construction, infrastructure, and other development projects across Greater Newcastle, the Hunter Valley and Mid-North Coast regions. Materials from the quarries are supplied to a range of government agencies/organisations including Transport for NSW, a number of local Councils, the Port of Newcastle, Ausgrid, Newcastle Airport, Tier 1 infrastructure providers as well as the general construction, land development and infrastructure industries within Greater Newcastle, the Hunter Valley and Mid-North Coast regions.

The quarries also supply and support downstream businesses, including the Tea Gardens Hunter Readymix Concrete Plant, which in turn contributes to the local construction industry in the MidCoast LGA.

In addition to the above, materials from KEQ and KHRQ are supplied to State Significant Infrastructure (SSI) projects including the Singleton Bypass, the Newcastle Inner City Bypass (SSI-6888), Pacific Highway widening at Hexham Straight, and the M1 Pacific Motorway Extension to Raymond Terrace (SSI-7319), which are critical to deliver improved connectivity of the Mid-North Coast (including the MidCoast LGA) to Sydney, Newcastle and the Hunter Valley.

2.1 Hunter Regional Plan 2041

The Hunter Regional Plan 2041 (HRP) sets out the NSW Government's strategic vision for the Hunter region. The plan aims to strengthen the region's economic resilience, maintain its well-established economic and employment bases, and build on its existing strengths to foster greater market and industry diversity.

The plan emphasises the need to manage different land uses in pursuit of complementary outcomes and attainment of its overriding goals. Sound management will encourage the Hunter to grow as a healthy, sustainable and thriving place for everyone.

The HRP acknowledges that NSW needs a reliable supply of construction materials to support continued growth including sand and gravel, crushed rock, recycled materials and secondary aggregates created from construction, demolition and excavation.

The proposal is consistent with the HRP, in particular noting the following:

- The proposal will result in the efficient long term delivery of a known quality andesite resource to the market. This will support local and regionally significant construction and infrastructure projects and promote continued growth.
- HQPL employs 63 full time equivalent staff (FTE) (43 at KEQ [35 staff and eight (8) contractors] and 20 at KHRQ [16 staff and four (4) contractors]). The proposal will contribute to supporting ongoing local employment.
- MOD 11 can be undertaken satisfactorily with regard to key environmental considerations.
- The KEQ benefits from excellent access to the State road network and quarry vehicles are not required to pass any sensitive receivers prior to entering the Pacific Highway via The Branch Lane interchange. This, along with ongoing compliance with the Project Approval and the site's EPL minimises any potential for land use conflict.

The proposal is consistent with the vision of the Hunter Regional Plan 2041.

2.2 MidCoast Local Strategic Planning Statement

The MidCoast Local Strategic Planning Statement (LSPS) sets out a vision for land use planning across the MidCoast Local Government Area (LGA). The LSPS is used to guide future planning, to achieve the community's vision and values.

The vision set out in the LSPS is:

We strive to be recognised as a place of unique environmental and cultural significance.

Our strong community connection, coupled with our innovative development and growing economy, builds the quality of life we value.

The LSPS identifies planning priorities to achieve the vision outlined in the plan, along with short, medium, long term, and ongoing actions to monitor and report on the progress of implementation.

Planning priority 9 seeks to improve infrastructure within the MidCoast LGA. The proposed modification will result in the efficient extraction and delivery of a known quality resource to the market that will contribute towards the delivery of key infrastructure projects within the LGA.

The proposed modification will contribute to the thriving and growing economy through contributing to providing ongoing jobs within the quarry and contribution to infrastructure projects.

The proposed modification is consistent with the relevant sections of the MidCoast LSPS.

Section 3

Description of Modifications



3.0 Description of Modifications

3.1 Proposed Modifications

The proposal seeks to modify the Project Approval for KEQ (MP09_0175) to achieve the following outcomes:

Karuah East Quarry MP 09_0175 (MOD 11)

- Concurrently modify both the KEQ and KHRQ consents to extract the known resource contained within already disturbed areas of Lot 11, Lot 12 and Lot 13 and including the dividing highwall, within the currently approved extraction depths of RL45 at KEQ and RL65 at KHRQ.
- Minor extension and overlap of extraction boundary of both KEQ (into Lot 11) and KHRQ (into Lot 12) extraction areas to holistically encompass the highwall structure, inclusive of appropriate safety offsets.
- Extension of the KEQ extraction area to the west (highwall removal) and to the south and east.
- Material sourced from the overlapping area of the CEA will be transported by internal haul road to either the KEQ or KHRQ for processing, stockpiling, sale and transport to market within currently approved throughput rates.
- Application of contemporary air quality conditions and associated criteria.
- A minor extension of 4,690 m² to the KEQ disturbance area. This area is located at the north-eastern boundary of the approved KEQ and is highly degraded and comprised entirely of exotic grasses and disturbed vegetation that has been historically cleared and managed to support a now redundant powerline corridor (infrastructure has been previously removed).
- Environmental safeguards incorporated into Management Plans that are in place for the KEQPL operation will be reviewed and updated to accommodate the proposal.
- Staged retirement of biodiversity offset credits. The proposed MOD 11 development generates the need to retire one (1) ecosystem credit. Flexibility is sought in the Project Approval to retire the single MOD 11 credit independently of the current offset obligations generated by the previous MOD 10 approval.
- Changes to approved blasting activity as follows:
 - Reduction in blasting frequency to limit the number of blasts to a maximum of two (2) blasts per week in total between KEQ and KHRQ. Currently a cumulative total of three (3) blasts are approved to occur (two (2) at KEQ and one at KHRQ).
 - Approved blasting hours at KEQ are proposed to be extended by one (1) hour to occur between the hours of 9am and 5pm (Monday to Friday) to provide improved flexibility during blasting of the dividing highwall and align with proposed arrangements at KHRQ.
- Revised final landform resulting in a free-draining landscape of the current extraction area, reduced geotechnical risks over the long-term and a landform with greater consistency with the existing surrounding environment.

No change is necessary to the Project Approval as it relates to annual extraction, processing and transport rates (capped at 1.5 Mtpa).

Plans of the proposed development are enclosed within **Appendix E**.

The proposed modification is described in detail further below.

For completeness, provided below is a summary of the proposal details of the separate and concurrent MOD 2 application to the KHRQ:

Karuah Hard Rock Quarry DA265-10-2004 (MOD 2)

- Concurrently modify both the KHRQ and KEQ consents to extract the known resource contained within already disturbed areas of Lot 12, Lot 13 and Lot 11 including the dividing highwall, within the currently approved extraction depths of RL65 at KHRQ and RL45 at KEQ.

- Minor extension and overlap of extraction boundary of both KHRQ (into Lot 12) and KEQ (into Lot 11) extraction areas to holistically encompass the highwall structure, inclusive of appropriate safety offsets.
- Material sourced from the overlapping area of the combined extraction area (CEA) will be transported by internal haul road to either the KHRQ or KEQ for processing, stockpiling, sale and transport to market within currently approved throughput rates.
- An extension of the life of quarrying operations from 3 June 2027 to 31 December 2034 to align with the approved operational timeframe of the KEQ.
- Increase in approved total resource volume from 11.20Mt to 13.20Mt (18% increase).
- Application of contemporary noise and air quality conditions and associated criteria.
- Application of contemporary community engagement arrangements via the now established Joint Karuah Quarry Complex CCC.
- Extended operating hours to match the approved hours of operation of the KEQ.
- Changes to approved blasting activity as noted above.
- Revised final landform resulting in a free-draining landscape of the current extraction area, resulting in reduced geotechnical risks over the long-term and a landform with greater consistency with the existing surrounding environment.
- Environmental safeguards incorporated into Management Plans that are in place for the KHRQ operation will be reviewed and updated (where required) to accommodate the proposal.

No change is necessary to the Development Consent as it relates to annual extraction, processing and transport rates (capped at 500,000 tpa).

3.1.1 Extraction within Disturbed Areas of Lots 11, 12 and 13 DP 1024564

The proposal seeks to modify the KEQ Project Approval to extract the known resource contained within already disturbed areas of Lot 11, Lot 12 and Lot 13, including the dividing highwall (as well as within other disturbed areas to the east of the established extraction area), within currently approved extraction depths of RL45m at KEQ and RL65m at KHRQ.

Volume estimates identify that there is approximately 28.47 Mt of in-situ material remaining within disturbed areas of Lots 11, 12 and 13 DP 1024564, inclusive of currently approved resource and stockpiled overburden, as measured from LiDAR contours captured in September 2024.

Incrementally, at the KEQ site, this correlates to an estimated total extraction of 28.33 Mt (i.e. life of quarry extraction) inclusive of extraction already completed and in-situ remaining resource (calculated from surface contours captured in September 2024).

MP09_0175 (as amended) does not contain a specific condition that provides a total extraction limit for the life of the KEQ, it does however refer to the Environmental Assessment (EA) for the KEQ (ADW Johnson, January 2013). The EA detailed that the estimated total resource to be extracted by the KEQ was 29 Mt (and all specialist assessments that informed the KEQ EA were prepared on the basis of a total extraction of 29 Mt).

Based on the contemporary resource assessment completed for the Karuah Pit Consolidation Project, which estimates the total KEQ resource extraction at 28.33 Mt, the total KEQ resource has been revised down slightly due to a number of factors including:

- Improved survey and calculation methodologies, including the use of modern LiDAR contours;
- Significantly reduced influence of vegetation as a result of vegetation removal and extraction activity for base datums; and
- Increased geological data from investigations across the site.

The proposed modification does not seek to change to the maximum approved extraction, processing and transport rates of 1.5 million tonnes per annum.

Figure 4 below shows the proposed consolidated extraction area (in blue).

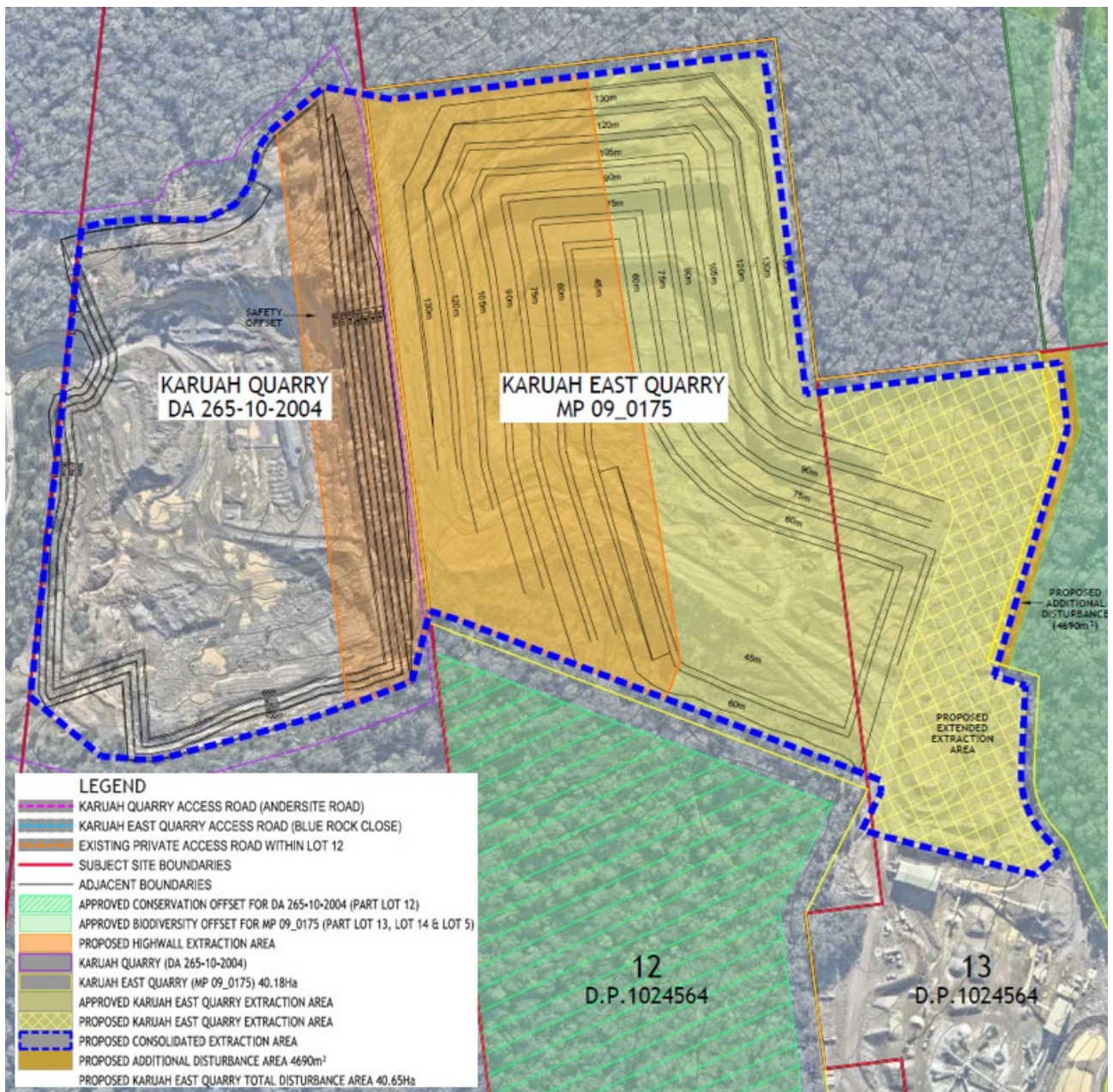


Figure 4: Extract of Plan of Proposed Consolidated Extraction Area

Extraction Staging Sequence

The following coordinated extraction sequence between the KEQ and the KHRQ will be generally undertaken to complete the Karuah Pit Consolidation Project (inclusive of remnant highwall removal):

- Stage 1: Extract the current top benches of the remnant highwall (RL135m) down to RL90m (currently lowest KEQ bench at the time of writing (April 2026)), forming a single extraction level/area on Lot 12. This approach is needed to safely remove peak of the dividing highwall and make the extraction area level with the current KEQ extraction area.
- Stage 2: Extract Lot 12 from RL90m (currently lowest KEQ bench at the time of writing (April 2026)), down to RL65 m in line with KHRQ pit floor and KEQ boot-bin levels, forming a single extraction level/area over the entire Consolidated Extraction Area.

- Stage 3: Extract final benches at KEQ (Lots 12 & 13) from RL65m down to RL45m. The KHRQ pit floor is to remain at RL65m.

The above sequencing is logical, orderly, practical and will allow a 'free draining' final landform to be established.

3.1.2 Minor Extension to Quarry Disturbance Area

As design refinement of the KEQ extraction area has progressed as part of the proposed modification, an opportunity for a minor adjustment to the north-eastern boundary of the approved KEQ disturbance area was identified. This area is shown in **Figure 5** below and includes an area of approximately 4,690 m². This area is highly degraded and comprised entirely of exotic and disturbed vegetation. It has been historically cleared and managed to support a now redundant powerline corridor. Infrastructure within the corridor has been previously removed.

This area is proposed to form a minor extension of the approved KEQ disturbance area and incorporated into the consolidated extraction area.

With the inclusion of this minor area, the total site disturbance area of KEQ will increase nominally to approximately 40.65 ha. This represents a 1.2% increase in disturbance area in relation to the latest approved site plan (MOD 10, which has an approved disturbance area of 40.18 ha) and a cumulative 23.1% increase in disturbance area since the project was last modified under Section 75W (MOD 2, which had an approved disturbance area of 33.01ha) of the EP&A Act (i.e. MOD 10 and the current proposal (MOD 11) combined).

This area has been assessed as requiring the retirement of one (1) ecosystem biodiversity offset credit. It is proposed that this credit obligation be retired in a staged manner that is separated from the biodiversity offset obligations triggered by the MOD10 Stockpile Extension Project.



Figure 5: Location of Proposed Additional Disturbance Area

3.1.3 Minor Extension and Overlap of Extraction Boundary

In order to practically extract the remnant rock-mass consisting of the dividing highwall structure between the KEQ and KHRQ pits, an extension of both approved extraction footprints is necessary to holistically encompass the highwall structure, inclusive of appropriate safety offsets.

Accordingly, it is proposed to extend the KEQ extraction footprint to the west into Lot 11 to contain the highwall structure; and similarly, via a concurrent modification to DA 265-10-2004, the KHRQ extraction footprint will be extended to the east into Lot 12. No changes to the approved disturbance boundaries are sought to facilitate this outcome.

Material sourced from this overlapping area of the consolidated extraction area will be transported by internal haul road to either the KEQ or KHRQ for processing, stockpiling, sale and transport to market within the currently approved throughput rates of:

- 1.5 million tonnes per annum at the KEQ site; and
- 500,000 tonnes per annum at the KHRQ site.

The currently approved annual extraction rates under both MP09_0175 and DA 265-10-2004 are not required to be modified and will remain as follows:

- 1.5 million tonnes per annum extracted from the KEQ pit; and
- 500,000 tonnes per annum extracted from the KHRQ pit.

Cumulatively, no more than 2.0 million tonnes of extraction per annum will occur from both the KEQ and KHRQ extraction areas combined, which is unchanged from what the existing approvals cumulatively allow (i.e. no intensification is required or proposed).

It is proposed that KEQPL will develop and implement a Consolidated Extraction Area Management Plan (or similar revision to the site's Environmental Management Strategy) that details the administrative arrangements required to achieve compliance with the overlapping extraction area and relevant consent conditions.

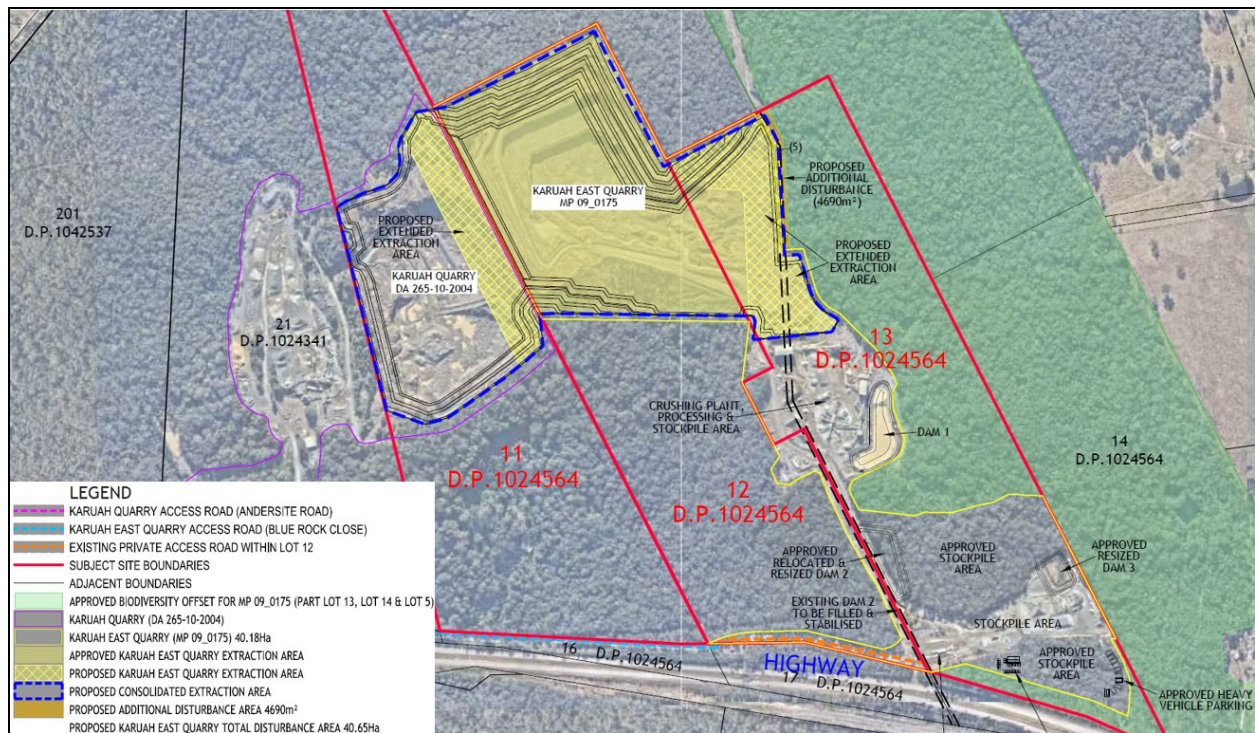


Figure 6: Extract of Proposed Site Plan for Karuah East Quarry

3.1.4 Continued Environmental Management

Environmental safeguards incorporated into Management Plans that are in place for the KEQ operation will be reviewed and updated to accommodate the MOD 11 proposal. Noting that the remnant highwall is situated over two different parcels of land that is subject to two different consents (KEQ and KHRQ), it will be essential that highwall extraction is undertaken in a coordinated and cooperative manner between both operations. As the Applicant (via affiliated companies HQPL and KEQPL) owns both parcels of land subject to the separate consents (for KHRQ and KEQ), this can be readily achieved.

Environmental Safeguards required to accommodate the proposed development are discussed in detail in **Section 6**.

3.1.5 Other Modifications Proposed

To facilitate the Karuah Pit Consolidation Project, other modifications to the KEQ Project Approval are necessary, including:

- **Blasting Activity**

Changes to approved blasting activity as follows:

- Reduction in blasting frequency to limit the number of blasts to a maximum of two (2) blasts per week in total between KEQ and KHRQ.

This will result in a cumulative reduction of blasting activities between KEQ (two (2) blasts per week currently approved) and KHRQ (one (1) blast per week currently approved) from a total of three (3) blasts per week to two (2) blasts per week.

- Approved blasting hours are proposed to be extended by one (1) hour to occur between the hours of 9am and 5pm (Monday to Friday) to provide improved flexibility during blasting of the dividing highwall and align with proposed arrangements at KHRQ.

- **Revised Final Landform**

Revised final landform resulting in a free-draining landscape of the current extraction area is proposed, resulting in reduced geotechnical risks over the long-term and a landform with greater consistency with the existing surrounding environment.

- **Staged Retirement of Biodiversity Offset Credits**

The proposed MOD 11 development generates the need to retire one (1) ecosystem credit for *PCT 3433: Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest*. Flexibility is sought in the Project Approval to retire the single MOD 11 credit independently of the current offset obligations generated by the previous MOD 10 approval. This outcome will facilitate streamlined delivery of the MOD 11 project.

3.1.6 Modification Summary

Table 2 below provides a comparison of the approved development with the proposed development. A consolidated project description is enclosed as **Appendix A**.

Table 2: Modified Project Summary Table

Element	MP 09_0175 (as amended)		Modified Project (inclusive of MOD 11)
Quarry Operations			
Quarry life	31 December 2034		No change.
Production limit	1.5 million tonnes of andesite per annum		No change.
Operating hours	Quarrying operations	• 7:00am to 9:00pm, Monday to Friday • 7:00am to 10:00pm Monday to Friday on 50 calendar days per year • 7:00am to 6:00pm Saturday • No drilling 6:00pm to 10:00pm Monday to Friday or 1:00pm to 6:00pm Saturday • No quarrying operations on Sundays or Public Holidays	No change.
	Product loading and dispatch	• 5:00am to 9:00pm Monday to Friday • 5:00am to 10:00pm Monday to Friday on 50 calendar days per year • 6:00am to 6:00pm Saturday • No product loading and dispatch on Sundays or Public Holidays	No change.
	Construction activities	7:00am and 6:00pm Monday to Friday and 8:00am to 1:00pm Saturdays, unless noise from these activities does not exceed 40dB(A) $L_{Aeq(15\text{ min})}$ at any privately-owned residence	No change.
	Maintenance activities	24 hours a day, 7 days per week, providing maintenance activities are inaudible at any privately-owned residence	No change.

Blasting	9:00am to 4:00pm Monday to Friday, with no more than two (2) blasts per week at KEQ	9:00am to 5:00pm Monday to Friday, with no more than two (2) blasts per week cumulatively at KEQ and KHRQ.
Extraction Method	Drilling and blasting	No change.
Extraction Area Depth	RL45m.	No change.
Vehicle Movements	216 laden movements per day	No change.
Haulage	Haulage from site via the A1 Pacific Highway. Access to the A1 Pacific Highway via Blue Rock Close, Andersite Road and The Branch Lane.	No change.
Employment	Approximately 35 staff.	No change.
Project Area		
Total Disturbance Footprint	40.18 ha	40.65 ha.
Native Vegetation Clearance	35.28 ha	35.75 ha
Biodiversity offsets	Establishment of a land-based offset on the following lands: - Part Lot 13 DP 1024564, Lot 14 DP 1024564, Lot 5 DP 838128 (Eastern Biodiversity Offset Area); and - Part Lot 201 DP 1042537 (Western Biodiversity Offset Area). Biodiversity impacts for the previously approved MOD10 Stockpile Extension Project will be offset via the retirement of credits in accordance with the NSW Biodiversity Offset Scheme.	No change to land-based offsets. An additional one (1) ecosystem credit obligation is required to be retired for MOD11. This will be retired in a staged manner that is separate from MOD10's obligations.
Physical Layout and Design		
Plant and infrastructure	- Crushing plant and processing infrastructure (fixed and mobile equipment). - Stockpiling areas. - Internal haulage roads. - Two (2) weighbridges and weighbridge office. - Administration Offices. - Amenity facilities. - Other minor structures. - Fencing.	No change.
Stormwater infrastructure	Stormwater management infrastructure includes three (3) on site dams: - Dam 1 Volume – 12.0 ML - Dam 2 Volume – 0.5 ML - Dam 3 Volume – 2.0 ML Operation of an in-pit sump that pumps to Dam 1.	No change, however, the in-pit sump will be proportionally upgraded.
Parking	Light vehicle – Sufficient parking for development related traffic provided. An additional 28 light vehicle spaces were approved by MOD 10 but have not yet been constructed.	No Change.

	Heavy vehicle – informal parking on site. An additional 10 heavy vehicle parking spaces were approved by MOD 10 but have not yet been constructed.	
Access	• Upgrade and extension of Blue Rock Close. • Realignment of the Blue Rock Close and Andesite Road intersection. • Adjustment of road markings at the Andesite Road and The Branch Lane intersection.	No change.
Rehabilitation	Progressive rehabilitation of the site.	No change. The Landscape & Rehabilitation Management Plan will be extended to cover the proposed 4,690 m² additional disturbance area and to respond to the revised final landform post extractive activity including the establishment of a free draining landscape.

3.2 Project Approval MP09_0175 Conditions to be Modified

To facilitate the proposed MOD 11 development, a number of conditions of the Project Approval are required to be modified as identified in **Table 3** below. Suggested updated conditions are provided with text to be deleted shown in **red** and text to be inserted shown in **blue**.

Table 3: Conditions to be Modified in Project Approval MP09_0175

CURRENT CONDITION	PROPOSED CONDITION & COMMENTARY
Update the definitions to include reference to Modification 11 to the development and the Modification Report for MOD 11 (MR (MOD 11)).	
Update the definitions to include reference to contemporary agencies.	
SCHEDULE 2 – ADMINISTRATIVE CONDITIONS	
Terms of Approval Condition 2(d)	Update to include reference to the Modification Report for MOD 11.
Quarrying Operations Condition 5	No change.
Production Limit Condition 6	No change.
Hours of Operation Condition 7	No change.
SCHEDULE 3 – ENVIRONMENTAL PERFORMANCE CONDITIONS	
Operational Noise Criteria Condition 3	Update the daytime and evening criteria at Location H consistent with the recommendations of the Noise Impact Assessment. <i>3. Except for the carrying out of construction work, the Applicant must ensure that the operational noise generated by the development does not exceed the criteria in the table below at any residence on privately-owned land.</i>

	Noise Assessment Location^a Morning Shoulder L_{Aeq, 15minute} Morning Shoulder L_{AMax} Day L_{Aeq, 15minute} Evening L_{Aeq, 15minute} <table><tr><td>A</td><td>35</td><td>52</td><td>42</td><td>40</td></tr><tr><td>B</td><td>35</td><td>52</td><td>40</td><td>40</td></tr><tr><td>G</td><td>35</td><td>52</td><td>43</td><td>39</td></tr><tr><td>H</td><td>35</td><td>52</td><td>44 45</td><td>46 47</td></tr><tr><td>I</td><td>35</td><td>52</td><td>40</td><td>37</td></tr><tr><td>All other residences</td><td>35</td><td>52</td><td>40</td><td>35</td></tr></table> Noise Assessment Locations referred to in Table 2 are shown in Appendix 2 Noise generated by the development must be monitored and measures in accordance with the relevant procedures and modifications (including certain meteorological conditions) of the NPfl.	A	35	52	42	40	B	35	52	40	40	G	35	52	43	39	H	35	52	44 45	46 47	I	35	52	40	37	All other residences	35	52	40	35
A	35	52	42	40																											
B	35	52	40	40																											
G	35	52	43	39																											
H	35	52	44 45	46 47																											
I	35	52	40	37																											
All other residences	35	52	40	35																											
Blasting Hours Condition 9	Extension of blasting hours by one (1) hour to allow blasting to occur between 9am to 5pm Monday to Friday. Table 6 Blasting Hours <table><tr><th>Day</th><th>Blasting Hours</th></tr><tr><td>Monday – Friday</td><td>9.00am to 4.00pm 5.00pm</td></tr><tr><td>Saturdays, Sundays and Public Holidays</td><td>No blasting</td></tr></table>	Day	Blasting Hours	Monday – Friday	9.00am to 4.00pm 5.00pm	Saturdays, Sundays and Public Holidays	No blasting																								
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Saturdays, Sundays and Public Holidays	No blasting																														
Blasting Frequency Condition 10	Update to limit total cumulative blasts to two (2) per week at KEQ and KHRQ (DA 265-10-2004) combined. Suggested updated condition provided below with text to be deleted shown in red and text to be inserted shown in blue: 10. The Applicant must not carry out more than 2 blasts a week on-the-site cumulatively at the Karuah East Quarry and the adjoining Karuah Hard Rock Quarry (DA265-10-2004), unless an additional blast is required following a blast misfire, or approved by the Planning Secretary. Note: A blast may involve a number of explosions within a short period, typically less than two minutes.																														
Operating Conditions Condition 11	Delete existing condition and replace with contemporary condition: During blasting operations, the Applicant must: (a) take all reasonable steps to: (i) ensure the safety of people and livestock from blasting impacts of the development; (ii) protect public or private infrastructure and property in the vicinity of the site from blasting damage associated with the development; and (iii) minimise blast-related dust and fume emissions; (b) operate a suitable system to enable members of the public to get up-to-date information on the proposed blasting schedule on the site; and (c) carry out regular blast monitoring to determine whether the development is complying with the relevant conditions of this consent.																														
Blast Management Plan Condition 12	Delete existing condition and replace with contemporary condition: The Applicant must prepare a Blast Management Plan for the development to the satisfaction of the Planning Secretary. This plan must: (a) be prepared by a suitably qualified and experienced person/s; (b) be prepared in consultation with the EPA; (c) describe the measures that will be implemented to:																														

Air Quality Criteria
Condition 13

(i) ensure compliance with the blasting criteria and operating conditions of this consent;

(ii) avoid blasting during unfavourable climatic conditions;

(d) include a monitoring program for evaluating and reporting on compliance with the relevant conditions of this consent;

(e) include a protocol for identifying any blast-related exceedance, incident or non-compliance and for notifying the Department and relevant stakeholders of these events;

(f) include public notification procedures to enable members of the public, particularly surrounding residents, to get up-to-date information on the proposed blasting schedule; and

(g) include a protocol for investigating and responding to blast-related complaints.

It is noted that NSW Planning may take the opportunity to contemporise the Air Quality Impact Assessment criteria based on the outcomes of the AQIA, including:

• Removal of Depositional Dust criteria.

• Provision of assessment criteria for PM_{2.5}.

• Provision of incremental criteria for 24-hour average PM₁₀ and PM_{2.5}.

A suggested replacement contemporary condition is provided below:

13. The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not exceed the criteria in Tables 7 to 9 at any residence on privately-owned land.

Table 7: Long-term impact assessment criteria for particulate matter

Pollutant	Averaging period	^d Criterion
Total suspended particulates (TSP)	Annual	^{a, c} 90 µg/m ³
Particulate matter < 10 µm (PM10)	Annual	~~^{a, b} 30~~ ^{a, c} 25 µg/m ³
Particulate matter < 2.5 µm (PM2.5)	Annual	^{a, c} 8 µg/m ³

Table 8: Short-term impact assessment criteria for particulate matter

Pollutant	Averaging period	^d Criterion
Particulate matter < 10 µm (PM10)	24 hour	~~^{a, b} 50~~ ^{a, b} 50 µg/m ³
Particulate matter < 2.5 µm (PM2.5)	24 hour	^b 25 µg/m ³

Table 9: Long-term Impact Assessment Criteria for Deposited Dust

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
~~^eDeposited dust~~	Annual	~~^b2 g/m² /month~~	~~^a4 g/m² /month~~

Notes to Tables 7-8:

^a Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources);

^b Incremental impact (i.e. incremental increase in concentrations due to the development on its own); and

	~~^eDeposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air – Determination of Particulate Matter – Deposited Matter – Gravimetric Method.~~ ^{c,d}Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Planning Secretary in consultation with EPA.																																		
Biodiversity Offset Strategy Condition 28	Flexibility is sought to retire the single MOD 11 credit independently of the current offset obligations generated by the previous MOD 10 approval. To facilitate this, it is necessary to update Condition 28 to separate the biodiversity credit obligation tables for MOD 10 and proposed MOD 11 as well as renumbering table captions to correct current typographic errors within MP09_0175 as follows: 28. The Applicant must, prior to the commencement of vegetation clearing activities for Modification 10 and Modification 11, finalise the Biodiversity Offset Strategy, as described in documents listed in condition 2 of Schedule 2, summarised in Table 108, and Table 119 and Table 10 and shown conceptually in Figure 1 of Appendix 4, in consultation with BCD CPHR and Council, and to the satisfaction of the Planning Secretary. Table 108: Biodiversity Offset Strategy – Land Based Offsets <table><tr><th>Area</th><th>Offset Type</th><th>Minimum Size (ha)</th></tr><tr><td>Offset Area</td><td>Existing vegetation to be managed and enhanced</td><td>130.36 ha</td></tr></table> Table 119: Biodiversity Offset Strategy – ecosystem and species credit requirements for Modification 10. <table><tr><th>Credit Type</th><th>Credits Required</th></tr><tr><td colspan="2">Ecosystem Credits</td></tr><tr><td>PCT 1619: Smooth-barked Apple – Red Bloodwood – Brown Stringybark – Hairpin Banksia healthy open forest of coastal lowlands</td><td>188</td></tr><tr><td>PCT 695: Blackbutt – Turpentine – Tallowwood shrubby open forest of the coastal foothills of the central NSW North Coast Bioregion.</td><td>7</td></tr><tr><td>Total</td><td>195</td></tr><tr><td colspan="2">Species Credits</td></tr><tr><td><i>Tetratheca juncea</i> (Black-eyed Susan)</td><td>260</td></tr><tr><td><i>Grevillea parviflora</i> subsp. <i>Parviflora</i> (Small-flower Grevillea)</td><td>250</td></tr><tr><td>Squirrel Glider (<i>Petaurus norfolcensis</i>)</td><td>260</td></tr><tr><td>Southern myotis (<i>Myotis macropus</i>)</td><td>107</td></tr><tr><td>Total</td><td>877</td></tr></table> Table 10 Biodiversity Offset Strategy – ecosystem credit requirements for Modification 11 <table><tr><th>Credit Type</th><th>Credits Required</th></tr><tr><td colspan="2">Ecosystem Credits</td></tr><tr><td>PCT 3433: Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest</td><td>1</td></tr></table>	Area	Offset Type	Minimum Size (ha)	Offset Area	Existing vegetation to be managed and enhanced	130.36 ha	Credit Type	Credits Required	Ecosystem Credits		PCT 1619: Smooth-barked Apple – Red Bloodwood – Brown Stringybark – Hairpin Banksia healthy open forest of coastal lowlands	188	PCT 695: Blackbutt – Turpentine – Tallowwood shrubby open forest of the coastal foothills of the central NSW North Coast Bioregion.	7	Total	195	Species Credits		<i>Tetratheca juncea</i> (Black-eyed Susan)	260	<i>Grevillea parviflora</i> subsp. <i>Parviflora</i> (Small-flower Grevillea)	250	Squirrel Glider (<i>Petaurus norfolcensis</i>)	260	Southern myotis (<i>Myotis macropus</i>)	107	Total	877	Credit Type	Credits Required	Ecosystem Credits		PCT 3433: Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest	1
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Long Term Security of Offsets Condition 29	Update condition 29 to separate the stages of credit retirement for the MOD 10 and MOD 11 components of the KEQ by inserting a new sub-condition for the MOD 11 project. Suggested amended condition is provided below:																																		

	29. The long-term security of the offset area listed in Table 408 and the retirement of the credits listed in Table 449 must be carried out prior to the commencement of vegetation clearing activities for Modification 10, in consultation with BCD CPHR and in accordance with the Biodiversity Offset Scheme of the BC Act, or other agreed security mechanism, to the satisfaction of the BCT. <i>The retirement of the credits listed in Table 10 must be carried out prior to the commencement of vegetation clearing activities for Modification 11.</i>														
Rehabilitation Objectives Condition 30	Update to reference the Modification Report for MOD 11 and the updated quarry pit floor rehabilitation objective from landscaping and re-vegetation from wetland vegetation to woodland vegetation. A revised contemporary condition is provided below. 30. The Applicant must rehabilitate the site to the satisfaction of the Planning Secretary. This rehabilitation must: a) Be consistent with the rehabilitation strategy as described in the EA MOD 11 and shown conceptually in Figure 1 in Appendix 5; and b) Comply with the objectives in Table 11. Table 11: Rehabilitation Objectives <table> <tr> <th>Feature</th><th>Objective</th></tr> <tr> <td>Site (as a whole)</td><td>Safe, stable & non-polluting.</td></tr> <tr> <td>Surface Infrastructure</td><td>To be decommissioned and removed, unless the Planning Secretary agrees otherwise.</td></tr> <tr> <td>Quarry Wall Benches</td><td>Landscaped and revegetated utilising native tree and understorey species, ensuring that the tree canopy is restored and integrated with the surrounding tree canopy.</td></tr> <tr> <td>Quarry Pit Floor</td><td>Landscaped and revegetated with wetland woodland vegetation.</td></tr> <tr> <td>Other land affected by the development</td><td>Restore ecosystem function, including maintaining or establishing self-sustaining eco-systems comprised of: Native endemic species; and A landform consistent with the surrounding environment.</td></tr> <tr> <td>Community</td><td>Ensure public safety. Minimise the adverse socio-economic effects associated with quarry closure.</td></tr> </table>	Feature	Objective	Site (as a whole)	Safe, stable & non-polluting.	Surface Infrastructure	To be decommissioned and removed, unless the Planning Secretary agrees otherwise.	Quarry Wall Benches	Landscaped and revegetated utilising native tree and understorey species, ensuring that the tree canopy is restored and integrated with the surrounding tree canopy.	Quarry Pit Floor	Landscaped and revegetated with wetland woodland vegetation.	Other land affected by the development	Restore ecosystem function, including maintaining or establishing self-sustaining eco-systems comprised of: Native endemic species; and A landform consistent with the surrounding environment.	Community	Ensure public safety. Minimise the adverse socio-economic effects associated with quarry closure.
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Community	Ensure public safety. Minimise the adverse socio-economic effects associated with quarry closure.														
SCHEDULE 5 – ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITIING															
Environmental Management Strategy Condition 1	Update the Environmental Management Strategy condition to include a requirement for the establishment and implementation of a management procedure for the CEA. A suggested replacement condition is provided below: 1. The Applicant must prepare an Environmental Management Strategy for the development to the satisfaction of the Planning Secretary. This strategy must: (a) be submitted to the Planning Secretary for approval prior to the commencement of construction activities; (b) provide the strategic framework for environmental management of the development; (c) identify the statutory approvals that apply to the development; (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development; (e) describe the procedures that would be implemented to:														

	• keep the local community and relevant agencies informed about the operation and environmental performance of the development; • receive, handle, respond to, and record complaints; • resolve any disputes that may arise during the course of the development; • respond to any non-compliance; and • respond to emergencies; <i>and</i> (f) include: • copies of any strategies, plans and programs approved under the conditions of this consent; and • a clear plan depicting all the monitoring required to be carried out under the conditions of this consent; <i>and</i> (g) describe the procedures to manage and report on the overlapping extraction areas between the KEQ and the adjacent Karuah Hard Rock Quarry (DA265-10-2004) to ensure compliance is achieved with all relevant conditions of MP09_0175 and DA 265-10-2004. The Applicant must implement the strategy as approved by the Planning Secretary.
Community Consultative Committee Condition 6	It is requested that NSW Planning contemporise the conditions relating to the establishment and operation of a Community Consultative Committee (CCC) including reference to the current CCC guideline for State Significant Projects (June, 2023). Noting that a joint CCC has been formed for both the KEQ and the KHRQ (the Karuah Quarry Complex), provided below is a recommended condition to replace condition 6. <i>6. Within 6 months from the date of commencement, a Community Consultative Committee (CCC) must be established for the development in accordance with the Department's Community Consultative Committee Guidelines: State Significant Projects (June, 2023).</i> <i>Notes:</i> • <i>The CCC is an advisory committee only. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this consent.</i> • <i>In accordance with the guidelines, the Committee should comprise an independent chair and appropriate representation from the Applicant, MidCoast Council and the local community.</i> • <i>A joint CCC may be formed with the adjoining Karuah Hard Rock Quarry (DA 265-10-2004) to the satisfaction of the Planning Secretary.</i>
APPENDICES	
Appendix 1 (of MP 09_0175) Development Layout	Update to include the revised MOD 11 Site Plan provided in Appendix E .
Appendix 5 (of MP 09_0175) Rehabilitation Strategy	Update to include the revised Conceptual Rehabilitated Landform provided in Appendix M .

Section 4 Statutory Context



4.0 Statutory Context

4.1 Approval Pathway and Permissibility

Schedule 2 of the *Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017* (Transitional Regulation) provides transitional arrangements for development approved under former Part 3A of the EP&A Act 1979 (EP&A Act) including winding up of transitional Part 3A Modification Provisions.

In accordance with Schedule 2, Clause 6 of the Transitional Regulation, the KEQ Project (MP09_0175) was declared a State Significant Development (SSD) for the purposes of the EP&A Act in January 2019, by order published in the NSW Government Gazette No 5 of 25 January 2019 (notice reference n2019-124).

Accordingly, the KEQ is subject to the modification provisions of Section 4.55 of the EP&A Act. This application seeks to amend the approved development in accordance with Section 4.55(2) of the EP&A Act.

It is necessary to give consideration to Schedule 2 Clause 3BA(6) of the Transitional Regulation, which states:

(6) In the application of section 4.55 (1A) or (2) or 4.56 (1) of the Act to the following development, the consent authority need only be satisfied that the development to which the consent as modified relates is substantially the same development as the development authorised by the consent (as last modified under section 75W):

(a) development that was previously a transitional Part 3A project and whose approval was modified under section 75W...

The proposal will remain substantially the same as the development last modified under Section 75W of the EP&A Act (MP09_0175-MOD2). The following is noted in this regard:

- The development, as proposed to be modified, remains qualitatively the same as the approved development. The proposal will not result in any significant changes to the nature of the development, the method of quarrying or introduce any new uses which were not previously considered or already being undertaken within the site.
- The project approval as it relates to extraction rates, processing, transport rates, access/haulage arrangements, hours of operation or the operational life of the quarry will not be affected by the proposal. The quarry will remain capped at a maximum production of 1.5 million tonnes per annum until 31 December 2034.
- The total life of quarry extraction will not be increased from the 29 million tonnes that was considered in the approved Environmental Assessment for the project (ADW Johnson, January 2013).
- The proposed additional disturbance at the north eastern edge of the KEQ is minor in size (4,690 m²) and will represent a 1.2% increase in disturbance area in relation to the latest approved site plan (MOD 10, which has an approved disturbance area of 40.18 ha) and a cumulative 23.1% increase in disturbance area since the project was last modified under Section 75W (MOD 2, which had an approved disturbance area of 33.01 ha) of the EP&A Act (i.e. MOD 10 and the current proposal [MOD 11] combined).
- No changes are proposed to the approved extraction depth limit of RL 45m.
- Proposed changes to approved blasting frequency will result in reduced cumulative blasting between KEQ and KHRQ – from three (3) to two (2) per week.
- The receiving surrounding environment is well understood and no significant environmental impacts are expected to arise as a result of the proposed modifications. Management plans can be readily updated to accommodate the proposal

It is noted that during scoping discussions with NSW Planning, the Section 4.55(2) pathway was confirmed. Following review of the project scoping report, NSW Planning issued correspondence dated 1 October 2025 (refer to **Appendix D**) that confirmed:

'Based on the information contained in the scoping report, the Department considers that the proposal can be assessed under Section 4.55(2) of the Environmental Planning and Assessment Act 1979, provided the supporting Modification Report demonstrates that the modified development is substantially the same development as that originally approved.'

For the reasons noted above, the modified development is considered to be substantially the same development as that approved under MP 09_0175 (MOD 2).

4.2 Relevant Issues under Section 4.55 of the EP&A Act 1979

Under Section 4.55(2) of the EP&A Act, the consent authority needs to be satisfied that the modified development is substantially the same as the development last modified under former Section 75W of the EP&A Act (refer **Section 4.1** below) as follows:

A consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if:

- (a) it is satisfied that the development to which the consent as modified relates is the same or substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified (if at all), and*

Comment: The proposal will remain substantially the same development. Refer to **Section 4.1** above.

- (b) it has consulted with the relevant Minister, public authority or approval body (within the meaning of Division 4.8) in respect of a condition imposed as a requirement of a concurrence to the consent or in accordance with the general terms of an approval proposed to be granted by the approval body and that Minister, authority or body has not, within 21 days after being consulted, objected to the modification of that consent, and*

Comment: It is understood that NSW Planning will refer the application to relevant public authorities as required.

- (c) it has notified the application in accordance with:*

- (i) the regulations, if the regulations so require, or*
- (ii) a development control plan, if the consent authority is a council that has made a development control plan that requires the notification or advertising of applications for modification of a development consent, and*

- (d) it has considered any submissions made concerning the proposed modification within the period prescribed by the regulations or provided by the development control plan, as the case may be.*

Comment: It is understood that NSW Planning will publicly exhibit the proposal and invite public feedback.

Given the above, it is clear that the request to modify the consent can be assessed under the parameters of Section 4.55(2) of the EP&A Act and is therefore submitted to NSW Planning for approval on this basis.

4.3 Relevant Issues under the EP&A Regulation (2021)

Part 5, Division 1 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation 2021) sets out additional requirements that all applications for modifications of consent under Section 4.55 of the EP&A Act must comply with. The relevant requirements and how they have been complied with are set out in the following table:

Table 4: Division 1, Section 99 and 100 Requirements

SECTION 99 REQUIREMENTS	COMMENT
(1) A modification application must—	
(a) <i>be in the approved form, and</i>	The application has been prepared in accordance with the approved form.
(b) <i>contain all the information and documents required by—</i>	The application has been prepared in the approved form.
(i) <i>the approved form, and</i>	
(ii) <i>the Act or this Regulation, and</i>	The application contains all the relevant information and documents required by the Act and Regulation.
(c) <i>be submitted on the NSW planning portal</i>	The Modification Application will be submitted via the NSW Planning Portal.
(2) If the modification application is for State significant development—	
(a) <i>the application must also include particulars of the nature of the modification, and</i>	Provided within Section 3 of this Section 4.55(2) Report.
(b) <i>the applicant must consider the State Significant Development Guidelines in preparing the application.</i>	This S4.55(2) Report is prepared in accordance with the SSD Guidelines for preparing a Modification Report.
SECTION 100 REQUIREMENTS	COMMENT
(1) A modification application must contain the following information—	
(a) <i>the name and address of the applicant,</i>	Provided within this Section 4.55(2) Modification Report and as part of the application on the NSW Planning Portal.
(b) <i>a description of the development that will be carried out under the development consent,</i>	Discussed within Section 3 of this Section 4.55(2) Modification Report.
(c) <i>the address and folio identifier of the land on which the development will be carried out,</i>	Provided within this Section 4.55(2) Modification Report and as part of the application on the NSW Planning Portal.
(d) <i>a description of the modification to the development consent, including the name, number and date of plans that have changed, to enable the consent authority to compare the development with the development originally approved,</i>	Discussed within relevant sections of this Section 4.55(2) Modification Report.
(e) <i>whether the modification is intended to—</i> (i) <i>merely correct a minor error, misdescription or miscalculation, or</i> (ii) <i>have another effect specified in the modification application,</i>	Discussed within relevant sections of this Section 4.55(2) Modification Report.
(f) <i>a description of the expected impacts of the modification,</i>	Discussed within relevant sections of this Section 4.55(2) Modification Report.
(g) <i>an undertaking that the modified development will remain the same or substantially the same as the development originally approved,</i>	Addressed within Section 4.1 of this Section 4.55(2) Modification Report.
(h) <i>for a modification application that is accompanied by a biodiversity development assessment report—the biodiversity credits information,</i>	Discussed within Section 6.9 of this report and the BDAR enclosed as Appendix N .
(i) <i>if the applicant is not the owner of the land—a statement that the owner consents to the making of the modification application,</i>	Owners consent for all parcels of land subject to the proposed modification are provided as part of this application.

(j) <i>whether the modification application is being made to—</i> (i) <i>the Court under the Act, section 4.55,</i> <i>or</i> (ii) <i>the consent authority under the Act, section 4.56.</i>	N/A
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4.4 Relevant Issues under Section 4.15 of the EP&A Act 1979

In accordance with section 4.55(3) of the EP&A Act, when determining a modification of development consent, the consent authority must take into consideration the following matters referred in section 4.15(1) of the EP&A Act (where relevant to the application).

(a) the provisions of—

(i) any environmental planning instrument, and

Consideration has been given to the provisions of all relevant environmental planning instruments (EPIs). The EP&A Act is addressed in earlier sections of this report. Other EPIs applicable to the proposed amendments are discussed below:

State Environmental Planning Policy (Transport and Infrastructure) 2021

State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP (Transport and Infrastructure)) provides an efficient planning framework for delivering infrastructure in NSW and ensures that infrastructure is delivered with appropriate environmental assessment and consultation.

Chapter 2 - Infrastructure

SEPP (Transport and Infrastructure) Chapter 2 provides a consistent planning regime for infrastructure and the provision of services across NSW, along with providing for consultation with relevant public authorities during the assessment process. The Chapter supports greater flexibility in the location of infrastructure and services along with improved regulatory certainty and efficiency.

Section 2.48(1) and (2) of the SEPP requires the consent authority to give written notice to the electricity supply authority for development within or immediately adjacent to an easement for electricity purposes (whether or not the electricity infrastructure exists). As noted in Section 3, it is proposed to extend the disturbance area of the KEQ at the north eastern section of the site into a redundant powerline corridor that is cleared and comprised predominantly of exotic grassland. The easement was for the sole purpose of providing electricity supply to the dwelling to the north of the KEQ on Lot 5 DP838128. The Applicant is the owner of Lot 5 and electricity supply to the existing dwelling is not required as adequate solar arrangements are in place. No electricity infrastructure exists within the easement. In accordance with the SEPP, it is noted that NSW Planning will refer this application to Essential Energy and invite comment.

Section 2.122 and Schedule 3 of the SEPP (Transport and infrastructure) identify traffic generating development that requires referral to Transport for NSW (TfNSW).

The proposal does not involve any change to extraction and transportation rates, quarrying activities or the operational life of the quarry. Accordingly, the proposed development is not categorised as traffic generating development that requires referral to TfNSW.

State Environmental Planning Policy (Resources and Energy) 2021

State Environmental Planning Policy (Resources and Energy) 2021 (SEPP (Resources and Energy)) contains planning provisions for the assessment and development of mining, petroleum production and extractive material resource proposals in NSW.

Chapter 2 – Mining, Petroleum Production and Extractive Industries

Chapter 2 of SEPP (Resources and energy) aims to provide for the proper management and development of mineral, petroleum and extractive material resources for the social and economic welfare of the State. It establishes appropriate planning controls to encourage ecologically sustainable development.

Former SEPP (Mining Petroleum and Extractive Industries) (now Chapter 2 of SEPP (Resources and Energy)) was considered during the assessment process for the Karuah East Quarry. In addition to providing permissibility for the KEQ (under clause 2.9(3)(a)) and extinguishing any LEP provisions (Clause 2.10), Part 2.3 of the SEPP provides additional matters be considered by the consent authority relating to:

- Compatibility with other land uses;
- Consideration of the Voluntary Land Acquisition and Mitigation policy;
- Compatibility with mining, petroleum production or extractive industry;
- Natural resource management and environmental management;
- Resource recovery;
- Transport; and
- Rehabilitation.

These matters were satisfactorily addressed as part of the KEQ assessment and project approval (as modified).

Of particular relevance to MOD 11, environmental management and rehabilitation are necessary to be addressed. **Section 6** of this 4.55 Modification Report address all key environmental management considerations as well as rehabilitation. Management Plans will be updated, as necessary, to ensure the long-term management of key environmental considerations and rehabilitation.

Proposed MOD 11 is considered to be acceptable in terms of the each of the above listed considerations.

State Environmental Planning Policy (Resilience and Hazards) 2021

State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP) aims to promote the protection and improvement of key environmental assets for their intrinsic value and the social and economic benefits they provide. Relevant chapters of SEPP Resilience and Hazards are considered below:

Chapter 2 – Coastal Management

The aim of this chapter is to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the *Coastal Management Act 2016*, including the management objectives for each coastal management area.

The four (4) coastal management areas are:

- Coastal wetlands and littoral rainforests area;
- Coastal vulnerability area;
- Coastal environment area; and
- Coastal use area.

The subject site does not contain any of the four (4) mapped coastal management areas.

Areas of mapped Coastal Wetland occur approximately 1.3kms to the south-west of the subject site, on the southern side of the Pacific Highway. This Coastal Wetland is associated with riparian areas of Yalimbah Creek and Karuah River.

A Surface Water Assessment relevant to MOD 11 has been prepared by ADW Johnson and is provided within **Appendix J**. The Surface Water Assessment recommends a number of measures which will be implemented during the establishment and operation of proposed MOD 11 which will regulate and improve the quality of water discharged from the site.

Implementation of the proposed mitigation measures will ensure that any adverse impacts of downstream coastal environments are avoided.

Chapter 3 – Hazardous and Offensive Development

Chapter 3 of SEPP (Resilience and Hazards) provides definitions for 'hazardous industry', 'hazardous storage establishment', 'offensive industry' and 'offensive storage establishment'. The definitions apply to all planning instruments, existing and future. The definitions enable decisions to approve or refuse a development to be based on the merit of a proposal. The SEPP requires specified matters to be considered for proposals that are 'potentially hazardous' or 'potentially offensive' as defined in the SEPP.

The proposed modification will not result in any changes to the storage and handling of potentially hazardous materials and does not trigger the provisions of this chapter.

State Environmental Planning Policy (Biodiversity and Conservation) 2021

State Environmental Planning Policy (Biodiversity and Conservation) 2021 (Biodiversity and Conservation SEPP) aims to promote the protection and improvement of key environmental assets for their intrinsic value and the social and economic benefits they provide.

The proposal involves a minor 4,690 m² extension of the KEQ at its north eastern corner into a former powerline corridor that is heavily disturbed and comprised of predominantly exotic grassland. Consideration of ecology matters relevant to this disturbed portion of land are provided within **Section 6.9** of this Modification Report and within the Streamlined Biodiversity Development Assessment Report provided within **Appendix N**.

Great Lakes Local Environmental Plan 2014

The site is zoned RU2 Rural Landscape under the Great Lakes Local Environmental Plan 2014 (GLLEP 2014). An extract of the zoning plan is shown in **Figure 7**.

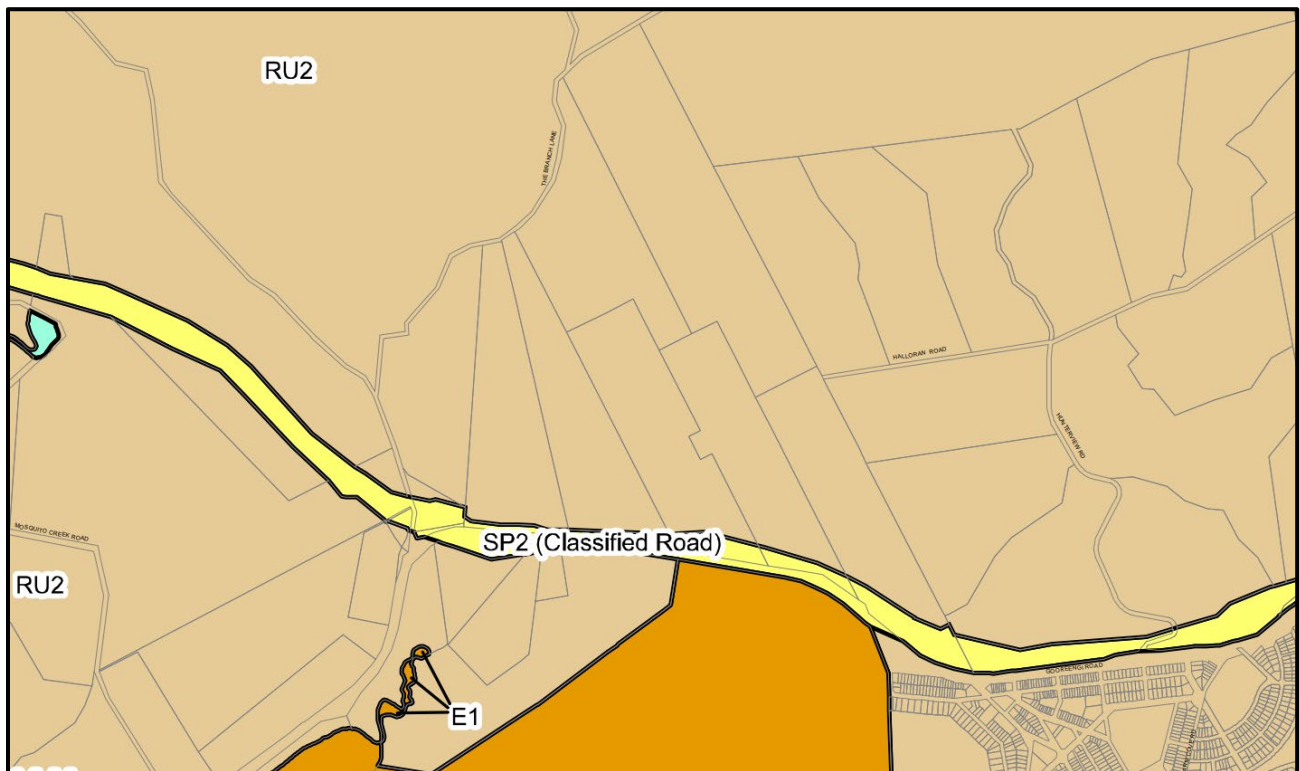


Figure 7: GLLEP 2014 Zoning Plan

Permissibility

The proposal forms part of an 'extractive industry' under the GLLEP 2014. An extractive industry is defined below.

***extractive industry** means the winning or removal of extractive materials (otherwise than from a mine) by methods such as excavating, dredging, tunnelling or quarrying, including the storing, stockpiling or processing of extractive materials by methods such as recycling, washing, crushing, sawing or separating, but does not include turf farming.*

An extractive industry is permissible in the RU2 Rural Landscape zone.

(a)(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and

The Draft MidCoast Local Environmental Plan (Draft MidCoast LEP) was endorsed at Mid Coast Council's ordinary meeting on 26 February 2025. The Draft LEP is currently with NSW Planning for finalisation, which is anticipated in late 2026.

The zoning of the subject site is proposed to remain as RU2 Rural Landscape Zone upon gazettal of the draft MidCoast LEP. Development for the purpose of extractive industries remains permissible with development consent in the RU2 zone.

(a)(iii) any development control plan, and

Not Applicable.

(a)(iia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and

Not applicable.

(a)(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph), that apply to the land to which the development application relates,

Part 5, Division 1 of the EP&A Regulation 2021 is addressed in the earlier sections of this report. There are no other matters prescribed by the regulations relevant to the application.

(b) the significant likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,

An environmental assessment of the proposal is provided within **Section 6** of this report that addresses all significant likely impacts of the proposed modification. The surrounding receiving environment is well understood by the Applicant and it is considered that the project can be undertaken without any adverse impacts. Management Plans in place can be readily updated to accommodate the proposal.

(c) the suitability of the site for the development,

The subject site is considered suitable for the proposed development for the following reasons:

- There is a proven, high quality andesite resource within the remnant dividing highwall (as well as within other disturbed areas) between two established quarries operated by the Applicant (via affiliated companies).
- Infrastructure exists at both the KEQ and adjoining KHRQ to efficiently extract, process and deliver the andersite product to market.

- Additional resource can be extracted, processed and supplied to market without the need for any significant vegetation clearing and the approved disturbance footprint of the quarry will remain largely unchanged (except for a nominal 4,690 m² increase along the north-east corner of KEQ which is comprised of exotic grassland and disturbed vegetation associated with a redundant powerline corridor).
- Key environmental considerations in the area are well understood and can be readily managed. KEQPL is affiliated with HQPL, who operate the established KHRQ on Lot 11 and Lot 21. Noting the adjoining operations, KEQPL and HQPL can extract and process the resource within the CEA in an efficient manner whilst ensuring that coordinated operational and environmental management (as needed) can readily occur.
- The subject site is well separated from any sensitive receivers or significant areas of urban development.
- The KEQ has direct access available to the Pacific Highway interchange (via The Branch Lane interchange, Andersite Road and Blue Rock Close). The haulage route to the Pacific Highway does not require heavy vehicles to pass any sensitive receivers (e.g. a property with a rural dwelling).

(d) any submissions made in accordance with this Act or the regulations,

Any public submissions will be considered by NSW Planning and the proponent.

(e) the public interest.

The proposed modification is considered to be within the public interest for the following reasons:

- The proposal will involve removal of the remnant dividing highwall between KEQ and KHRQ, resulting in a significant visual amenity improvement, particularly when viewed from the Pacific Highway and Halloran Road.
- The proposal will result in the extraction of a proven, high quality andesite resource that will be supplied to market to support key infrastructure projects and the general construction industry. This will contribute to the long term supply of quality construction materials. This is consistent with key strategic planning documents including the Hunter Regional Plan 2041 and the MidCoast Local Strategic Planning Statement.
- The proposal will continue to support the Applicant's large client base that includes Transport for NSW, a number of local Councils, the Port of Newcastle, Ausgrid, Newcastle Airport, Tier 1 infrastructure providers as well as the general construction, land development and infrastructure industries within Greater Newcastle, the Hunter Valley and Mid-North Coast regions.
- The project can be efficiently delivered, noting that existing plant and infrastructure already exists.
- The project can be undertaken without the need to intensify approved annual extraction and processing rates.
- Extraction and processing of material can be undertaken without the need for any new land disturbance.
- Ensuring continued and uninterrupted employment for existing KEQPL (and HQPL) staff.

4.5 Other Legislative Matters

4.5.1 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

Two (2) EPBC approvals apply to the KEQ as follows:

- EPBC 2022/9164, issued on 02 July 2025. This EPBC approval was granted specifically to facilitate the MOD 10 Stockpile Extension Project under the Bilateral Agreement between the NSW and Commonwealth governments.
- EPBC 2014/7282, original EPBC approval issued 20 March 2015. EPBC 2014/7282 has been the subject of two (2) variations:
 - Variation 1 (issued 04/10/2018) was required as a result of MOD1 to the NSW Project Approval which impacted 0.25 ha of native vegetation.
 - Variation 2 (issued 07/05/2025) was required as a result of MOD10 to the NSW Project Approval which consisted of a 7.17 ha increase in land disturbance and associated clearing of 6.98 ha of native vegetation from within an existing Biodiversity Offset Area.

Given that the proposal will impact a minor area of land (0.47 ha) comprised of exotic grassland (0.41 ha) and heavily disturbed non-threatened vegetation (0.05 ha) associated with a former powerline corridor, MOD 11 will not generate the need for a new EPBC referral or approval.

This is addressed further within the BDAR provided within **Appendix N**.

Of relevance, it is noted that the proposed additional disturbance area does not contain any Matters of National Environmental Significance (MNES) and the heavily disturbed vegetation that will be impacted is a non-threatened vegetation community.

Notwithstanding the above, both EPBC approvals contain a provision (Condition 14B of EPBC 2014/7282 and Condition 7 of EPBC 2022/9164) requiring the approval holder to notify the Commonwealth Department of Climate Change, Energy, the Environment and Water (Commonwealth DCCEEW) within two (2) days of formally lodging an application to modify MP09_0175 that may relate to protected matters. The Commonwealth DCCEEW will be notified by the Applicant following confirmation of lodgement of MOD 11 with NSW Planning.

4.5.2 NSW Protection of the Environment Operations Act 1997

An Environmental Protection Licence (EPL) (EPL 20611) applies to the Karuah East Quarry.

Upon determination of MOD 11, a variation to the EPL will be necessary for the contemporised air quality monitoring regime. Any variation to the EPL will be undertaken in consultation with the NSW Environment Protection Authority.

4.5.3 NSW National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act) is the primary state legislation relating to Aboriginal cultural heritage in NSW.

Under the NPW Act, it is an offence to harm an Aboriginal object or place. However, it is a defence from prosecution if the proponent can demonstrate that harm was authorised under Section 90 of the NPW Act, or the proponent exercised due diligence in respect to Aboriginal cultural heritage.

An Aboriginal Heritage Due Diligence Heritage Assessment relevant to the proposed 0.47ha additional disturbance area has been prepared by Heritage Now (**Appendix O**). As part of this process consultation was also undertaken with Registered Aboriginal Parties (RAPs).

Aboriginal cultural heritage is discussed further in **Section 6.10**.

4.5.4 NSW Heritage Act 1977

Historical archaeological relics, buildings, structures, archaeological deposits and features are protected under the *Heritage Act 1977* and may be identified on the State Heritage Register (SHR) or by an active Interim Heritage Order.

The proposed modification will have no impact on heritage.

4.5.5 NSW Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act), the *Biodiversity Conservation Regulation 2017* (BC Regulation) and amendments to the *NSW Local Land Services Act 2013* (LLS Act) commenced on 25 August 2017. The legislation aims to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. The BC Act repeals several pre-existing Acts, most notably the *NSW Threatened Species Conservation Act 1995* (TSC), the *NSW Nature Conservation Trust Act 2001* and the *NSW Native Vegetation Act 2003*.

The BC Act together with the BC Regulation outlines the framework for addressing impacts on biodiversity from development and clearing. The framework details a pathway to avoid, minimise and offset impacts on biodiversity from development through the Biodiversity Offset Scheme (The BOS).

Entry into the BOS is triggered by developments, projects and activities that meet criteria or certain thresholds for significant impacts on biodiversity in accordance with Section 6.3 of the BC Act. Alternatively, the BOS can be entered into on an opt-in basis.

Criteria to which the BOS applies includes the following:

- State Significant Development (SSD) and State Significant Infrastructure projects (SSI), unless “the Secretary of the Department of Planning, Industry and Environment and the environment agency head determine that the project is not likely to have a significant impact”.

As previously noted, the KEQ Project was declared a State Significant Development (SSD) on 25 January 2019 (notice reference n2019-124). As such, the BOS applies to the proposed modification and the Preparation of a Biodiversity Development Assessment Report (BDAR) is required.

A Streamlined BDAR has been prepared by Wedgetail Project Consulting for the proposed development and is enclosed as **Appendix N**.

4.5.6 Commonwealth National Greenhouse and Energy Reporting Act

The Commonwealth *National Greenhouse and Energy Reporting Act* (NGER Act) established a mandatory reporting system for company greenhouse gas emissions and energy production and consumption.

The proposed modification does not involve any change to extraction and transportation rates, processing activities or the operational life of the quarry. It is not anticipated that there will be any additional greenhouse gases generated. Recent calculations demonstrate that emissions from the “Hunter Quarries” group of affiliated companies consistently does not trigger NGER Act reporting thresholds.

An Air Quality Impact Assessment has been prepared to accompany this modification assessment and it detailed in **Section 6.3** of this report and provided within **Appendix H**.

4.5.7 NSW Water Management Act 2000

The *Water Management Act (2000)* (WM Act), as well as the *Water Act (1912)* establish requirements for water harvesting and reuse. The WM Act defines licensing requirements for water storages which exceed maximum harvestable rights.

The proposal does not generate the requirement for any separate approvals under the provisions of the WM Act.

A surface water assessment has been prepared as part of this Modification Application, refer to **Section 6.5** and **Appendix J**.

Section 5

Engagement



5.0 Engagement

Prior to lodgement of the MOD 11 application, substantial engagement has been undertaken with key government agencies, the local community and Registered Aboriginal Parties.

Consultation has occurred with NSW Planning, Transport for NSW, Water and CHPR Groups within NSW DCCEEW, Heritage NSW, NSW EPA, MidCoast Council, Registered Aboriginal Parties (RAP) and the Joint Karuah Quarry Complex CCC for the MOD 11 application. Refer to **Appendix P** for agency consultation correspondence, **Appendix Q** for CCC correspondence and **Appendix O** for RAP consultation correspondence.

5.1 NSW Department of Planning, Housing & Infrastructure

Table 5 below provides a summary of consultation completed with NSW Planning.

Table 5: Summary of Consultation with NSW Planning

Date	Item	Outcome / KEQPL Response
16/07/2025	KEQPL staff provided a preliminary project briefing to NSW Planning staff.	NSW Planning staff directed KEQPL to submit a proportionate Scoping Report in relation to the project.
14/08/2025	KEQPL submitted two (2) concurrent Scoping Reports for the proposal (i.e. one Scoping Report for MOD 11 to MP09_0175 (KEQ) and another Scoping Report for MOD 2 to DA 265-10-2004 (KHRQ).	N/A
01/10/2025	NSW Planning issued Environmental Assessment Requirements for MOD 11 to MP09_0175 (KEQ) and MOD 2 to DA 265-10-2004 (KHRQ). The following is noted in relation to the MOD 11 requirements:	
	The approval pathway for the project is Section 4.55(2) of the EP&A Act.	Noted and agreed. The requirements of Section 4.55(2) are addressed in Section 4.1 of this Modification Report.
	Proportionate assessments of the following matters is necessary: • Biodiversity; • Aboriginal Heritage; • Noise and Vibration; • Blasting; • Air Quality; • Water Resources, including consideration of any potential groundwater impacts associated with the extension area; • Visual Amenity; and • Rehabilitation and Final Landform.	This Modification Report is prepared in accordance with the NSW Government's <i>State Significant Development Guidelines</i> , in particular <i>Appendix E, Preparing a Modification Report</i> . Each of these items are addressed within Section 6 of this Modification Report and associated appendices.
	Consultation is recommended with the following Government Agencies: • TfNSW; • Water Group within NSW DCCEEW; • CPHR Group within NSW DCCEEW; • NSW EPA;	Consultation with each of these agencies was undertaken during completion of this Modification Report. Refer to Sections 5.2 – 5.8 below.

	• MidCoast Council; and • Heritage NSW.	
	If the proposal is likely to have a significant impact on Matters of National Environmental Significance (MNES), approval will be required under the <i>EPBC Act</i> .	EPBC approval 2014/7282 and EPBC approval 2022/9164 apply to the KEQ. Refer to Section 6.9 and Appendix N. Ecological assessment completed confirms that the proposal will have no impact on MNES.

5.2 Transport for NSW

Prior to the lodgement of the MOD 11 application, KEQPL consulted with TfNSW to obtain landowners consent for the application noting that the following lands listed in Project Approval MP09_0175 are in freehold ownership of TfNSW:

- Lot 202 DP 1042537;
- Lot 26 DP 1024341;
- Lot 27 DP 1024341;
- Lot 16 DP 1024564; and
- Lot 17 DP 1024564.

TfNSW's landowners consent is provided with the lodgement documentation.

In addition to the above, project consultation was also undertaken with TfNSW during preparation of the Modification Application (which was a requirement of the Environmental Assessment Requirements specifically for the separate KHRQ modification).

Table 6: Summary of Consultation with TfNSW

Date	Item	Outcome / KEQPL Response
05/02/2026	HQPL provided a detailed project briefing to TfNSW and an invitation to comment. The briefing noted that of particular relevance to TfNSW is the proposed extension of hours and extension of operational life of the KHRQ to match the KEQ. A Transport and Traffic Impact Statement (TTIS) (Intersect Traffic, 5 February 2026) was supplied to TfNSW for consideration as part of the briefing package, which provided the following findings: • The existing Local and State road network is of a suitable standard to cater for all traffic generated by the operation of the existing KHRQ and KEQ. • Both Andersite Road and Blue Rock Close as two-lane two-way roads with a 50km/h speed limit have a two-way mid-block capacity of at least 1,800vtph. With peak hour traffic being only in the order of a maximum of 160vtph these roads are currently operating with excellent levels of service and with uninterrupted flow conditions.	N/A

	• With no additional traffic generated by the proposal, the Local and State road network adjacent to the KHRQ and KEQ will continue to operate with uninterrupted flow conditions or with no loss of two-way mid-block level of service or intersection level of service. • There is no nexus for any road infrastructure upgrades resulting from the proposal. • The existing quarries currently operate with at grade vehicular accesses off Andersite Road (KHRQ) and Blue Rock Close (KEQ) that are constructed to suit their use by heavy vehicle traffic associated with the operation of the quarries. With the proposed pit consolidation project not generating any additional annual traffic and the current accesses being approved within the existing consents for the quarries there is no nexus in this project for the upgrading of the existing vehicular accesses to both quarries. • The proposed extended operational life of the KHRQ (from 2027 to 2034) and extended operating hours can be readily accommodated by the existing Local and State Road network as well as existing quarry access. • There are no cumulative impacts that arise from the proposed development. • Noting that no intensification of traffic will be generated by the proposal, there is no nexus in this project for the provision of additional on-site car or heavy vehicle parking within each quarry. • The consolidation project does not result in any nexus for the provision of upgraded or new servicing infrastructure within either the KHRQ or KEQ. • The proposal does not result in a nexus for the provision of upgraded or new pedestrian infrastructure within or external to both the KHRQ and KEQ. • The proposal does not result in a nexus for the provision of upgraded or new alternate transport mode facilities or services external to either the KHRQ or KEQ.	
11/03/2026	Provided below is a summary of the items raised by TfNSW (with commentary provided in full in Section 6.4.5): 1. Clarification regarding any potential changes to traffic movements to / from the Karuah quarry complex, by extending the hours available for transportation for one of the quarries and the potential impacts of this change to traffic movements on the broader network. 2a. Assessment of any impacts to the Pacific Highway and the associated interchange.	The Applicant commissioned Barker Ryan Stewart to review and respond to the TfNSW comments. See Section 6.4.5 and Appendix I2) for a detailed response.

	2b. Austroads turn treatment warrants assessments at key intersections along the transport routes. 3. Consideration of cumulative quarry generated heavy vehicle movements travelling in each of the available directions, to and from the subject quarries to determine the full impact of the proposal and existing developments on the road network. 4. The following be addressed: (a) <i>Identify all key transport / haulage routes applicable to each quarry.</i> (b) <i>Identify the maximum daily and hourly production and transportation rates for each quarry.</i> (c) <i>Identify the peak hours for traffic movement, for each quarry, and the cumulative impacts of those peak hours.</i> (d) <i>Include traffic counts of existing background traffic on all roads located between the subject quarries and the classified (State) road, as per the key transport / haulage route/s.</i> (e) <i>Undertake Austroads turn warrants assessments for all key intersections along the key transport / haulage routes.</i> (f) <i>Address the existing condition of the relevant roads and address the impacts of the additional 7 years of operational life for KHRQ may have on the road conditions and maintenance requirements.</i>	
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5.3 Water Group within NSW DCCEEW

Table 7 below provides a summary of consultation undertaken with the Water Group within NSW DCCEEW during preparation of the Modification Application.

Table 7: Summary of Consultation with Water Group within NSW DCCEEW.

Date	Item	Outcome / KEQPL Response
30/01/2026	KEQPL provided a detailed project briefing to the Water Group and an invitation to comment. The briefing noted that of particular relevance Surface Water and Groundwater Advice will be provided as part of the Modification Application. The outcomes of preliminary investigations were provided as follows: <u>Surface Water</u> A review of stormwater management and infrastructure at both KHRQ and KEQ confirms that the proposal can be readily managed to ensure minimal impact on sensitive downstream environments.	N/A

	- The KHRQ and KEQ water management systems will continue to operate independently. The project represents a minor adjustment to catchments with no significant redirection of flows and no changes to water demands. - This results in no changes to: - Site water balance for either KHRQ or KEQ sites. - Maximum Harvestable Rights and associated licencing requirements. - Licensed Discharge Point (LDP) requirements. - Water monitoring program arrangements. - Erosion and sediment control practices can be readily adjusted to cover the proposed development in all extraction stages. - Addendum letters to the approved KHRQ and KEQ surface water assessments will be prepared as part of the modification applications that address the above. <u>Groundwater</u> - Noting the final depth of the KEQ (RL45m) and KHRQ (RL65m) will not be affected by the proposal, groundwater will not be intercepted and a significant buffer of approximately 10 m above known groundwater level will be maintained. - A Water Access Licence (WAL) is not necessary noting that groundwater will not be intercepted or harvested (i.e. by bore extraction) by the proposal. - Groundwater quality can be readily managed by the ongoing implementation of well-established monitoring and adaptive management processes and triggers at both the KHRQ and KEQ. - Noting that groundwater will not be intercepted, other licenced groundwater users in the locality will not be affected. An updated Water Management Plan (inclusive of ongoing monitoring and management requirements) will be prepared to include the project and any recommendations of the Surface Water and Groundwater Assessments.	
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At the time of writing this s4.55 Modification Report, no response has been received from the Water Group.

5.4 Conservation Programs, Heritage and Regulation Group within NSW DCCEEW

Table 8 below provides a summary of consultation undertaken with CPHR during preparation of the Modification Application.

Table 8: Summary of Consultation with CPHR (within NSW DCCEEW)

Date	Item	Outcome / KEQPL Response
15/10/2025	KEQPL provided a detailed project briefing to CPHR. The briefing noted that of particular relevance to CPHR is the proposed minor extension (4,690 m²) to the approved KEQ disturbance area within an historically cleared and disturbed powerline corridor that is now redundant.	N/A

	A now superseded Flora and Fauna Assessment report (Wedgetail Project Consulting (April 2025), was supplied to CPHR for consideration as part of the briefing package.	
17/11/2025	CPHR provided a preliminary consultation response noting: - A Biodiversity Development Assessment Report (BDAR) is not required if the determining authority is satisfied that the modification will not increase the impact on biodiversity values. - While the (now superseded) Flora and Fauna Assessment found the modification is unlikely to significant impact biodiversity values, 0.47 ha of native vegetation will be directly impacted and foraging habitat for threatened species occurs within the subject site. Therefore, it is likely the modification will increase impacts to biodiversity values and a BDAR is required.	KEQPL acknowledged the response from CPHR and requested a meeting to discuss the preliminary CPHR feedback.
17/12/2025	Meeting between CPHR staff and KEQPL staff. CPHR staff acknowledged that the minor extension area is heavily disturbed (associated with the former powerline corridor) and comprised predominantly of exotic grassland. Notwithstanding this, CPHR advised that a BDAR Waiver is not available to this Modification project noting the potential minor impact on foraging habitat adjacent to the KEQ offset area. CPHR confirmed that appropriate assessment pathway will be via the preparation of a Streamlined BDAR.	KEQPL noted the feedback from CPHR staff.
16/02/2026	Project update email supplied to CPHR by KEQPL confirming that as directed a Streamlined BDAR would be prepared to inform the MOD 11 application.	A Streamlined BDAR has been prepared to support this Modification Application. Refer to Section 6.9 and Appendix N .

5.5 Heritage NSW

Table 9 below provides a summary of consultation undertaken with Heritage NSW preparation of the Modification Application.

Table 9: Summary of Consultation with Heritage NSW

Date	Item	Outcome / KEQPL Response
15/10/2025	KEQPL provided a detailed project briefing to Heritage NSW. The briefing noted that of particular relevance to Heritage NSW's consideration is the proposed minor extension (4,690 m²) to the approved KEQ disturbance area within an historically cleared and disturbed powerline corridor that is now redundant. A Due Diligence Assessment (Heritage Now, October 2025) was supplied to Heritage Now as part of the briefing that confirmed that no further archaeological investigation or consultation is required for the proposal with recommendations made relevant to unexpected finds protocol, site inductions for staff and a requirement to update the Heritage Management Plan that applies to the KEQ.	N/A

03/11/2025	Heritage NSW provided a response, noting the following: 1. The Due Diligence information / assessment completed by Heritage Now should be re-framed in terms of the <i>Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW</i> (OEH 2011) and the <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales</i> (DECCW 2010). 2. Consultation regarding the Modification should be undertaken with the established group of RAPs for the project. This should be in the form of an update letter and provision of the Addendum report for comment. Evidence of this consultation (e.g. email with all relevant email addressed shown) should be provided with the Modification application.	As directed by Heritage NSW, the following actions were undertaken by KEQPL: 1. The Heritage Now Due Diligence Assessment was updated to address the guide and code of practice as requested by Heritage NSW. Refer to Appendix O. 2. The updated addendum report was issued to project RAPs, inviting comment between 07/11/25 – 05/12/25. During this time one RAP response was received (and one later response was received). Refer to Section 6.10.2 and Appendix O for details of RAP consultation.
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5.6 NSW Environment Protection Authority

Table 10 below provides a summary of consultation undertaken with NSW EPA during preparation of the Modification Application.

Table 10: Summary of Consultation with NSW EPA

Date	Item	Outcome / KEQPL Response
15/10/2025	KEQPL provided a detailed project briefing to the NSW EPA. The briefing noted that of particular relevance will be the completion of contemporary impact assessments for air quality, blasting, noise and surface water. It was noted that post determination the existing KEQ Environment Protection Licences for KEQ (EPL 20611) and KHRQ (EPL 11569) will be varied accordingly.	N/A.
10/11/2025	NSW EPA acknowledged receipt of briefing.	N/A
06/11/2025	The NSW EPA contacted KEQPL via phone and advised that both Modification Applications should consider the following items: 1. Potential air quality and noise impacts associated with the proposal, including the loss of shielding as a result of highwall removal. 2. Water catchments are to be addressed. 3. Environment Protection Licence arrangements should be considered.	In response to the items raised, the following is noted: 1. An Air Quality Impact Assessment (refer to Section 6.3 and Appendix H) and Noise Impact Assessment (refer to Section 6.1 and Appendix F) has been prepared as part of this modification application. Air quality and noise modelling has been prepared based on the proposed 'pit shell' at various critical extraction stages, including with and without shielding effects.

		The reports confirm that the proposal is acceptable in terms of noise and air quality considerations. 2. Water catchments are considered within the Surface Water Assessment provided within Appendix J and detailed within Section 6.5 of this Modification Report. There are no material changes to water catchments at the KEQ and the adjoining KHRQ. 3. The KEQ is subject to EPL 20611 and the adjoining KHRQ is subject to EPL 11569. No changes to this arrangement are necessary (i.e. two (2) EPL's will remain in place no changes are necessary to the EPL premises boundaries (they remain on the lot boundary). Any variations to air quality monitoring points, noise criteria, blasting hours and operational hours will be undertaken following determination of the Modification Applications.
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5.7 MidCoast Council

Table 11 below provides a summary of consultation undertaken with MidCoast Council during preparation of the Modification Application.

Table 11: Summary of Consultation with MidCoast Council

Date	Item	Outcome / KEQPL Response
15/10/25	KEQPL provided a detailed project briefing to MidCoast Council.	N/A.
20/10/25	MidCoast Council provided the following comments: - The proposal will provide a range of beneficial outcomes. - The Modification Report should consider statutory requirements. - The Modification Report should consider how highwall removal will deliver efficiencies in quarry operations, materials handling and stockpiling as well as how the removal of the highwall can facilitate enhanced quarry closure and post quarry use outcomes. - Further feedback will be provided at the extraordinary CCC meeting.	KEQPL note the following: - Welcome Council's comments and agree that the proposal will provide a range of beneficial outcomes. Section 4.0 of this report addresses relevant statutory requirements. - Refer to the project justification provided in Section 7.0 for commentary on efficiencies that will be achieved and enhanced closure outcomes including a free draining landscape post quarry use. - Refer to Section 5.8 below in relation to feedback received during the extraordinary CCC meeting.

5.8 Joint Karuah Quarry Complex Community Consultative Committee

The proposed Karuah Pit Consolidation Project was introduced to the Joint Karuah Quarry Complex CCC for both KEQ and KHRQ at an extraordinary meeting held on 3 November 2025.

A copy of the minutes of the meetings is provided within **Appendix Q**.

KEQPL representatives at the CCC meeting provided a detailed briefing of the key elements of the proposal, the project background, confirmed project justification and outlined the approval pathway (as confirmed with NSW Planning) as well as the range of specialist assessments that were being prepared to inform the application. As part of the extraordinary CCC meeting proceedings, the CCC undertook a site inspection of both the KEQ and KHRQ extraction areas.

Overall, there was a general level of support from the CCC for the proposal.

Provided in **Table 12** below is a summary of the key items of discussion from the meeting.

Table 12: Summary of Extraordinary CCC Meeting held on 3 November 2025

Item	KEQPL / HQPL Response
The proposal will result in significant visual amenity improvements associated with the removal of the highwall structure.	Noted and agreed.
Removal of the dividing highwall (which consists of a known quality quarry product) and consolidating the extraction areas is a logical outcome.	Noted and agreed.
In addition to the dividing highwall, the KEQ extraction area will be extended to the east.	Noted. The revised extraction area will include this area. Refer to the plans provided in Appendix E .
The KEQ footprint will be extended to the east into a small and narrow area adjoining the KEQ that formerly contained a powerline corridor.	Noted. This area has been subject to ecology (refer to Section 6.9 and Appendix N) and Aboriginal Heritage (refer to Section 6.10 and Appendix O) assessments and it has been confirmed that there will be no impacts on biodiversity values or Aboriginal sites.
Will a blasting impact assessment be prepared?	Yes, refer to Section 6.2 and Appendix G .
It was discussed by the CCC that given the width and size of the highwall, that blasting will likely be a fast and efficient process.	It was noted that given the narrowness of the highwall (approximately 40m across the top) blasting activity in the dividing highwall will be smaller in size than other blasts typically undertaken at both quarries.
Reduced cumulative blasting across both quarry operations from 3 to 2 was noted.	Noted.
How will the highwall be practically removed?	The highwall will be removed incrementally from the top down. Refer to the general extraction staging provided within Section 3.1.1 .
Will the Noise Impact Assessment consider the various stages of highwall removal?	Yes. Refer to Section 6.1 and Appendix F .
Does the proposal seek to increase the approved depth of either extraction area?	No, the currently approved depths will remain unchanged.
How will the differences in height in the extraction area floors be managed (noting that KEQ has an approved base of RL45m and KHRQ has an approved base of RL65m).	The final landform will be ramped from KHRQ towards KEQ and will include a 'drop' structure for water drainage. Refer to Section 6.8 and Appendix M .
Proposed extended hours of operation of the KHRQ to be consistent with the approved hours of operation of the KEQ. No change to hours of operation at the KEQ.	Achieving consistent hours of operation at both KHRQ and KEQ will allow for holistic and improved operational efficiencies.

	The proposed extended hours of operation for the KHRQ are dealt with in the concurrent MOD 2 application for DA265-10-2004 and is supported by contemporary Noise Impact Assessment.
Will the life of the KHRQ need to be extended to facilitate the project?	Yes, the life of the KHRQ is proposed to be extended to 31 December 2034 to achieve consistency with the KEQ consent. This will allow for a holistic, efficiently managed operation and rehabilitation process.
Is an approved operational timeframe of December 2034 long enough to complete the proposed pit consolidation project?	Extraction rates are driven by market demand however yes, operation to December 2034 provides adequate time to complete the project.
Improved final landform outcomes.	The proposal will result in a free draining final landscape. KHRQ void will drain to KEQ to the east and the KEQ void will drain to Dam 1 via a shaped water channel. Woodland vegetation will be established at both sites (refer to Section 6.8 and Appendix M).
MidCoast Council's representative at the meeting noted that the matter had been referred to all relevant departments within Council. Council's position is that the project is a very positive outcome for the management of quarry operations and the supply of resource to market. Council is interested in the project but has no specific concerns or comments based upon the briefing.	Support noted and welcomed.
Public exhibition.	Both KEQ MOD 11 (to MP09_0175) and KHRQ MOD 2 (to DA265-10-2004) will be publicly exhibited by the NSW DPHI in accordance with the exhibition provisions of Section 4.55(2) of the NSW EP&A Act 1979. The proponent will notify the CCC when exhibition details are available.

Further to the above, a recap of the proposal was provided at the regular CCC meeting dated 17 March 2026. No new issues or items were discussed, with a general level of support for the project confirmed by the CCC.

Section 6

Assessment of Impacts



6.0 Assessment of Impacts

This section provides an assessment of the key environmental issues associated with the proposed modification.

6.1 Noise

EMM was commissioned by the applicant to prepare a Noise impact Assessment (NIA) for the proposed MOD 11 development. The NIA assesses the noise impacts of the proposed modification on existing sensitive receptors in the surrounding area. The NIA is enclosed as **Appendix F**.

The NIA was completed in accordance with the following guidelines and policies:

- *Noise Policy for Industry* (NPfI) (NSW EPA 2017);
- *Road Noise Policy* (RNP) (NSW DECCW 2011); and
- *Voluntary Land Acquisition and Mitigation Policy* (VLAMP) (NSW Government 2018).

Blasting related vibration has been assessed separately, with details provided within **Section 6.2** of this report.

6.1.1 Existing KEQ Noise & Existing Ambient Noise Environment

Operational noise criteria for current approved operations are provided in Schedule 3, Condition 3 of the Project Approval MP09_0175 and are reproduced in **Table 13** below. The derivation of these limits was based on the current NSW EPA policy (i.e. NPfI) and background noise monitoring undertaken in June 2021.

Table 13: Existing Operational Noise Limits (dB) (MP09_0175)

Noise Assessment Location	Morning Shoulder $L_{Aeq,15\text{ min}}$	Morning Shoulder $L_{A,max}$	Day $L_{Aeq,15\text{ min}}$	Evening $L_{Aeq,15\text{ min}}$
A	35	52	42	40
B	35	52	40	40
G	35	52	43	39
H	35	52	44	46
I	35	52	40	37
All other residences	35	52	40	35

Noise Sensitive Receivers

The closest noise sensitive receivers are shown in **Figure 8** below and described in **Table 14**. These are generally consistent with the Project Approval, previous noise impact assessments and current compliance noise monitoring requirements.



Figure 8: Noise Assessment and Monitoring Locations

Table 14: Noise Assessment Locations

RECEPTOR ID	PROPERTY DETAILS
A	Lot 100 DP 785175
B	Lot 3 DP 785172
C	Lot 1 DP 785172
D	Lot 250 DP1092111
E	Lot 22 DP 1024341
F	Lot 50 DP 1036893
G	Lot 1 DP 1032636
H	Lot 10 DP 1032636
I	Lot 11 DP 1032636
J	Lot 13 DP 1032636
K	Lot 12 DP 1032636

Existing Quarry Noise Emissions

Quarterly noise monitoring is currently undertaken at Receptors A, B, F, G & H in accordance with the approved KEQ Noise Management Plan (EMM, 2024). Monitoring is undertaken during the morning shoulder (5:00am – 7:00am), daytime (7:00am – 6:00pm), and evening periods (6:00pm – 10:00pm).

Based on the results of quarterly noise compliance monitoring, noise from the KEQ is generally not audible at locations A, B, or F over noise from road traffic on the M1 Pacific Highway and noise emissions from the KEQ satisfy the relevant operational noise limits as provided in the Project Approval.

During routine noise compliance monitoring, KEQ noise levels have been quantified to be up to $L_{Aeq,15\text{minute}}$ 43 dB at Location G and $L_{Aeq,15\text{minute}}$ 44 dB at location H during the day period, which comply with the consented noise limits.

Additional operator-attended noise monitoring was undertaken during logger deployment by EMM in June 2021. Quarry noise emissions were quantified under noise-enhancing weather conditions at Locations G and H.

Ambient Noise Environment

A background noise monitoring program was undertaken by EMM to establish reliable noise monitoring data and to appropriately characterise the noise environment at relevant receivers. The monitoring program included:

- Unattended noise monitoring at four locations surrounding the KEQ to establish ambient and background noise levels; and
- Operator-attended noise monitoring was also completed by EMM at the unattended noise logger locations.

The monitoring program provided opportunity to validate the computer noise model under noise-enhancing weather conditions.

Noise Mitigation Measures Implemented at KEQ

Substantial noise mitigation measures have already been installed at the KEQ. Provided below is a summary of the measures already implemented as a result of the MOD 8 and MOD 9 approvals:

- Enclosure of the jaw crusher with 100mm thick concrete on the north, east and south elevations. The jaw crusher is also enclosed with a roof manufactured from Hushclad Ultimate.
- Enclosure of the Jaw Crusher with 100mm thick concrete panels on the north, east and south sides. Roofing materials to have an acoustic rating of STC28.
- Enclosure of the Cone Crushers on the Northern and eastern elevations with materials having an acoustic rating of STC28. Southern and western elevations and roof to be enclosed with Colorbond.
- Purchase and use of generator sets which are acoustically treated including complete enclosure of the engine and generator, acoustically treated exhaust systems and cooling systems.
- The Applicant will implement a blasting program where nearby receivers are notified in advance of a blast.
- Splitting or hammering of Class 1 (700mm – 1,200mm) and Class 2 (400mm – 700mm) rock will not be undertaken after 6:00pm.
- Employee training to ensure staff are aware of the sensitivity of noise emissions.
- Product is loaded into trucks from as low a height as possible.
- Loading of Class 1 (700mm – 1,200mm) and Class 2 (400mm – 700mm) rock for dispatch during the following hours is undertaken via excavator 'grabs' using the hydraulic excavator rock grab attachment rather than a bucket attachment:
 - 5:00am to 7:00am, Monday to Friday;
 - 6:00pm to 9:00pm, Monday to Friday;
 - 9:00pm to 10:00pm, Monday to Friday on up to 50 calendar days per year; and
 - 6:00am to 7:00am, Saturdays.
- The following measures have been implemented:
 - Inclusion of the dump hopper into the jaw crusher building;
 - Incorporation of windrows along the internal quarry haul roads; and
 - Training of operators to use higher gears and lower engine acceleration where practical.

6.1.2 Noise Assessment

Noise goals (PNTL's (Project Noise Trigger Levels)) were established based on the results of the ambient noise monitoring undertaken. PNTL's are the lower (i.e. more stringent) of either the project intrusiveness or amenity levels. These are summarised in **Table 15** below.

Table 15: Project Noise Trigger Levels

Assessment location	Intrusive noise level, $L_{Aeq,15min}$, dB			Amenity noise level, $L_{Aeq,15min}$, dB			PNTL, $L_{Aeq,15min}$, dB		
	Morning Shoulder ¹	Day ¹	Evening ¹	Morning Shoulder ¹	Day ¹	Evening ¹	Morning Shoulder ¹	Day ¹	Evening ¹
A	46	51	51	38	53	43	38	51	43
B	46	51	51	38	53	43	38	51	43
C	46	51	51	38	53	43	38	51	43
D	46	51	51	38	53	43	38	51	43
E	46	51	51	38	53	43	38	51	43
F	46	51	51	38	48	43	38	48	43
G	42	46	46	38	48	43	38	46	43
H	38	40	45	38	48	43	38	40	43
I	38	40	45	38	48	43	38	40	43
J	35	40	35	38	48	43	35	40	35
K	38	40	45	38	48	43	38	40	43

Note: 1. Morning shoulder: 5am to 7am Monday to Saturday; 5 am to 8 am Sundays and public holidays; Day: 7 am to 6 pm Monday to Saturday; 8 am to 6 pm Sundays and public holidays; Evening: 6 pm to 10 pm.

It is noted that during the assessment process for MOD 9 (approved 2 December 2021), clarification was sought by the NSW EPA regarding why the evening PNTLs were higher than the day PNTLs for residences H and I. This was investigated and addressed to the satisfaction of the NSW noting the following:

- Changes in diurnal patterns are most likely due to weather effects and variances in traffic flow on the Pacific Highway;
- There is a direct correlation between the ambient background noise levels measured at locations G and H. This indicated that the primary influence on ambient and background levels is part of the broader environment and not something that is localised to a particular residence; and
- Of 10 long-term unattended noise monitoring periods undertaken at location G since February 2019 only one (1) of those monitoring periods recorded an evening RBL less than the daytime. On all other occasions the measured evening RBL was equal to or greater than the daytime RBL (ranging from equal to up to 6 dB higher). This clearly demonstrates that this is a long-term feature of the locality.

Noise modelling was based on three-dimensional digitised ground contours of the surrounding land and surface infrastructure. Noise predictions were carried out using the iNoise software. iNoise calculates total noise levels at assessment locations from concurrent operation of multiple noise sources. The model considers factors such as the lateral and vertical location of plant, source-to-receptor distances, ground effects, atmospheric absorption, topography of the surface facilities area and surrounds and applicable meteorological conditions.

In order to accurately model the noise emissions over the project lifecycle, three distinct critical stages representing the progressive extraction sequence have been developed relevant to noise emissions:

- **Extraction Sequence Stage 1:** Extract the current top benches of the remnant highwall from RL135 down to RL90 (currently lowest KEQ bench at the time of writing (April 2026)), forming a single extraction level/area on Lot 12. The noise modelling for this stage assumes extraction equipment operating at RL135 in a worst-case location.
- **Extraction Sequence Stage 2:** Extract Lot 12 from RL90 (currently lowest KEQ bench at the time of writing (April 2026)), down to RL65 in line with KHRQ pit floor and KEQ boot-bin levels, forming a single extraction level/area over the entire Consolidated Extraction Area. The noise modelling for this stage assumes extraction equipment operating at RL90 in a worst-case location.
- **Extraction Sequence Stage 3:** Extract Lots 12 and 13 (KEQ) from RL65 down to RL45. The KHRQ pit floor is to remain at RL65. The noise modelling for this stage assumes extraction equipment operating at RL65 in a worst-case location.

A conservative approach was selected for the consideration of potentially noise enhancing weather conditions. Noise emissions from the quarry have been predicted for noise enhancing conditions.

The noise model considered a representative snapshot of surface operations with equipment placed at locations representing a realistic operational scenario. Equipment sound power levels have been based on measurements undertaken at the site and confirmed by EMM. **Table 16** below provides a summary of the acoustically significant fixed and mobile equipment considered in the noise model.

Table 16: Acoustically Significant Plant and Equipment

ITEM	SOUND POWER LEVEL PER ITEM (DBA)	OPERATING DURING THIS PERIOD		
		MORNING SHOULDER	DAY	EVENING
Jaw crusher	114	Nil	1	1
Primary screen	108	Nil	1	1
Secondary Screens (2, 3 and 4)	103	Nil	3	3
Cone crushers	103	Nil	2	2
Vertical shaft impactor (Barmac)	106	Nil	1	1
Drill rig	114	Nil	1	Nil
Excavator	102	Nil	2	2
Diesel generator set	98	Nil	3	3
Front end loader (operations)	104	Nil	2	2
Front end loader (sales)	104	1	1	1
Haul trucks ¹	107	Nil	4	4
Road truck	103	11	11	11

Notes: 1. It is assumed that two (2) haul trucks continuously operating between pit and the jaw crusher and two (2) haul trucks continuously operate between processing area and sales stockpiles.

Results of Operational Noise Assessment

Operational noise emissions for each proposed period of operation are summarised in **Table 17** below.

Table 17: Operational Noise Predictions

LOCATION	PERIOD	PREDICTED NOISE LEVEL MOD 11 OPERATIONS ($L_{Aeq,15\ min}$) (dB)			PNTL ($L_{Aeq,15\ min}$) (dB)	EXISTING NOISE LIMIT ($L_{Aeq,15\ min}$) (dB)
		Stage 1	Stage 2	Stage 3		
A	Morning shoulder	<30	<30	<30	38	35
	Day	39	39	39	51	42
	Evening	40	40	39	43	40
B	Morning shoulder	<30	<30	<30	38	35
	Day	<35	<35	<35	51	40
	Evening	34	33	33	43	40
C	Morning shoulder	<30	<30	<30	38	35
	Day	<35	<35	<35	51	40
	Evening	<30	<30	<30	43	35
D	Morning shoulder	<30	<30	<30	38	35

LOCATION	PERIOD	PREDICTED NOISE LEVEL MOD 11 OPERATIONS (L _{Aeq,15 min}) (dB)			PNTL (L _{Aeq,15 min}) (dB)	EXISTING NOISE LIMIT (L _{Aeq,15 min}) (dB)
		Stage 1	Stage 2	Stage 3		
	Day	<35	<35	<35	51	40
	Evening	31	32	32	43	35
E	Morning shoulder	<30	<30	<30	38	35
	Day	<35	<35	<35	51	40
	Evening	31	31	31	43	35
F	Morning shoulder	<30	<30	<30	38	35
	Day	<35	<35	<35	48	40
	Evening	<30	<30	<30	43	35
G	Morning shoulder	<30	<30	<30	38	35
	Day	39	39	39	46	43
	Evening	39	39	39	43	39
H	Morning shoulder	<30	<30	<30	38	35
	Day	45	44	44	40	44
	Evening	47¹	46 ¹	46 ¹	43	46
I	Morning shoulder	<30	<30	<30	38	35
	Day	37	37	37	40	40
	Evening	37	37	37	40	37
J	Morning shoulder	<30	<30	<30	35	35
	Day	<35	<35	<35	40	40
	Evening	<30	<30	<30	35	35
K	Morning shoulder	<30	<30	<30	38	35
	Day	<35	<35	<35	40	40
	Evening	34	34	34	40	35

Notes: 1. This predicted noise level included a positive 2 dB modification to account for the low frequency noise from the processing plant.

During extraction sequence Stage 1 quarry noise emissions are predicted to be below (i.e. comply with) the relevant existing morning shoulder, daytime and evening noise limits as per Schedule 3, Condition 3 of MP09_0175 at most assessment locations. The exception is a negligible 1 dB exceedance of the existing daytime (L_{Aeq,15minute} 44 dB) and evening (L_{Aeq,15minute} 46 dB) noise limits at Location H.

During extraction sequence Stages 2 and 3, quarry noise emissions are predicted to be below (i.e. comply with) the relevant existing morning shoulder, daytime and evening noise limits as per Schedule 3, Condition 3 of MP 09_0175 at all assessment locations.

During all extraction sequence stages, quarry noise emissions are predicted to be below (i.e. comply with) the relevant PNTL during all periods of operations at most assessment locations. The one exception is an exceedance at location H during the day and evening periods during all three (3) stages. Morning shoulder operations are predicted to meet the relevant PNTL at this location during all stages.

As detailed above, an extensive investigation has previously been undertaken to identify and implement, where relevant, all feasible and reasonable noise mitigation measures. Measures that have been implemented include, but are not limited to, enclosures of the jaw crusher, cone crushers and generators as well as a review of the operating sound power level of mobile equipment.

Specifically relevant to the dwelling at Location H, which is subject to the abovementioned negligible 1dB exceedance during the day and evening periods (for Stage 1 only), it is important to note the following:

- The dwelling at Location H was approved and built after the KEQ commenced operations. The approval for this dwelling, issued by Mid Coast Council (DA 69/2018/A) also included the establishment and operation of a truck depot.
- The Mid Coast Council approval for the dwelling at Location H includes a condition of consent for acoustic treatment of the building to limit the noise impacts from the KEQ in accordance with the requirements of AS/NZS 2107(5). In its assessment of the application for the dwelling, Council considered the operation of the quarry and included Condition 11 of consent DA/69/2018 which states:

'11. Prior to the issue of a construction certificate, plans and specifications detailing the measures to reduce noise impacts on the building occupants from the quarry must be submitted to and approved by the certifying authority. The buildings must be acoustically designed and constructed to meet the requirements of Australian Standard AS/NZS 2107: Acoustics - Recommended design sound levels and reverberation times for building interiors. Evidence from an appropriately qualified person that their design will achieve the requirements of the Australian standard must be submitted with the plans and specifications.'

- In accordance with MP09_0175 (Condition 5 of Schedule 4), Location H is subject to additional mitigation upon request. KEQPL, if requested by the owner of the dwelling at Location H will consider reasonable and feasible receiver mitigation measures consistent with the *Voluntary Land Acquisition and Mitigation Policy* (VLAMP) (DPIE 2018). Where additional noise mitigation is required, additional noise mitigation measures consistent with the measures outlined in the VLAMP will be implemented. The measures must be reasonable and feasible, proportionate to the level of impact and directed towards reducing the noise impacts of the development. MOD 11 does not seek to amend this condition.
- As part of the MOD 9 approval (issued 2 December 2021), Schedule 4, Condition 5 was added to MP09_0175 to establish provisions for additional receptor mitigation upon request in accordance with the *Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Development* (2018) (VLAMP). MOD 11 does not seek to amend this condition and at the time of writing (April, 2026) KEQPL are currently finalising agreement with the landholder of Location H for the provision of air conditioning.

Given the negligible (1dB) and temporary nature of the predicted exceedance (Stage 1 only), the significant noise mitigation measures previously implemented, the acoustic treatment applied to the dwelling (noting it was established after the KEQ) and provision of air conditioning through the applicable voluntary at-receiver mitigation under the VLAMP, it is anticipated that any potential impact on Location H is negligible. On this basis no further consideration of additional mitigation measures is warranted.

Sleep Disturbance

Consideration was given to likely maximum noise level events at the nearest sensitive receiver assessment locations during the morning shoulder period to determine the potential for sleep disturbance.

Typical maximum noise events are likely to include reversing alarms and impacts associated with loading and/or unloading material. A typical conservative sound power level of L_{Amax} 125 dB was used to predict potential sleep disturbance impacts at residential assessment locations.

Results of noise modelling demonstrate that maximum noise level events are predicted to satisfy the relevant maximum noise level event screening criteria at all assessment locations under noise-enhancing meteorological conditions. It is unlikely that the project will cause sleep disturbance at any sensitive receivers.

Road Traffic Noise Assessment

Based on the annual production limit, which is not proposed to change as a result of proposed MOD 11, the following summarises the traffic generation of Karuah East Quarry:

- A total of 432 vehicle movements per day which equates to 216 despatched loads per day; and
- A maximum hourly traffic flow of 44 vehicle movements which equates to 22 despatched loads during that hour.

It is noted that KEQ related traffic does not pass directly by any residences before entering the Pacific Highway.

MOD 11 will not affect the number of vehicle movements or their arrival/departure patterns. Road traffic noise impacts are not predicted as a result of MOD 11.

Cumulative Noise

Cumulative noise was considered for both the KHRQ and KEQ operations in accordance with the NpFI. During all extraction sequence stages, quarry noise emissions are predicted to be below (i.e. comply with) the relevant recommended amenity noise level during all periods of operations at all assessment locations.

As previously noted, relevant to KSQ, HQPL are now the Applicant for this project. If the KSQ project progresses, it will not commence operations until the cessation of operation at KHRQ and will be the subject of a revised NIA that accounts for the proposed Karuah Pit Consolidation project.

6.1.3 Conclusion and Mitigation Measures

The NIA concludes that the proposed MOD 11 development is acceptable in terms of acoustic considerations. It will have a negligible impact and can be supported. The following is noted:

- During extraction sequence Stage 1, KEQ noise emissions are predicted to be below (i.e. comply with) the relevant existing morning shoulder, daytime and evening noise limits as per Schedule 3, Condition 3 of MP09_0175 at most assessment locations, with the exception being a negligible 1 dB exceedance at Location H during the day and evening periods.
- During extraction sequence Stages 2 and 3, KEQ noise emissions are predicted to be below (i.e. comply with) the relevant existing morning shoulder, daytime and evening noise limits as per MP09_0175.
- Given the negligible (1 dB) and temporary nature of the predicted exceedance (Stage 1 only) combined with the significant noise mitigation measures previously implemented at the KEQ, the acoustic treatment applied to the Receiver H dwelling (specifically noting that it was established after the quarry) and the provision of air conditioning through the applicable voluntary at-receptor mitigation under the VLAMP, it is anticipated that any potential impact on location H will be minimal. No further consideration or implementation of additional mitigation measures is warranted.
- The proposal is acceptable in terms of cumulative noise considerations, with compliance with recommended amenity noise level achieved for each identified receptor.
- Road traffic noise generated by KEQ related traffic is predicted to achieve relevant road traffic noise goals.

- Application will be required to be made to update EPL 20611 which applies to the KEQ.

Recommended Update to Schedule 3 Condition 3 Operational Noise Criteria of MP 09_0175

Given the outcomes of the operational noise predictions, it is appropriate to update the Operational Noise criteria within Schedule 3, Condition 3 (refer to Section 3.2) as follows:

Operational Noise Criteria

3. Except for the carrying out of construction work, the Applicant must ensure that the operational noise generated by the development does not exceed the criteria in the table below at any residence on privately-owned land.

Noise Assessment Location ^a	Morning Shoulder <i>L_{Aeq, 15minute}</i>	Morning Shoulder <i>L_{AMax}</i>	Day <i>L_{Aeq, 15minute}</i>	Evening <i>L_{Aeq, 15minute}</i>
A	35	52	42	40
B	35	52	40	40
G	35	52	43	39
H	35	52	45	47
I	35	52	40	37
All other residences	35	52	40	35

^a Noise Assessment Locations referred to in Table 2 are shown in Appendix 2

Noise generated by the development must be monitored and measures in accordance with the relevant procedures and modifications (including certain meteorological conditions) of the NPfl.

Mitigation Measures

No additional mitigation measures are necessary for the proposed MOD 11 development.

Monitoring

The KEQ Noise Management Plan will be updated to accommodate the MOD 11 proposal.

No changes to monitoring frequency or locations are required.

6.2 Blasting & Vibration

Heilig & Partners Pty Ltd was commissioned by the Applicant to prepare a Blast Impact Assessment (BIA) for the proposed MOD 11 project.

This BIA provides a framework for the procedures to maintain best practice controls to manage potential environmental impacts during the drilling and blasting activities associated with the extraction of material from KEQ, inclusive of the proposed MOD 11 development.

The BIA details how KEQPL will manage blasting activities and the related environmental impacts such as ground vibration, airblast overpressure and flyrock and sets out performance requirements and procedures to ensure that and potential impacts associated with blasting activities are identified and controlled.

The BIA is enclosed as **Appendix G**.

6.2.1 Existing Conditions and Adjacent Properties

The existing conditions in the area of the Karuah Quarry Complex site are typical of a semi-rural area with minimal sources of external ground vibration, beyond heavy vehicles.

Any instances of perceptible vibration would result only from a combination of heavy vehicle movement coupled with uneven road pavement surfaces. Only under these combined conditions would measurable vibration occur. Even then, it would however be limited to areas immediately around the road and not measurable at the property given the setback distance of the property to the road.

There are no identified locations around the KEQ where elevated vibration levels already occur.

A review of the neighbouring properties to the KEQ identifies a small number of various types of dwellings and sheds within approximately 650 to 1,500 m from the KEQ extraction area (refer to **Figure 9** below).



Figure 9: Plan showing area of KEQ MOD 11 in the Context of Surrounding Sensitive Receivers

Table 18: Blast Impact Assessment Locations

ID	Property Details	Description
A	Lot 100 DP 1028885	Private residence
B	Lot 3 DP 785172	Private residence
C	Lot 1 DP 785172	Private residence
D	Lot 250 DP 1092111	Private residence
E	Lot 22 DP 1024341	Private residence
F	Lot 50 DP 1036893	Private residence

ID	Property Details	Description
G	Lot 1 DP 1032636	Private residence
H	Lot 10 DP 1032636	Private residence
I	Lot 11 DP 1032636	Private residence
J	Lot 13 DP 1032636	Private residence
K	Lot 12 DP 1032636	Private residence

The potential effect of blasting is assessed based on the assumption that blast activities are undertaken at the perimeter of the proposed extraction footprint in order to test conservative minimum separation distances to sensitive receivers.

It is noted that around the planned MOD 11 blast area:

- The nearest residential properties are located to the south (approximately 650 m) on Mill Hill Close and east (approximately 660 m) on Halloran Road, from the closest location of possible blasting in the KEQ.
- There are no residential properties directly to the west of the KEQ.
- The property density in the area is low with less than 10 individual buildings/sheds within 1,500 m of the proposed Karuah Pit Consolidation Project.
- A separation distance of approximately 570 m exists between the KHRQ extraction area and the Pacific Highway.

No instances of blast induced vibration damages have been reported to KEQPL due to operations to date.

6.2.2 Drilling and Blasting Method

Extraction within the KEQ will continue consistent with current operations. This includes a combination of drilling and blasting techniques, together with a small amount of free digging and hydraulic hammering (where required). Quality assurance at the same level that has been applied to all previous aspects of the blasting processes will continue with the MOD 11 development.

The scale of blasting will be controlled by the benching strategy for the site rather than a restricted scale of blasting as a requirement to comply with both vibration and overpressure levels.

Once the extension to the KEQ extraction area has been established, blasting is planned to continue with 15 m bench heights. Shallower bench heights will only be used during the initial phase of establishing the bench faces.

Based upon a 15m bench height, the explosive weight will vary to around 100 kg per blasthole for an 89 mm diameter blasthole loaded with an emulsion explosive type explosive. Lesser explosive weights may be used during the development of the quarry in the initial stages until regular bench heights are established.

6.2.3 Drilling and Blasting Impact Assessment

Modelling was undertaken to assess the proposed MOD 11 development against the existing performance criteria for airblast overpressure and vibration outlined within MP09_0175 (Schedule 3, Condition 8) and EPL 20611, reproduced in Table 19 below.

Table 19: Existing Airblast Overpressure and Vibration Criteria (MP 09_0175 & EPL 20611)

	Ground Vibration and Air Overpressure measured at a Sensitive Place	
	Monday to Friday 9am to 4pm	Other Times and Public Holidays
Ground Vibration (peak particle velocity)	Exceed 5mm/s for more than 5% of the total number blasts during the reporting period No blasting > 10mm/s	No blasting to occur, unless special approvals sought.

	Ground Vibration and Air Overpressure measured at a Sensitive Place	
	Monday to Friday 9am to 4pm	Other Times and Public Holidays
Airblast overpressure level (dB linear peak)	Exceed 115 dBL for more than 5% of the total number of blasts during the reporting period No blasting > 120dBL	No blasting to occur, unless special approvals sought.

The modelling completed also considers the proposal to extend the approved blasting hours by one (1) hour to 9.00am to 5.00pm Monday to Friday (excluding public holidays) and reduce the cumulative blasting frequency between KEQ and KHRQ from three blasts per week (two (2) blasts at KEQ and one (1) blast at KHRQ) to a cumulative two (2) blasts per week.

6.2.3.1 Vibration

Figure 10 shows the expected location of vibration contours for blasting with explosive quantities modelled to comply at all nearest sensitive receivers with a 5 mm/s vibration limit (yellow contour in the below figure).

No adjustment to established vibration criteria within MP09_0175 and EPL 20611 is necessary.

It is important to note that the contours show the maximum extent of the vibration and not that which would be produced from every blasts. When blasting in north-western section of the KEQ, the level of vibration at properties on the eastern sides of the quarry near Halloran Road will fall to low and most likely have immeasurable vibration values. Only when blasting in the east and south-eastern side of the KEQ will the level of vibration potentially approach the maximum expected value for those properties on Halloran Road.

Figure 10 also shows:

- The scale of blasting in the KEQ will be consistent with the current 15 m benches across the majority of the extraction area. There are no new areas of the proposed extended extraction area where the explosive weight will need to be reduced in order to comply at the closest properties along Halloran Road or Mill Hill Close.
- The residential properties along Halloran Road, Mill Hill Close and Tarean Road do not affect the scale of blasting although may receive perceptible levels of vibration at some stages when blasting occurs at the nearer extents of the KEQ quarry footprint.
- The entirety of the KEQ extraction area will not require any adjustment to the scale of blasting.

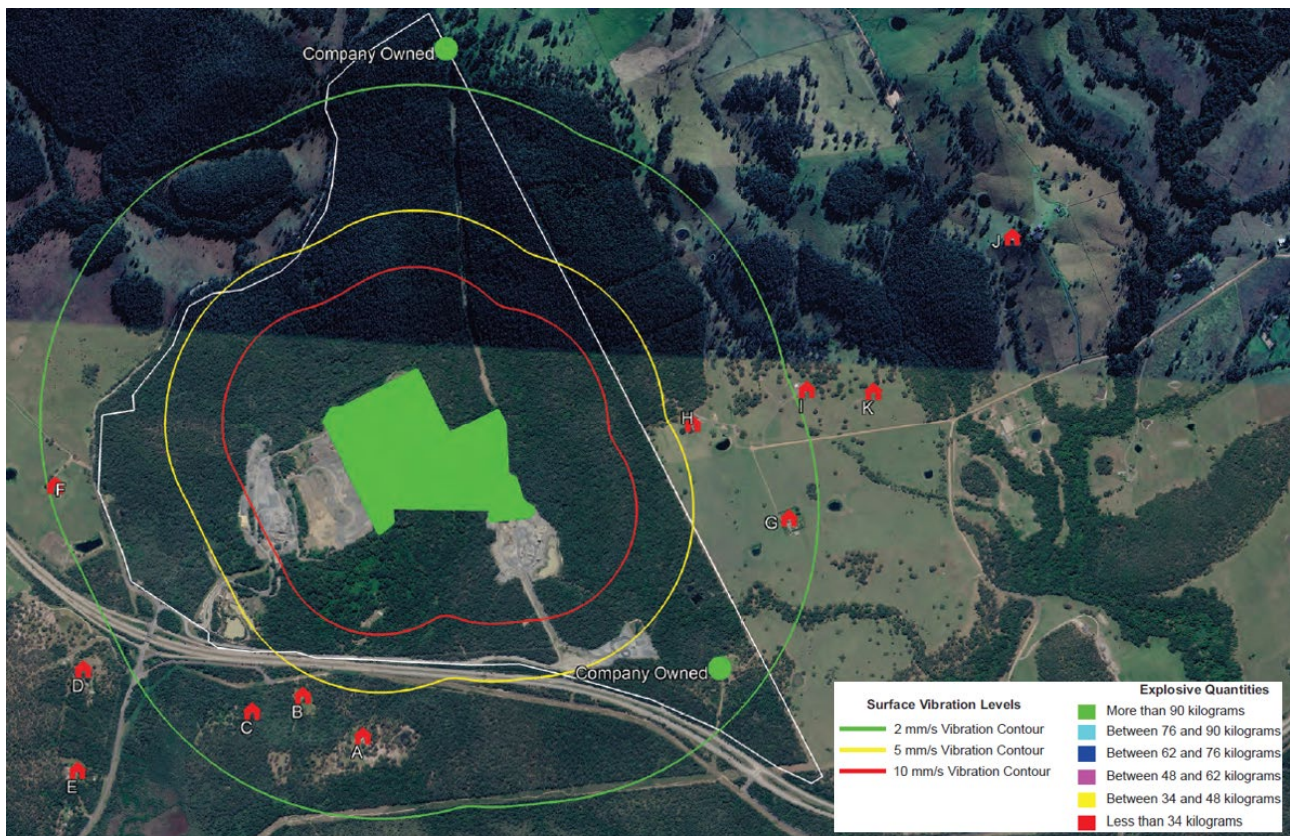


Figure 10: Vibration Contours Demonstrating Compliance with Criterion of 5 mm/s

6.2.3.2 Air Overpressure

Figure 11 below shows the modelled location of the varying air overpressure contours based upon compliance with 115 dBL at the nearby sensitive receivers. Figure 11 demonstrates that the blast design with the maximum explosive weight will comply with the 115 dBL limit (yellow contour in below figure).

No adjustment to established overpressure criteria within MP 09_0175 and EPL 20611 is necessary.

Figure 11 also indicates:

- No adjustment to the scale of blasting is needed to comply with the 115 dBL criterion at the identified sensitive receivers along Halloran Road, Mill Hill Close and Tarean Road.
- Explosive quantities per blasthole of 130 kg are considered feasible to achieve compliance with the existing environmental performance criteria.
- The KEQ can be blasted with a 15 m bench height and achieve compliance with the established overpressure criteria.

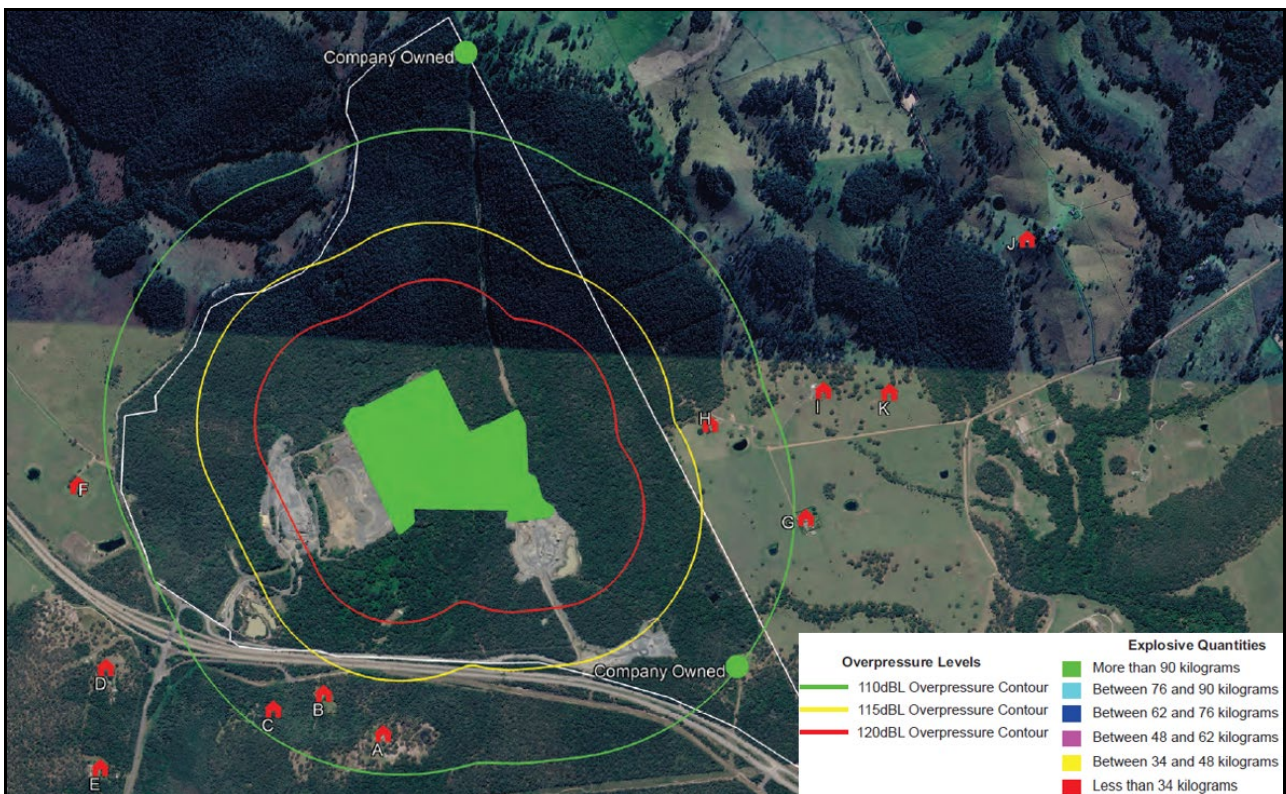


Figure 11: Overpressure Contours Demonstrating Compliance with 115 dBL Criterion

6.2.3.3 Flyrock Assessment

Figure 12 shows the results of the flyrock modelling for a 15m bench height blasthole loaded with approximately 130kg of explosive. The modelled landing positions for flyrock are based upon the calculated trajectories and a probabilistic component accounting for the fragment size, direction and velocity. The probabilistic component of the model estimates flyrock ranges based upon a combination of operating conditions and conservatively predicts the outermost envelope of flyrock landing points.

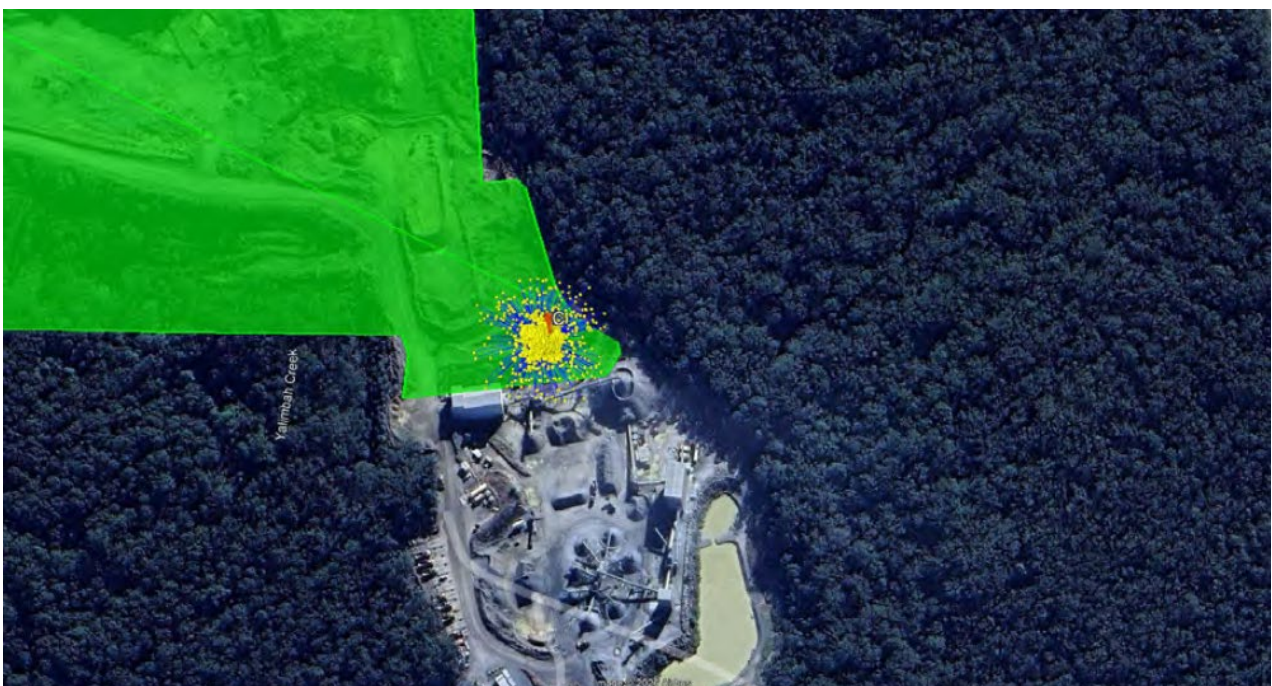


Figure 12: Predicted Flyrock Locations (shown as yellow markers)

The above figure shows the closest point that blasting could occur to Mill Hill Close and Halloran Road. It shows that any blast generated flyrock is constrained to within a zone of approximately 50m around the perimeter of the blast zone, compared to the 660m separation to the nearest sensitive receiver on Halloran Road, 650m to the nearest sensitive receiver on Mill Hill Close, approximately 540 m to Blue Rock Close and approximately 570m to the Pacific Highway.

The flyrock modelling also indicates that for a 15m bench with an uncharged collar of 2.5 m and an explosive weight per blasthole of approximately 130 kg, flyrock is controlled to within approximately 80 m of the blasthole collar. For other bench heights and with a corresponding increase in the weight of the explosive to around 125 kg, the extent of flyrock increases slightly because of the increased explosive weight.

Figure 12 demonstrates that that potential flyrock related issues are extremely unlikely for the proposed blasting within the KEQ, particularly given the very controlled nature of the blasting activities.

6.2.4 Conclusion

The BIA concludes that the proposed MOD 11 development is acceptable in terms of blasting considerations and can be supported.

The key outcomes of the BIA modelling and assessment confirm:

- Compliance with established blasting criteria (overpressure and vibration) within MP09_0175 and EPL 20611 will continue to be achieved. No amendments to established criteria are necessary.
- No additional mitigation measures (to those already incorporated into the established Blast Management Plan and Blast Control Plan to reduce vibration, overpressure effects and flyrock during blast activities are required based upon the modelling results and the large separation distances from any sensitive receivers.
- The proposed blasting arrangements at KEQ including extension of hours by one (1) hour from 9.00am to 5.00pm (weekdays and excluding public holidays) as well as the reduction of cumulative blasts between the KHRQ and adjoining KEQ from three (3) per week to two (2) per week is acceptable.
- Modelling completed demonstrates that potential flyrock related issues are extremely unlikely for the proposed development and there will be no impact on the closest sensitive receivers and public roads.
- The established Blast Management Plan and Blast Control Plan can be readily updated to include the proposed MOD 11 development.
- The established monitoring program for both vibration and air overpressure levels is satisfactory to accommodate the proposed MOD 11 development.
- Established community engagement and reporting processes are satisfactory to accommodate the proposed MOD 11 development.

6.2.5 Monitoring and Management

Mitigation Measures

For the KEQ, blast management documentation is managed between the Blast Management Plan (latest version 4A, March 2025) (approved by the NSW Planning Secretary) and the Blast Control Plan (implemented to the satisfaction of the NSW Resources Regulator).

The Blast Management Plan governs how blasting activities will be undertaken to ensure compliance with environmental performance criteria, other management obligations provided by MP09_0175 and EPL 20611 and any potential impact to external stakeholders.

The Blast Control Plan governs how blasting activities will be undertaken to ensure compliance with relevant Australian Standards and industry best practices and any potential impacts to internal stakeholders.

Both documents will be reviewed and updated as necessary prior to commencing blasting activities associated with the MOD 11 development.

Monitoring

A monitoring program for both vibration and air overpressure levels is established as part of the Blast Management Plan for the KEQ and will be continued for the MOD 11 proposal. No adjustment is necessary.

A monitoring site has been established south-west of the KEQ on Mill Hill Close and is representative of the nearest privately owned sensitive receiver and other sensitive infrastructure. This location is sufficient to accommodate the proposed MOD 11 development and the establishment of new location(s) is not necessary.

6.3 Air Quality

Airen Consulting was commissioned by the applicant to prepare an Air Quality Impact Assessment (AQIA) for the proposed MOD 11 development. The AQIA is provided in **Appendix H**.

The AQIA has been undertaken in accordance with the NSW EPA document *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*. The adopted methodology considers the existing operations of the KEQ, the modification design parameters, site-specific meteorological data and site-specific ambient quality monitoring data to determine the potential impacts to air quality with reference to the EPA's air quality impact assessment criteria.

6.3.1 Assessment Locations

To assess potential air quality impacts across the surrounding area, sensitive receivers within approximately 2km of the subject site were selected as assessment locations. Assessment locations are shown in the below **Figure 13** and **Table 20**.

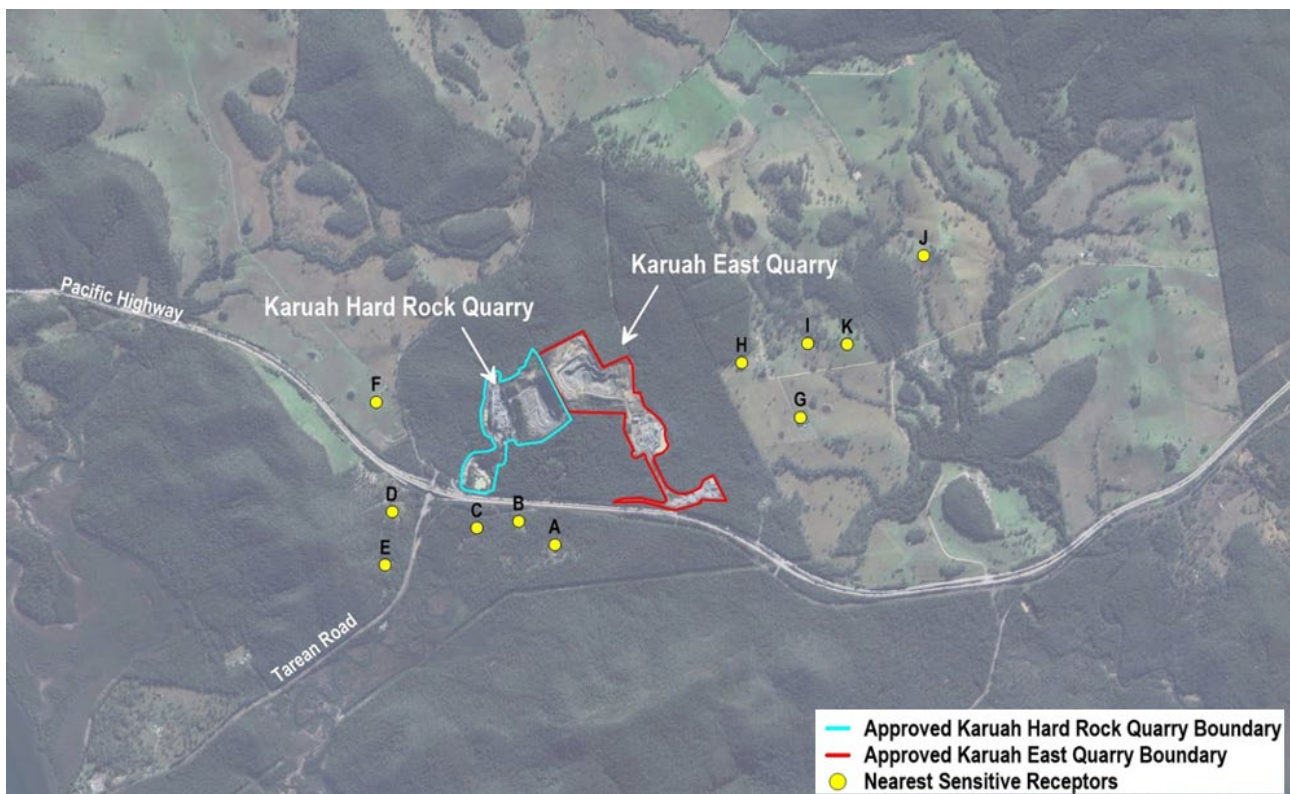


Figure 13: Air Quality Assessment Locations

Table 20: Air Quality Assessment Locations

ID	Property Details	Description
A	Lot 100 DP 1028885	Private residence
B	Lot 3 DP 785172	Private residence
C	Lot 1 DP 785172	Private residence
D	Lot 250 DP 1092111	Private residence
E	Lot 22 DP 1024341	Private residence
F	Lot 50 DP 1036893	Private residence
G	Lot 1 DP 1032636	Private residence
H	Lot 10 DP 1032636	Private residence
I	Lot 11 DP 1032636	Private residence
J	Lot 13 DP 1032636	Private residence
K	Lot 12 DP 1032636	Private residence

6.3.2 Key Issues

The key issues which were identified for the KEQ for consideration in this assessment included:

- Quarry dust i.e. particulate matter in the form of TSP, PM₁₀, PM_{2.5} and deposited dust from extraction, processing and material transport to the site boundary.
- Post-blast fume (NO₂).
- Diesel exhaust (PM₁₀, PM_{2.5} and NO₂).

6.3.3 Existing Environment

A detailed review of the existing environment was carried out including an analysis of historically measured concentrations of key quality indicators from regional and site-specific monitoring stations. The review showed that air quality in many parts of NSW, including the Hunter Region, is heavily influenced by climatic conditions such as drought.

KEQPL operate an air quality monitoring program for the KEQ, consisting of High Volume Air Samplers measuring TSP and PM₁₀, and Depositional Dust Gauges measuring depositional dust levels (refer to **Figure 14** below). Data from site-specific monitoring indicates that concentrations of key air quality indicators near the KEQ are within acceptable (EPA) levels and that the KEQ has not caused exceedances of EPA criteria at sensitive locations.

A review of historical monitoring data indicates that the existing operations of the KEQ are not adversely impacting on local air quality.

Based on averages over the past five (5) years, annual average TSP, PM₁₀, deposited dust, and NO₂ concentrations have been well below the impact assessment criterion.

Note – KEQPL does not monitor PM_{2.5}, concentrations have been estimated on the assumption that 50% of the measured PM₁₀ would be PM_{2.5}. The concentrations of PM_{2.5} near KEQ are inferred to be well below the EPA assessment criteria.

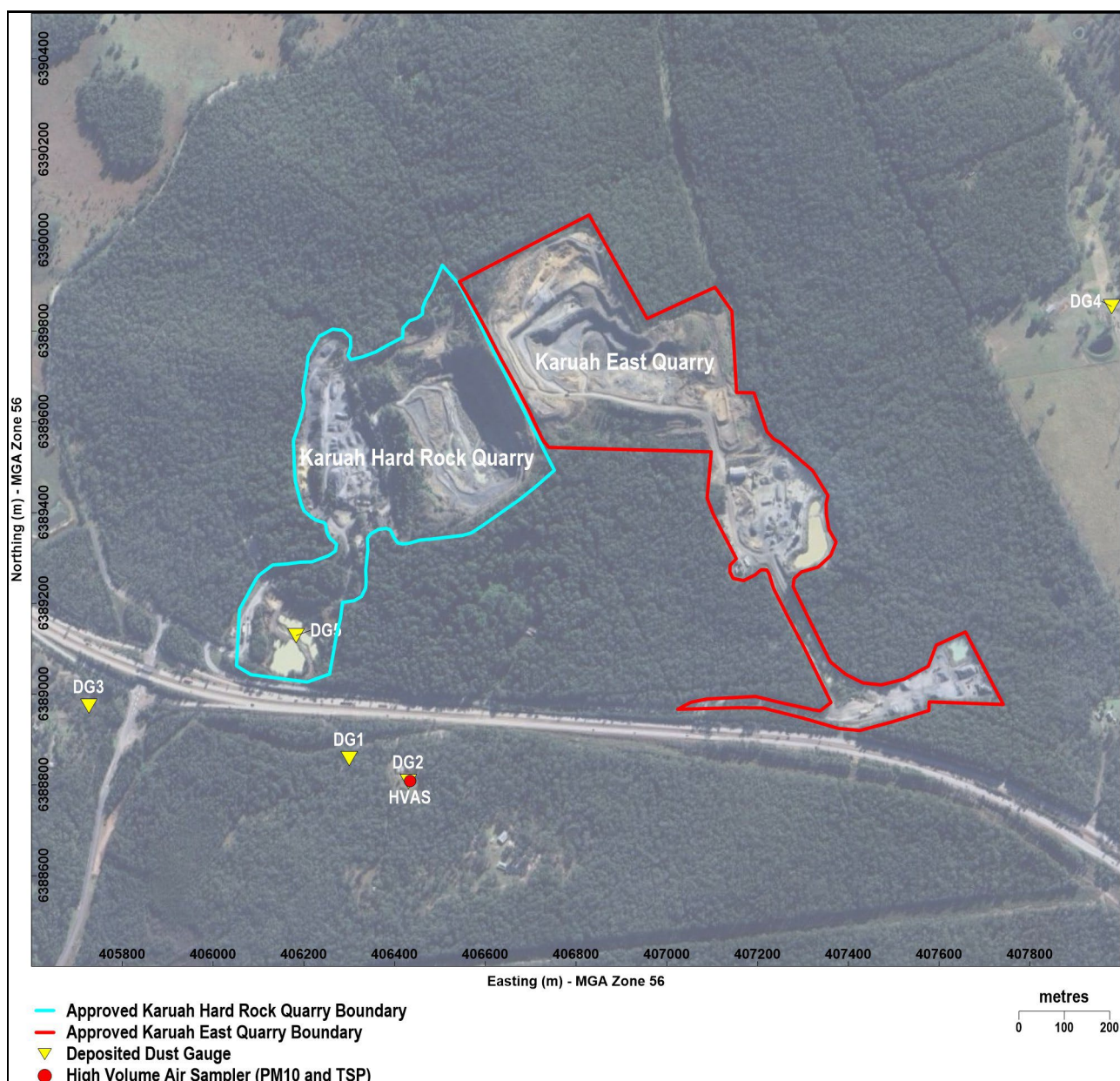


Figure 14: Location of Air Quality Monitors

6.3.4 Assessment Methodology

Dispersion modelling was undertaken using the CALPUFF modelling system to predict ground-level particulate matter concentrations and deposition levels due to the KEQ and other background sources as well as the adjoining KHRQ. A conservative approach was adopted for all modelling which assumed that maximum daily production would occur every day of the year.

The results at sensitive receptors were then compared to the relevant air quality assessment criteria, as detailed below.

6.3.5 Air Quality Impact Assessment Results

Operational Dust – Particulate Matter (PM₁₀)

The predicted incremental and cumulative ground level PM₁₀ concentrations due to KEQ (and KHRQ and other sources) are presented in **Table 21** below.

Table 21: Predicted PM₁₀ Concentrations (µg/m³)

ID	Karuah East Quarry		Karuah Hard Rock Quarry		Cumulative (with Background)	
	24-hour average	Annual average	24-hour average	Annual average	24-hour average	Annual average
IAC	50	25	50	25	50	25
A	9	2.5	3	0.8	26	12.9
B	9	2.6	4	1.2	26	13.4
C	6	1.7	4	0.9	24	12.3
D	6	1.2	4	1.0	24	11.9
E	6	1.3	4	0.9	24	11.9
F	5	1.1	5	1.2	24	11.9
G	21	4.1	3	0.4	31	14.2
H	26	4.9	5	0.7	33	15.2
I	14	2.4	3	0.4	26	12.4
J	5	0.8	2	0.2	23	10.7
K	12	2.0	2	0.3	26	11.9

Note: IAC = impact assessment criterion

In relation to the above table, the following is noted:

- Maximum 24-hour average PM₁₀ concentrations due to KEQ (and KHRQ) were modelled. These results show that the maximum potential contributions of KEQ and KHRQ to the nearest sensitive receptors would be in the order of 20 to 50 µg/m³, in both the approved and proposed modified operational scenarios. The results do not show the pattern of concentrations on any one day. Rather they show the maximum daily concentrations that have been predicted at all locations over the course of a year. The NSW EPA does not prescribe an incremental criterion for 24-hour average PM₁₀, so it is necessary to also consider the contributions from other sources of PM₁₀.
- The modelled maximum 24-hour average PM₁₀ concentrations due to KEQ (and KHRQ) as well as contributions from other sources were compared to the EPA's assessment criterion for 24-hour average PM₁₀ (50 µg/m³). The results show compliance with the EPA assessment criterion (i.e. 50 µg/m³) at all sensitive receptors.
- The modelled annual average PM₁₀ concentrations due to KEQ (and KHRQ) including contributions from other sources were assessed against the NSW EPA's annual average PM₁₀ criterion (25 µg/m³). The results show compliance with the NSW EPA's assessment criterion (25 µg/m³) at all sensitive receptors.

Operational Dust - Particulate Matter (PM_{2.5})

The predicted incremental and cumulative ground level PM_{2.5} concentrations due to KEQ (and KHRQ and other sources) are presented in **Table 22** below:

Table 22: Predicted Ground Level PM_{2.5} Concentrations (µg/m³)

ID	Karuah East Quarry		Karuah Hard Rock Quarry		Cumulative (with Background)	
	24-hour Average	Annual Average	24-hour Average	Annual Average	24-hour Average	Annual Average
IAC	25	8	25	8	25	8
A	2.2	0.6	0.8	0.2	11.5	5.6
B	1.9	0.6	1.1	0.3	11.5	5.8
C	1.3	0.4	1.0	0.2	11.0	5.5
D	1.2	0.3	0.9	0.2	10.9	5.4
E	1.2	0.3	0.9	0.2	10.8	5.3
F	1.0	0.3	1.0	0.3	10.8	5.3
G	4.4	1.0	0.7	0.1	11.7	5.9
H	5.6	1.1	1.0	0.2	12.4	6.1
I	3.1	0.6	0.6	0.1	11.2	5.5
J	1.2	0.2	0.4	0.1	10.6	5.1
K	2.5	0.5	0.5	0.1	10.9	5.4

Note: IAC = impact assessment criterion

In relation to the above table, the following is noted:

- The modelled maximum 24-hour average PM_{2.5} concentrations due to KEQ and KHRQ show that the maximum potential contributions would be in the order of 5 µg/m³ at sensitive receptors which is compliant with criteria.
- The modelled maximum 24-hour average PM_{2.5} concentrations due to KEQ and KHRQ including contributions from other sources is compliant with criteria.
- The results show that the proposal will not cause an exceedance of the EPA's assessment criterion (25 µg/m³) at all sensitive receptors.
- The modelled annual average PM_{2.5} concentrations due to KEQ and KHRQ, and contributions from other sources have been assessed against the EPA's annual average PM_{2.5} criterion (8 µg/m³). The results show compliance with the EPA's assessment criterion (8 µg/m³) at all sensitive receptors.

Operational Dust – Particulate Matter (as TSP) and Deposited Dust

The predicted incremental and cumulative ground level TSP concentrations and dust deposition are presented in Table 23 below:

Table 23: Predicted Ground Level TSP Concentrations (µg/m³) and Dust Deposition (g/m²/month)

ID	Karuah East Quarry		Karuah Hard Rock Quarry		Cumulative (with Background)	
	TSP	Deposited Dust	TSP	Deposited Dust	TSP	Deposited Dust
IAC	90	4	90	4	90	4
A	2.7	0.3	0.7	0.1	23.4	1.3
B	2.8	0.3	1.3	0.1	24.1	1.4
C	1.8	0.2	1.1	0.1	22.9	1.3
D	1.1	0.1	1.8	0.2	22.9	1.3
E	1.1	0.1	1.4	0.1	22.5	1.2
F	1.1	0.1	2.1	0.2	23.2	1.4
G	3.0	0.3	0.2	0.0	23.3	1.3
H	4.0	0.5	0.4	0.1	24.4	1.5
I	1.9	0.2	0.2	0.0	22.2	1.2
J	0.7	0.1	0.1	0.0	20.8	1.1
K	1.5	0.1	0.2	0.0	21.7	1.2

Note: IAC = impact assessment criterion

In relation to the above table, the following is noted:

- The modelled annual average TSP concentrations due to KEQ, KHRQ and other sources show compliance with the NSW EPA's assessment criterion (90 µg/m³) at all sensitive receptors.
- The modelled annual average deposited dust levels due to KEQ, KHRQ and other sources was assessed against the EPA's annual average deposited dust criteria of 2 g/m²/month (incremental) and 4 g/m²/month (total). The results show compliance with the NSW EPA criteria at all sensitive receptors.

6.3.6 Post Blast Fume

Maximum 1-hour average NO₂ concentrations due to post-blast fume were modelled.

Results demonstrated that, under worst-case meteorological conditions with a rated 3 fume, blasting every day between 9am and 5pm and maximum background concentrations, the maximum 1-hour average NO₂ concentrations will not exceed the EPA's criterion at any sensitive receptor.

Modelling was completed on the conservative basis of considering blasting occurring at both KHRQ and KEQ; however, blasting will not occur simultaneously in both quarries (it is noted that the proposal seeks to establish two (2) cumulative blasts per week (Mon-Fri) at KHRQ and KEQ).

6.3.7 Diesel Exhaust

Maximum 1-hour average NO₂ concentrations due to diesel exhaust emissions were modelled.

Results indicated that both the maximum 1-hour average NO₂ concentrations and the annual average NO₂ concentrations due to diesel exhaust emissions are expected to comply with the NSW EPA's criterion all sensitive receptors.

6.3.8 Conclusion

The AQIA concludes that the MOD 11 proposal is acceptable in terms of Air Quality impacts and the proposed modification can be supported.

The key outcomes of the AQIA modelling and assessment were:

- The proposed modification will not cause adverse impacts with respect to dust concentrations or deposition levels, based on modelling which showed compliance with air quality assessment criteria at all sensitive receptors.
- Post blast fume emissions are not expected to result in any adverse air quality impacts based on modelling which showed compliance with air quality assessment criteria at all sensitive receptors.
- Emissions from diesel exhausts associated with off-road vehicles and equipment are not expected to result in any adverse air quality impacts, based on modelling which showed compliance with air quality assessment criteria at all sensitive receptors.
- The modelling results at all sensitive receptors are sufficiently below the respective air quality assessment criteria which demonstrate that any uncertainties in the modelling would not change the outcomes of the assessment.

6.3.9 Monitoring and Management

Mitigation Measures

The modelling results showed that off-site dust concentrations, dust deposition levels and NO₂ concentrations will be below the relevant EPA assessment criteria, and established criteria within MP09_0175. Continuation of the current mitigation measures (detailed below) is considered an appropriate air quality management strategy:

- Minimising disturbance of land to only what is required by quarry activities;
- Minimising distance travelled by hauling rock the shortest distance possible;

- Adopting controls for unsealed haul road dust emissions;
- Use of water sprays when drilling if / as required;
- Use of water sprays on stockpile areas if / as required;
- Undertake regular road sweeping to clean roadways around the entrance to the quarry; and
- Visual monitoring to identify excessive dust generation.

The above measures are already incorporated into the KEQ Air Quality Management Plan (current version KEQ, version 5A, March 2025).

Monitoring

An updated monitoring program is proposed that will consist of:

- One site specific meteorological station, at the current location.
- Removal of Depositional Dust Gauges.
- Provision of an additional HVAS monitor for PM_{2.5}, at the current location, for compliance purposes.
- Two real-time air quality monitors capable of measuring PM₁₀ and PM_{2.5} and positioned on opposite sides of the Karuah Quarry Complex site to allow for the calculation of development contributions to air quality for ongoing management purposes.

Following the determination of the MOD 11 application, KEQPL review and revise the established Air Quality Management Plan.

6.4 Traffic and Transport

Intersect Traffic was commissioned by the Applicant to prepare a Traffic and Transport Impact Statement (TTIS) for the proposed MOD 11 development. The TTIS is provided in **Appendix I1**.

6.4.1 Existing Road Network

The road network impacted by traffic generated by the KEQ and KHRQ includes the A1 Pacific Highway, Tarean Road / The Branch Lane, Andersite Road and Blue Rock Close.

The following is noted regarding the capacity of the existing road network:

- The Pacific Highway (A1) is part of the state highway network, in good condition and is considered suitable for ongoing use by heavy vehicles associated with both the KEQ and KHRQ.
- Tarean Road / The Branch Lane is a local collector road which collects and distributes traffic from areas surrounding Karuah to the Karuah township and village centre as well as providing vehicle access to properties along its length.
- Near the KEQ and KHRQ quarry sites it is a sealed rural standard road a minimum 9 m wide providing a 3.5 m travel lane in each direction and 1 to 2 m wide sealed shoulders and table drains along its edges. The road is centre line and edge line marked with a 60 km/h speed limit applying in the vicinity of the KEQ and KHRQ and the Tarean Road north A1 Pacific Highway interchange. Tarean Road is observed to be in good condition and satisfactory for ongoing use by heavy vehicles associated with both the KEQ and KHRQ.
- Andersite Road is a local rural road which provides vehicular access to the KHRQ from The Branch Lane (and Tarean Road). Near the KHRQ it is a sealed rural standard road a minimum 9 m wide providing a 3.5 m travel lane in each direction and 1 to 2m wide sealed shoulders and table drains along its edges. The road is centre line marked with a 50 km/h speed limit. Andersite Road is observed to be in good condition and satisfactory for ongoing use by heavy vehicles associated with both the KEQ and KHRQ.

- Blue Rock Close is a local rural road which is almost exclusively utilised by vehicles associated with KEQ. It is a sealed rural standard road a minimum 9 m wide providing a 3.5 m travel lane in each direction and 1 to 2 m wide sealed shoulders and table drains along its edges. There is also a large section of the road with upright kerb and gutter on both sides of the road. The road is centre line marked with a 50 km/h speed limit applying in the vicinity of the KEQ and KHRQ. Blue Rock Close is observed to be in good condition and satisfactory for ongoing use by heavy vehicles associated with the KEQ and KHRQ.

6.4.2 Traffic Impact Assessment

Traffic Volumes

Contemporary traffic counts on both Andersite Road and Blue Rock Close were conducted in November 2025 to determine peak hour traffic generation, which is presented in **Table 24**.

Table 24: Peak Hour Traffic

	AM Peak	PM Peak
Andersite Road	32 vtph (7am – 8am)	35 vtph (12pm – 1pm)
Blue Rock Close	50 vtph (8am – 9am)	46 vtph (2pm – 3pm)

Note: vtph – vehicle trips per hour.

Weighbridge data for the first six months of 2025 for the existing KEQ indicates a maximum dispatch capacity of 35 vehicles. This indicates that the peak hour traffic generation would be a worst-case scenario of approximately 80 vtph based on weighbridge capacity, local delivery and light vehicle traffic from the sites.

Therefore, assuming both the KEQ and KHRQ are operating together at capacity, the peak hour traffic volumes on the adjacent local road network providing access to the quarries is as follows:

- Andersite Road – 160 vtph; and
- Blue Rock Close – 80 vtph.

Both Andersite Road and Blue Rock Close have a two-way mid-block capacity of at least 1,800 vtph. With peak hour traffic being only in the order of a maximum 160 vtph these roads are currently operating with excellent levels of service and with uninterrupted flow conditions.

With no additional traffic generated by the proposed pit consolidation project, the local and state road network adjacent to the KEQ and KEQ will continue to operate with uninterrupted flow conditions or with no loss of two-way mid-block level of service or intersection level of service. There is therefore no nexus for any road infrastructure upgrades resulting from the proposed Karuah Pit Consolidation project.

Vehicular Access

The KEQ and KHRQ currently operate as the sole user of at grade vehicular accesses off Andersite Road (KHRQ) and Blue Rock Close (KEQ) that are constructed to suit their use by heavy vehicle traffic associated with the operation of the quarries.

With the proposed Karuah Pit Consolidation project not generating any additional peak hour traffic volumes and noting the KEQ and KHRQ as approved extraction and transport rates will remain unchanged (1.5 Mtpa at KEQ and 500,000 tpa at KHRQ) it is considered the existing vehicular accesses remain suitable for operations. There is no nexus in this project for the upgrade of the existing vehicular access to the KEQ.

On Site Parking

On-site parking within KEQ has been considered under the existing consent (MP09_0175). Staffing numbers are not anticipated to change as a result of the proposed pit consolidation project at KEQ (or KHRQ) and heavy vehicle movements will not change noting that there is no change in annual extraction (and transport) rates.

With no additional traffic being generated by the proposed Karuah Pit Consolidation project, there is no nexus for the provision of any additional on-site car or heavy vehicle parking within the KEQ.

Servicing

The proposal does not result in any additional servicing for the KEQ (or KHRQ). Accordingly, the proposal does not result in a nexus for the provision of upgraded or new servicing infrastructure at the KEQ.

Pedestrian Facilities

The proposal does not result in any additional pedestrian traffic within or external to the KEQ (or KHRQ). Accordingly, the proposal does not result in a nexus for the provision of upgraded or new pedestrian infrastructure within or external to the KEQ.

Alternate Transport Mode Facilities

The proposal does not result in any additional demand for alternate transport mode facilities or services. Accordingly, the proposal does not result in a nexus for the provision of upgraded or new alternate transport mode facilities or services external to the KEQ.

6.4.3 Conclusion

The TTIS concludes that the MOD 11 proposal can be supported from a traffic, access and parking perspective as the proposal will not adversely impact on the operation or safety of the adjoining local and state road network.

The following conclusions are made:

- The existing adjoining local and state road network is of a suitable standard to cater for all traffic generated by the ongoing operation of the existing KEQ and KHRQ.
- With no additional traffic generated by the proposed Karuah Pit Consolidation Project, the local and state road network adjacent to the KEQ and KHRQ will continue to operate with uninterrupted flow conditions or with no loss of two-way mid-block level of service or intersection level of service therefore the proposed Karuah Pit Consolidation Project will not adversely impact on the adjoining state and local road network.
- The proposed extension of hours of operation and the proposed life extension of the KEQ will not increase the peak hour traffic generation of the site as the approved extraction and transport rates for the quarry will remain unchanged with no increase in peak hour traffic generation during a major sale but likely to result in the daily traffic volumes being distributed more evenly over the day.
- The proposal does not generate any nexus for:
 - Road infrastructure upgrades;
 - Quarry access upgrades;
 - The provision of additional on-site car or heavy vehicle parking;
 - Upgraded or new servicing infrastructure; and
 - Upgraded or new alternate transport mode facilities or services.

6.4.4 Mitigation and Management Measures

The established KEQ Transport Management Plan (ver 2D, Nov 2024) will be updated as necessary to accommodate the MOD 11 proposal.

6.4.5 Response to TfNSW Correspondence dated 11 March 2026

As part of agency consultation completed prior to lodgement of the Modification Application, the TTIS was supplied to TfNSW for review. On 11 March 2026, TfNSW responded, seeking clarification on a number of items. The Applicant commissioned Barker Ryan Stewart to undertake a peer review of the TTIS and review and respond to the matters raised (refer to **Appendix I2**) with a summary provided below.

Table 25: TfNSW Response Summary

TfNSW Comment	Applicant Response
1. <i>The development states there will be no change to the annual extraction volumes or the transportation rate/s, however, the proposal to align the operations of the two quarry sites will enable changes to occur with regard to traffic movements to / from the quarry complex, by extending the hours available for transportation for one of the quarries.</i>	The primary purpose of the Karuah Pit Consolidation Project is to extract known remaining resources within currently disturbed/cleared areas of the Karuah Quarry Complex, in particular the remnant dividing highwall between the KEQ and KHRQ extraction areas, in an internally coordinated approach between the KEQ and KHRQ sites. This will only result in changes to internal extractive operations, with downstream material processing, stockpiling, sale and transport to external customers remaining unchanged via the ongoing operation of two independent standalone quarry operations. The project will not result in any increased traffic generation. The following should be noted: • Annual production volumes will remain capped at current throughputs at both quarries (500,000tpa at KHRQ and 1.5 Mtpa at KEQ). • Employment numbers and contracting arrangements will not change as a result of the proposal. • Support vehicles / deliveries will not change as a result of the proposal. • Access arrangements via the exclusively used Andersite Road and Blue Rock Close to The Branch Lane / A1 Pacific Highway interchange will not change as a result of the proposal. The only change relevant to traffic generation is the proposed widening of the hours of operation of the KHRQ (proposed under the separate MOD 2 application to DA 265-10-2004). This change will have the effect of reducing peak traffic volumes by allowing sales to occur over a wider daily operating period. As outlined in the TTIS, the proposal will not increase the number of annual traffic movements to and from either quarry. The TTIS states, <i>‘the proposal does not seek to increase the approved annual throughputs at either quarry (500,000tpa at KHRQ and 1.5 Mtpa at KEQ) (sales volumes and expected transaction numbers) and there will be no increase in annual traffic generated by both quarries. There will be no increase in employees at either the KHRQ or KEQ associated with the proposal.’</i> Further to this, widening the hours at KHRQ (as proposed by the separate MOD 2 application to DA265-10-2004) would further spread the existing traffic generated by the operations over a longer period of time reducing the peak hour traffic generation rates from the quarries. The TTIS states, <i>‘An extension of the life of quarrying operations at KHRQ from 3 June 2027 to 31 December 2034 is proposed to align the approved operational timeframe of the KEQ. An extension of hours of operation at KHRQ is also proposed to match the approved hours of KEQ. The extension of hours is expected to spread heavy vehicle movements over wider range of time, thereby reducing average and peak movements.’</i>

	Noting that the KHRQ and KEQ will continue to operate independently of each other therefore there will be no adverse changes with respect to traffic movements to and from either quarry.
2. <i>Mid-block capacity assessment has been undertaken for Andersite Road and Blue Rock Close only, local roads which connect directly to the two site accesses.</i> a. <i>The assessment does not address impacts to other roads in the immediate vicinity of the quarries' key transport / haulage routes. This is particularly applicable to the Pacific Highway, a classified (state) road and the associated interchange.</i> b. <i>No Austroads turn treatment warrants assessments have been undertaken at key intersections along the potential transport routes and no assessment has been demonstrated to determine the existing or proposed traffic impacts on the Pacific Highway, a classified (state) road or the associated highway interchange.</i>	The haulage route for KEQ (when exiting and vice versa for entry) is Blue Rock Close, Andersite Road, The Branch Lane and Pacific Highway. For KHRQ (when exiting and vice versa for entry) is Andersite Road, The Branch Lane and Pacific Highway. The key intersections are therefore the following: • Interchange at Tarean Road / The Branch Lane with the Pacific Highway. • The Andersite Road and The Branch Lane T-intersection. • Blue Rock Close and Andersite Road T-intersection. As stated in the TTIS, <i>'both Andersite Road and Blue Rock Close as two-lane two-way roads with a 50 km/h speed limit would likely have a two-way mid-block capacity of at least 1,800 vtp/h therefore with peak hour traffic being only in the order of a maximum of 160 vtp/h these roads are currently operating with excellent levels of service and with uninterrupted flow conditions.'</i> Interchange at Tarean Road / The Branch Lane with the Pacific Highway As a B-Double route the Pacific Highway can cater for 19 m Semi Trailers and 19 m Truck and Dog which would be the largest vehicles that transport material from both quarries. The interchange at Tarean Road / The Branch Lane with the Pacific Highway has been designed to accommodate the swept paths of 19 m Semi Trailers and 19 m Truck and Dogs. It is noted that the construction of the interchange occurred after the KHRQ was well established therefore interchange design would have considered heavy vehicle movements associated with the ongoing operation of the KHRQ. It is also noted that approval of the KHRQ extension into Lot 11 (which is the latest approval for KHRQ operations (DA265-10-2004)) was issued on 03 June 2005, shortly after the interchange became operational. The assessment process for DA 265-10-2004 would have therefore considered heavy vehicle movements associated with the ongoing operation of the KHRQ. Furthermore, it is also noted that the assessment process for the KEQ (MP09_0175), which was approved in June 2014 (after the interchange was operational), considered the suitability of the interchange for heavy vehicles associated with both the KEQ and KHRQ. The proposed modifications will not result in any change to the type of vehicles using the intersection associated with quarry operations. The Andersite Road and The Branch Lane T-intersection When assessing the existing Andersite Road and The Branch Lane T-intersection (which is a Rural Basic BAR intersection) against the requirements of <i>Austroads Guide to Traffic Management Part 6 Intersections, Interchanges and Crossings, Section 2.3.6 Warrants for BA, AU and CH Turn Treatments Figure 2.25</i> with a speed limit of 60 km/h in The Branch Lane and 50 km/h in Andersite Road and up to 160 vtp/h in Andersite Road, there could be up to 200 vtp/h in The Branch Lane and the BAR type intersection would be satisfactory. There are fewer peak hour traffic movements in The Branch Lane that could be confirmed with updated traffic counts; however, this is considered unnecessary in this instance given that the modification application will not change the type or increase the frequency of heavy vehicles that access the quarries.

	As there are no left turn movements from trucks from The Branch Lane into Andersite Road a BAL type assessment is not warranted. It also noted that this intersection was considered during the KEQ approval process (MP09_0175) and Schedule 3 Condition 22(c) of the approval required that prior to the transport of products from the KEQ the following was to occur: <i>22(c) Upgrading the Branch Lane/Andersite Road intersection with appropriate road markings and advance warning signage, to the satisfaction of Council.</i> These works were completed by KEQ Pty Limited prior to commencement of operations. Since the time that these works were completed there has been no change to the type or frequency of heavy vehicles that use this intersection associated with quarry operations and the modification applications will not change this. Blue Rock Close and Andersite Road T-intersection When assessing the existing Andersite Road and Blue Rock Close T-intersection (which is a Rural Basic BAR intersection) against the Austroads requirements with a speed limit of 50 km/h in both roads and 160 vtp/h in Andersite Road and 80 vtp/h in Blue Rock Close a Basic BAR intersection is considered satisfactory. Traffic associated with KEQ are the only users of Blue Rock Close and traffic associated with KHRQ & KEQ are the only users of Andersite Road. The Blue Rock Close / Andersite Road intersection was considered during the KEQ approval process (MP09_0175) and Schedule 3 Condition 22(b) of the approval required that prior to the transport of products from the KEQ the following was to occur: <i>22(b) Realigning and upgrading the Blue Rock Close/Andersite Road intersection with appropriate road markings, pavement thickening and advance warning signage, to the satisfaction of Council.</i> These works were completed by KEQ Pty Limited prior to the commencement of quarrying operations. Since the time these works were completed there has been no change to the type or frequency of heavy vehicles that use this intersection associated with quarry operations and the modification applications will not change this.
3. TfNSW note, given quarries operate on a campaign-basis, all demonstrated traffic impacts should consider the impacts of 100% of the cumulative quarry heavy vehicle generated movements travelling in each of the available directions, to and from the subject quarries, to determine the full impact of the proposal and existing developments on the road network.	This statement is incorrect. For clarification, both quarries operate on a continuous operation and sale basis. The operation of KHRQ and KEQ contribute towards satisfying significant and ongoing market demand associated with various State Significant Infrastructure (SSI) projects in the Greater Newcastle, Hunter Valley and Mid-North Coast regions. These projects are critical to deliver improved connectivity of the Mid North Coast to Newcastle, the Hunter Valley and Sydney and include the Newcastle Inner-city Bypass (SSI-6888), Pacific Highway widening at Hexham Straight, Singleton Bypass, and the M1 Pacific Motorway extension to Raymond Terrace (SSI-7319). The quarries supply high quality quarry products to a large and rapidly emerging customer base that includes TfNSW, a number of local Councils, the Port of Newcastle, Ausgrid, Newcastle Airport, Tier 1 infrastructure providers as well as the general construction, development and infrastructure industries within greater Newcastle, Hunter Valley and the Mid North Coast Regions.

	Additional supplies are provided to downstream businesses, including the Tea Gardens Hunter Readymix Concrete Plant, which in turn contributes to the local construction industry. There are no proposed increases in peak hour traffic movements that would be generated by the proposed modifications at either quarry site. For this reason, it is not warranted to undertake additional traffic counts and SIDRA modelling and undertake an assessment of traffic impacts in support of the modifications.
4. <i>In order to understand the impacts of the proposed development modification on the broader road network and in particular the classified (state) road and associated interchange, TfNSW recommend the proposed modification is accompanied by supporting documentation in particular the TTIS is updated to identify and address all relevant traffic impacts of the proposal, these include but are not limited to:</i>	N/A.
<i>a) Identify all key transport / haulage routes applicable to each quarry. Noting the TTIS currently only addresses traffic impacts to Andersite Road and Blue Rock Close</i>	Provided below are the key transport/haulage routes. These will not change as part of the proposed development: • KEQ (when exiting and vice versa for entry) – Blue Rock Close, Andersite Road, The Branch Lane and Pacific Highway. Split of approximately 90% south / 10% north on Pacific Highway when laden trucks leave the quarry. • KHRQ (when exiting and vice versa for entry) – Andersite Road, The Branch Lane and Pacific Highway. Split of approximately 90% south / 10% north on Pacific Highway when laden trucks leave the quarry. • Negligible truck movements continue along Tarean Road into Karuah (i.e. less than 0.5%). • No trucks turn right into The Branch Lane.
<i>b) Identify the maximum daily and hourly production and transportation rates for each quarry noting the weighbridge records (supplied for one quarry only) demonstrate only the laden heavy vehicle movements relevant to individual campaign/s occurring at that time, not what the quarry's maximum output capacity is for daily / hourly material production and transporting.</i>	The transportation rates for each quarry remain unchanged by the modification applications and are generally consistent with what was considered as part of the original approvals for both the KHRQ and KEQ, that is: <u>For KEQ</u> • Average truck loads per day 216 laden movements (e.g. 432 total per day). • Average 22 laden movements per hour (e.g. 44 movements per hour). <u>For KHRQ</u> • Average 65 laden trips per day (e.g. average 130 vehicle movements).
<i>c) Identify the peak hours for traffic movement, for each quarry, and the cumulative impacts of those peak hours.</i>	As outlined in the TTIS, the peak hour traffic movements (vehicle trips per hour (vtph)) based on traffic classifier counts undertaken in the week of Monday 24 November 2025, demonstrate general consistency with the average rates considered above in earlier investigations and are: • Andersite Road – AM peak – 32 vtph (7am – 8am) & PM peak – 35 vtph (12pm – 1pm). • Blue Rock Close – AM peak – 50 vtph (8am – 9am) & PM peak – 46 vtph (2pm – 3pm).

	Based on weighbridge data for the first six months of 2025 for the existing KEQ indicates a maximum dispatch capacity of 35 vehicles. This indicates that the peak hour traffic generation would be a worst-case scenario of approximately 80 vtpd at KEQ based on weighbridge capacity, local delivery and light vehicle traffic from the sites. Therefore, as a highly conservative assumption assuming both the KEQ and KHRQ are operating together at capacity (and also assuming that KHRQ can operate at the same dispatch capacity as KEQ), the peak hour traffic volumes on the adjacent local road network providing access to the quarries is as follows: • Andersite Road – 160 vtpd (i.e. KEQ and KHRQ combined); and • Blue Rock Close – 80 vtpd (KHRQ does not require use of Blue Rock Close). Noting comments provided in 2(a) above, there is significant capacity in the surrounding external road network (some 1,800 vtpd compared to a conservatively calculated peak hour traffic number of 160vtpd) to accommodate existing peak hour truck movements which will not change as part of the proposed development.
<i>d) Include traffic counts of existing background traffic on all roads located between the subject quarries and the classified (State) road, as per the key transport / haulage route/s.</i>	As there is no increase in peak hour traffic generated by the proposed modifications it is not warranted in this instance to undertake additional traffic counts.
<i>e) Undertake Austroads turn warrants assessments for all key intersections along the key transport / haulage routes.</i>	Refer to 2(b) above.
<i>f) Address the existing condition of the relevant roads (including any relevant quarry signage) and address the impacts the additional 7 years of operational life for KHRQ may have on the road conditions and maintenance requirements.</i>	This is currently addressed via existing conditions of consent (refer to commentary relevant to item 2(b) above) and form part of the current ongoing road contributions to Council to cover the proportionate maintenance and potential damage costs caused by heavy vehicle haulage on local roads.

6.5 Surface Water

ADW Johnson was commissioned to prepare a Surface Water Assessment (SWA) for the proposed KEQ MOD 11 development and is enclosed as **Appendix J**. The SWA should be read in conjunction with the SWA prepared as part of the concurrent MOD 2 application for the adjoining KHRQ (DA 265-10-2004).

KEQ has been the subject of extensive previous surface water assessment and surface water management at the site is well understood. The original Surface Water Assessment to inform the Project Approval (MP09_0175) was undertaken by GSSE (2013). ADW Johnson prepared a recent Surface Water Management Assessment (November, 2022) to inform the MOD 10 approval (approved May 2023), which specifically related to an increase in disturbance area for the establishment of increased stockpiling area. At the time of writing (April 2026), KEQPL are continuing to secure secondary approvals for MOD10 and as such, construction of the project has not yet commenced.

The KEQ also operates in accordance with an approved Water Management Plan (SLR, May 2019).

The SWA completed to inform the MOD 11 proposal should be regarded as an addendum to the approved Surface Water Assessment.

The SWA has been prepared to address the proposed surface water management system and sizing of sediment controls specifically for the proposed MOD 11 project, with the focal point being the proposed modification to the extraction area and additional disturbance area of 4,690 m² proposed.

6.5.1 Existing Surface Water Management

Surface water runoff from KEQ's disturbance areas is diverted and captured into three (3) sediment dams as follows:

- Dam 1 is the largest dam at KEQ with a capacity of 12.0 ML. It is located at the eastern edge of the KEQ and receives runoff from KEQ's crushing and processing plant area. Dam 1 is a mixed-use dam and serves as the primary water storage for KEQ and provides water for processing, crushing plant and dust suppression.
- Dam 2 is located at the south-western corner of the KEQ and has a 0.5 ML capacity. It receives a small catchment of approximately 0.7 ha and is designed to manage runoff from the existing weighbridge and parking area.
- Dam 3 is located at the south eastern section of the KEQ and is designed to manage runoff from the existing stockpile area near the site's eastern boundary. Dam 3 has a capacity of 2.0 ML.

Dams 1 and 3 drain eastwards via tributaries of Bulga Creek, whilst Dam 2 drains westward via a tributary of Yalimbah Creek. Each dam is subject to a Licensed Discharge Point (LDP) under Environmental Protection Licence EPL 20611 (EPL) which establishes water quality and reporting requirements.

Water generated within the active quarry extraction area, primarily as a result of rainfall/runoff, is managed via an in-pit sump. Water is directed to and contained within the in-pit sump until it is necessary to pump the water out so as to not impede quarrying activities. Water from the in-pit sump is pumped into a rock lined table drain adjacent to the main haul road, where it flows via a rock lined drop structure to Dam 1.

MOD 11 does not propose or require any significant amendments to the established surface water management system.

6.5.2 Proposed Surface Water Management

Proposed MOD 11 will result in minor changes to KEQ's surface water catchments which can be readily managed through amendments to the existing surface water management system. The following is noted:

- The in-pit sump will be proportionally resized (enlarged) to cater for the additional extraction area to be established to the south and east including the area of additional land disturbance within the redundant powerline corridor. The sump will be sized according to Landcom's Managing Urban Stormwater – Soils and Construction Volume 2E: Mines and Quarries (the 'blue book') procedures for permanent sediment dams. Consistent with the approved KEQ Water Management plan, water collected in the sump will be pumped to Dam 1 for storage and/or discharge as required.
- There will be negligible increase in overall catchment reporting to Dam 1, noting that the proposed additional extraction area is located almost entirely within the existing area of disturbance of the approved KEQ footprint. This area, under existing arrangements, reports to Dam 1. MOD 11 therefore proposes no changes to Dam 1.
- The proposed additional disturbance area of 4,690 m² adjacent to the eastern edge of the KEQ is also already heavily disturbed, having been historically used for the purposes of a powerline corridor which is now redundant. This area will be managed as follows:
 - The western portion of this area, which will form part of the extended extraction area, will be considered in resizing of the in-pit sump; and
 - The eastern edge of the proposed additional disturbance area can be readily managed with erosion and sediment controls.
- There are no changes proposed to Dams 2 and 3 (or their respective catchments) to accommodate the proposed MOD 11 development.

Staging of Surface Water Controls

The site's catchments and therefore its surface water controls will evolve with each extraction sequence stage of the project as follows:

Table 26: KHRQ Surface Water Controls associated with Extraction Sequencing

Stage	Description	Surface Water Controls
Stage 1	Extraction to RL 90m	General controls described in Section 6.5.9 below.
Stage 2	Extraction to RL 65m (KHRQ pit floor)	- General controls described in Section 6.5.9 below. - Establishment of a bund wall to segregate KEQ and KHRQ catchments (described in Section 6.5.9 below). - Strategic blasting to maintain westward flows in KHRQ and eastward flows in KEQ.
Stage 3	Extraction of KEQ to RL 45m (KEQ pit floor)	- General controls described in Section 6.6.9 below. - Maintenance of dividing bund.
Post-extraction	Rehabilitation	Implementation of the concept final Rehabilitation Plan has been developed for the KHRQ (refer to Section 6.8.3 of this Modification Report).

6.5.3 Sediment Controls

The proposed removal of the remnant dividing highwall and the increase in extraction area to the east represents an increase in the size of the KEQ extraction pit and therefore its catchment.

The size of the in-pit sump has been assessed according to the Blue Book. The Blue Book implements a Revised Universal Soil Loss Equation (RUSLE) to estimate soil loss from a disturbed area which informs sump sizing.

Surface Water Catchments

Catchment mapping undertaken has confirmed that the extraction area catchment will increase from 14.4 to 20.6 ha associated with the proposed MOD 11 development. The proposed extended additional disturbance area includes a small portion (approximately 0.21 ha) of land within a redundant powerline corridor that will fall to the west. The remainder of the additional disturbance area (0.26 ha) will continue to fall eastward, bypassing both the in-pit sump and dam 1 until extraction had sufficiently progressed during extraction stage 3.

Design Storm

A 5-day, 95th percentile design rainfall depth has been adopted in accordance with the Blue Book for permanent controls upstream of sensitive environments. The design rainfall depth is 90.6 mm.

Other Design Considerations

The following was calculated in accordance with the Blue Book:

- Soil classification – Both dispersive and non-dispersive soils are expected at the site. Accordingly, dams were sized assuming Type D (dispersive) soils.
- Rainfall erosivity factor (R-Factor) – Using Bureau of Meteorology Intensity-Frequency-Duration (IFD) rainfall data, an R-Factor of 2600mm was calculated.
- Soil erodibility factor - An erodibility factor (K-Factor) of 0.045 was adopted for the subject site and is consistent with reporting for the adjoining KHRQ catchment.
- Volumetric Runoff Coefficient - A Volumetric Runoff Coefficient (C_v) of 0.79 was adopted. This is the default value for Type D soils with high runoff potential.

In-Pit Sump Sizing

RUSLE calculations were completed for each catchment. Type D sediment controls consist of two volumetric components: a settling zone, in which runoff is detained for settlement of fine particles; and a storage zone, in which settled sediment is retained. Minimum volume calculations for the in-pit sump are presented below.

Table 27: Minimum Sediment Dam Size (In Pit Sump)

Parameter	Value
Predicted soil loss (m ³ /Ha/Year)	42
Storage Zone ¹ (ML)	14.91
Settling Zone (ML)	0.67
Minimum Volume (ML)	15.57

1. Selected to provide 12 months' sediment storage.

Impacts to Dam 1

Consistent with the approved KEQ Water Management Plan, water collected in the in-pit sump will be pumped into Dam 1 as necessary via existing infrastructure. It is noted that the majority of the additional extraction area is located within an existing disturbance area within the KEQ footprint which presently reports to Dam 1. Only a small portion of the extraction area is located within new disturbance area, amounting to approximately 0.21 ha within the former powerline corridor.

The additional disturbance area represents a negligible increase to Dam 1's overall catchment (being the sum of its surface water catchment and the extraction area). Dam 1's inflow volumes will remain generally equivalent to existing arrangements, notwithstanding the negligible additional disturbed catchment and the potential for increased evaporative losses from the in-pit sump.

Enlargement of the in-pit sump will allow Dam 1 to continue operating generally in accordance with existing arrangements.

Additional Disturbance Area

A portion of the proposed additional disturbance area (approximately 0.26 ha) will bypass the in-pit sump and Dam 1 until extraction has sufficiently progressed during extraction stage 3.

RUSLE calculations have projected an annual soil loss of less than 79 m³ from this small disturbance area. The Blue Book notes that sediment basins may not be required for catchments whose annual soil loss is 150 m³; in such scenarios, other erosion and sediment control devices may be utilised instead.

It is considered that a sediment basin would be inefficient for the residual catchment given its size and shape. Instead, sediment fencing will be installed along the disturbance area's eastern boundary and will be the subject of routine inspection and maintenance.

6.5.4 Interaction with Karuah Hard Rock Quarry

The proposed KEQ MOD 11 project seeks to remove the remnant dividing highwall between the KEQ and KHRQ in a coordinated approach. KEQ will extract to a depth of RL45m consistent with the currently approved extraction depth under MP09_0175. The adjoining KHRQ, has an approved extraction depth of RL65m (under DA 265-10-2004).

A typical section of the proposed remnant highwall removal is provided below. This figure is taken from a site section looking northwest through the proposed pit design.

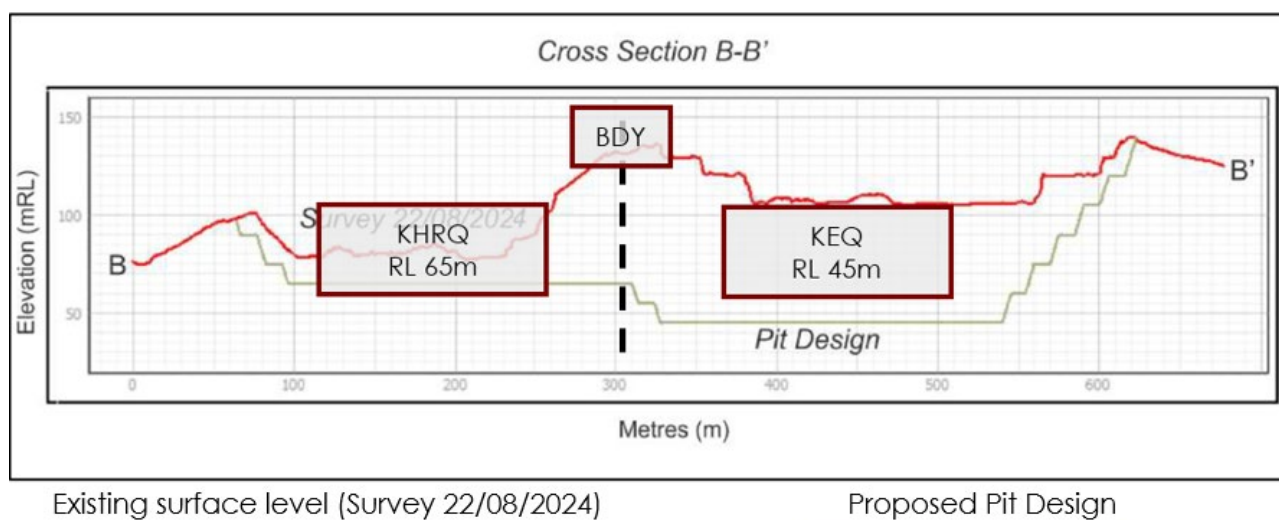


Figure 15: Typical Section of Remnant Highwall Removal on KEQ/KHRQ Boundary

As shown on the currently approved KHRQ quarry site plan under DA 265-10-2005, KHRQ's pit floor falls westward, away from KEQ, at slopes in the order of 1%. As noted in the concurrent SWA prepared for the KHRQ MOD 2 application, a sump will be provided in the KHRQ pit with a storage volume of 8.95 ML. Additionally, a bund wall will be established along the Lot 11/Lot 12 boundary (for the extent of the adjoining KEQ and KHRQ extraction areas) to assist with drainage and safety. The sump and bund wall will ensure that surface water from KHRQ would never overflow into KEQ.

Reciprocally, runoff from the KEQ pit will continue to flow to the east towards Dam 1, via the in-pit sump, through strategic blast design during Stage 2 operations to maintain this flow regime. During extraction stage, extraction will be below RL65m, preventing and flows from KEQ to KHRQ.

The assessment confirms that the established KEQ and KHRQ surface water management systems operate entirely independent of one another at present and will continue to do so following completion of the proposed Karuah pit consolidation project. There is no interaction of runoff between the KEQ and KHRQ pit catchments. The existing management systems at KEQ and KHRQ are not impacted by the proposed Karuah pit consolidation project.

6.5.5 Site Water Balance

Proposed MOD 11 does not create any additional site water demands. The KEQ disturbance area is only modestly increased by the proposed MOD 11 development.

The water balance provided in the approved KEQ Water Management Plan is representative of KEQ prior to and following the completion of proposed MOD 11.

6.5.6 Environment Protection Licence

The KEQ is subject to Environmental Protection License (EPL) 20611, which establishes a Licensed Discharge Point (LDP) for discharge of waters from each of the KEQ's three (3) sediment dams.

Pollutant concentration limits are provided in Section L2 of the EPL and are reproduced below.

Table 28: EPL 20611 Concentration Limits (Point 1,2, 3)

Pollutant	Unit of Measure	100 Percentile Concentration Limit
Oil and Grease	Visible	5 &/or non-visible
pH	pH	6.5-8.5
Total Suspended Solids	Milligrams per litre	40

The MOD 11 proposal does not seek any additional LDPs or changes to the existing LDP. Additionally, the MOD 11 proposal does not propose any variation to concentration limits established by the existing EPL. No variations to EPL 20611 are required in relation to water management.

6.5.7 Closure Arrangements

A concept final Rehabilitation Plan has been developed for KEQ (refer to **Section 6.8.3** of this Modification Report) for the MOD 11 project.

By virtue of the removal of the remnant dividing highwall and pit extension, the proposed amended final landform will become free-draining to Dam 1 via a shaped drainage channel. The pit shell will be rehabilitated as native woodland vegetation.

The in-pit sump will remain in place and utilised as a sediment dam until active management has ceased.

6.5.8 Maximum Harvestable Rights

The MOD 11 proposal seeks to upgrade the established in-pit sump to account for the minor changes to the pit floor's catchment. The in-pit sump is proposed to remain exclusively for sediment control and will not be used for water take/reuse.

In accordance with Schedule 1(3) of the *Water Management Regulation (2018)*, dams used solely to prevent pollution of receiving waters are exempt from Maximum Harvestable Rights. The proposed upgrade to the in-pit sump is therefore exempt from Maximum Harvestable Rights Calculations and does not contribute to KEQ's Maximum Harvestable Rights Dam Capacity (MHRDC).

All other site water storages will remain consistent with existing arrangements with respect to volume and use.

6.5.9 Conclusion

The SWA concludes that the proposed MOD 11 development does not propose or require any significant departures from the approved and established general arrangement of KEQ's surface water management system. The proposed MOD 11 development is acceptable and can be readily managed in terms of surface water considerations.

6.5.10 Mitigation and Management Measures

The following measures will be implemented to accommodate the proposed MOD 11 project at KEQ:

- The approved KEQ Water Management Plan (SLR, May 2019) will be updated to incorporate to the proposed MOD 11 development.
- The existing in-pit sump, (established in accordance with the approved SWA (GSS Environmental, July 2013), will be proportionally upgraded in accordance with the below parameters:

Parameter	Value
Predicted soil loss (m ³ /Ha/Year)	42
Storage Zone ¹ (ML)	14.91
Settling Zone (ML)	0.67
Minimum Volume (ML)	15.57

1. Selected to provide 12 months' sediment storage.

- A bund wall will be constructed on the Lot 11/12 boundary for the extent of the extraction area at the time the KEQ is extracted to approximately RL65m. Sizing will be subject to further detailed design. This information will be included in an update to the approved KEQ Water Management Plan (SLR, May 2019).
- During Stage 2 of the extraction sequence, strategic blasting is to be undertaken to maintain eastward flows in KEQ and westward flows into KHRQ.

- Erosion and sediment controls will be implemented in accordance with the Blue Book Volume 2E (Mines & Quarries). This includes the small catchment within the former powerline corridor which bypasses the extraction area and Dam 1 until extraction has sufficiently progressed.

6.6 Groundwater

EMM was commissioned by the Applicant to undertake a Groundwater Assessment for proposed MOD 11. This assessment is provided within **Appendix K**.

Given that the proposed modification will not affect the final pit floor level of the KEQ (which will remain at RL45m), it is not expected that groundwater will be intercepted or impacted.

6.6.1 Existing Hydrogeology and Groundwater Monitoring Network

The regional groundwater system is characterised as a fractured flow system with low-moderate productivity. Groundwater in the fractured rock groundwater system is present in discrete (secondary porosity) fractures and fissures within the andesite and rhyodacite rather than the bulk rock mass. This is consistent with the observed site geology identified in previous site investigations (Coffey 2012) completed to inform the original KEQ approval. The aquifer is discontinuous and semi confined to confined.

Fractured rock aquifers are generally highly heterogenous in nature and exhibit discontinuous fracture networks, resulting in highly variable groundwater flow, storage and quality. Recharge is by rainfall infiltration at outcrop locations and topographic depressions where surface water can pool. Discharges occur where depressions, rivers or creeks intercept the groundwater table and where geology outcrops and/or sub crops.

KEQ's groundwater monitoring bore network is detailed in **Table 29** and **Figure 16** below. Combined monitoring networks of KEQ, KHRQ and KSQ have been considered.

The groundwater monitoring network is designed to identify long term groundwater level and water quality trends. Consistent with MP 09_0175 and the KEQ Water Management Plan, monitoring occurs on a quarterly basis for groundwater levels and groundwater quality.

Table 29: Groundwater Monitoring Bores

Bore ID	Easting ¹	Northing ¹	Elevation (mAHD ²)	Total Depth (m)	Total Depth (mAHD ²)	Screen Interval (mbgl ³)	Screened Geology
KSQ-BH3	406622	6389254	49.2	40.67	8.53	34.67 – 40.67	Andesite
KSQ-BH4	406759	6389348	55.1	55.75	-0.65	49.10 – 55.10	Andesite
KSQ-BH7	406551	6389169	42.8	43.48	-0.68	34.15 – 40.15	Andesite
KSQ-BH8	406807	6389298	39.2	39.98	-0.78	27.67 – 33.67	Andesite
BH205	407149	6389456	56.87	40	16.87	31.0 – 37.0	Hornblende dacite
BH207	407343	6389088	32.06	30	12.06	10.6 – 28.6	Sandstone
BH208 ⁴	406278	6389771	52.56	30	22.56	17.5 – 20.5	Rhyodacite and conglomerate
BH303	406118	6389723	57.06	35.5	21.56	28.5 – 33.5	Rhyodacite and conglomerate
BH202	407403	63890000	41.1	40	1.1	2.0 – 39.0	Residual soil and Andesite

Bore ID	Easting ¹	Northing ¹	Elevation (mAHD ²)	Total Depth (m)	Total Depth (mAHD ²)	Screen Interval (mbgl ³)	Screened Geology
KSQ-BH3	406622	6389254	49.2	40.67	8.53	34.67 – 40.67	Andesite
KSQ-BH4	406759	6389348	55.1	55.75	-0.65	49.10 – 55.10	Andesite
KSQ-BH7	406551	6389169	42.8	43.48	-0.68	34.15 – 40.15	Andesite
KSQ-BH8	406807	6389298	39.2	39.98	-0.78	27.67 – 33.67	Andesite
BH205	407149	6389456	56.87	40	16.87	31.0 – 37.0	Hornblende dacite
BH207	407343	6389088	32.06	30	12.06	10.6 – 28.6	Sandstone
BH208 ⁴	406278	6389771	52.56	30	22.56	17.5 – 20.5	Rhyodacite and conglomerate
BH303	406118	6389723	57.06	35.5	21.56	28.5 – 33.5	Rhyodacite and conglomerate
BH202	407403	63890000	41.1	40	1.1	2.0 – 39.0	Residual soil and Andesite

Notes: 1. Coordinates in MGA z56H 2. mAHD – metres Australian Height Datum; 3. Mbgl – metres below ground level. 4. BH208 has been decommissioned but has been included for completeness.

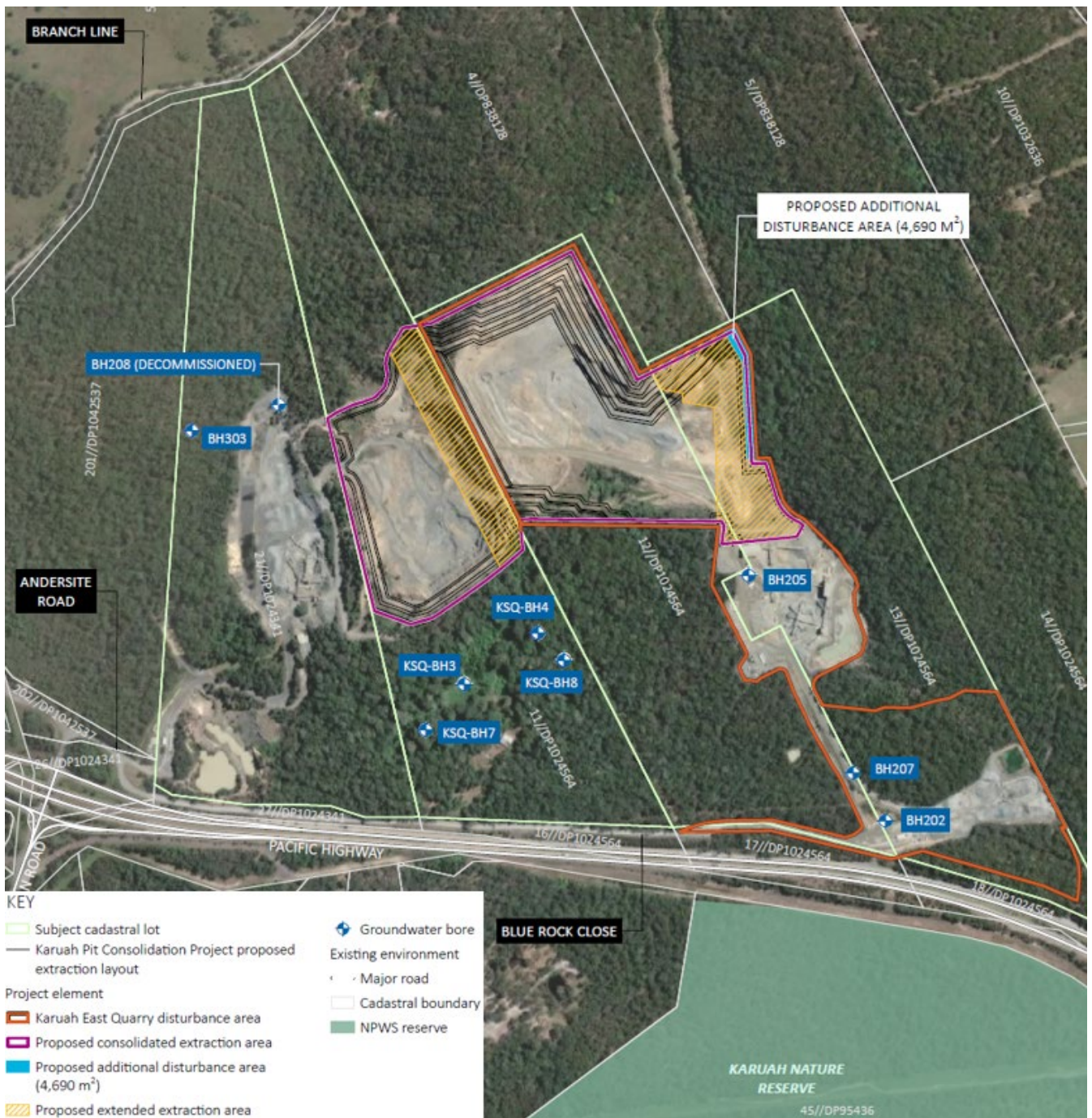


Figure 16: Groundwater Monitoring Bore Network

Groundwater Levels and Flow

The following groundwater trends have been observed:

- From 2017 to date, GW205 and GW207 water levels have increased approximately 9m and 5m respectively. This is considered to be a lagged response from rainfall recharge prior to installation. However, over the last five (5) years, less than a 2.5 m variance in groundwater levels has been observed.
- GW208 and GW303 have shown stable trends since monitoring began in 2016. The historical water level variance across the whole dataset is less than 1.5m. GW208 was damaged beyond repair in mid-2025 and will be decommissioned.

- GW202 was recently included in the monitoring network and has less than one year of monitoring data. The groundwater level is stable.
- The recent data for the KSQ monitoring bores are limited with only one measurement in September 2025 for KSQ-BH3 and KSQ-BH4. KSQ-BH7 and KSQ-BH8 were inaccessible due to vegetation regrowth. The Karuah South Quarry Groundwater Assessment (undertaken as part of SSD-8795) monitored water levels for seven months between April 2018 to November 2018.

The assessment found that water levels at KSQ-BH4, KSQ-BH7 and KSQ-BH8 were relatively static with no correlation to rainfall. KSQ-BH3 water levels fluctuated with rainfall events. The water level measurements between 2017 and September 2025 were consistent for KSQ-BH3 and increased by approximately 6.5m at KSQ-BH4. Further monitoring will be undertaken required to confirm if the increase is representative.

- The highest water level recorded across the site was approximately 42m AHD at KSQ-BH3 which is located downgradient 250 m south-west from the KEQ extraction area.

Groundwater piezometric surface contours completed in September 2025 notes:

- There is no difference between the wet and dry season contours patterns.
- KEQ (located on the hill) is a groundwater divide, with contours showing groundwater flows to the North-west and to the South-east away from the KEQ.
- The interpreted groundwater level under the quarry extraction area ranges between 32m to 39m AHD which is below the approved KEQ pit floor at 45m AHD (which is not proposed to change as part of the MOD 11 development).

Groundwater Quality

Groundwater quality samples have been collected quarterly since 2016. Groundwater quality can be described as:

- Moderately acidic to neutral.
- Salinity is generally brackish.
- Metal concentrations were mostly below the guideline value with the exception of some bores where elevated concentrations of arsenic, iron, nickel and zinc were measured.
- Nutrients are present, possibly due to the use of explosives when quarrying and/or surrounding agricultural land use practices.
- Benzene, toluene, ethylbenzene and xylene (BTEX), poly aromatic hydrocarbons (PAH), pesticides and petroleum hydrocarbon results were below the laboratory limits of reporting (LOR).
- Total recoverable hydrocarbon (TRH) was generally below the Laboratory Limits of Reporting (LOR).

Hydrogeological Conceptual Model

A hydrogeological conceptual diagram was developed for the proposed Karuah Pit Consolidation Project (refer below). The main characteristics of the hydrogeological system are as follows:

- The hard rock aquifer is semi-confined to confined with low primary porosity and groundwater flow is controlled by secondary porosity through a network of discontinuous fractures within the rock matrix.
- Seasonal perching is possible in deeply weathered rock due to residual clays.
- Any interception of groundwater perching, seepages or interflow in the unsaturated zone is expected to be minor. Evaporative potential is expected to exceed any potential inflow.
- The ionic composition of the groundwater broadly falls into the sodium chloride type which indicates a rainfall dominant recharge groundwater system.
- Groundwater discharges where creeks and rivers intercept the water table, and where the geology outcrops or subcrops.

- The groundwater level is relatively stable and does not display much variation. The groundwater table generally follows the topography.
- The highest water level recorded across the monitoring network was approximately 42m AHD at KSQ-BH3 which is located approximately 250 m south-west, downgradient from the extraction area of the KEQ.
- The interpolated groundwater level under the consolidated extraction area ranges between 32m to 39m AHD. The existing approved extraction depth of 45m AHD at KEQ (which is not proposed to change) is above the groundwater watertable.

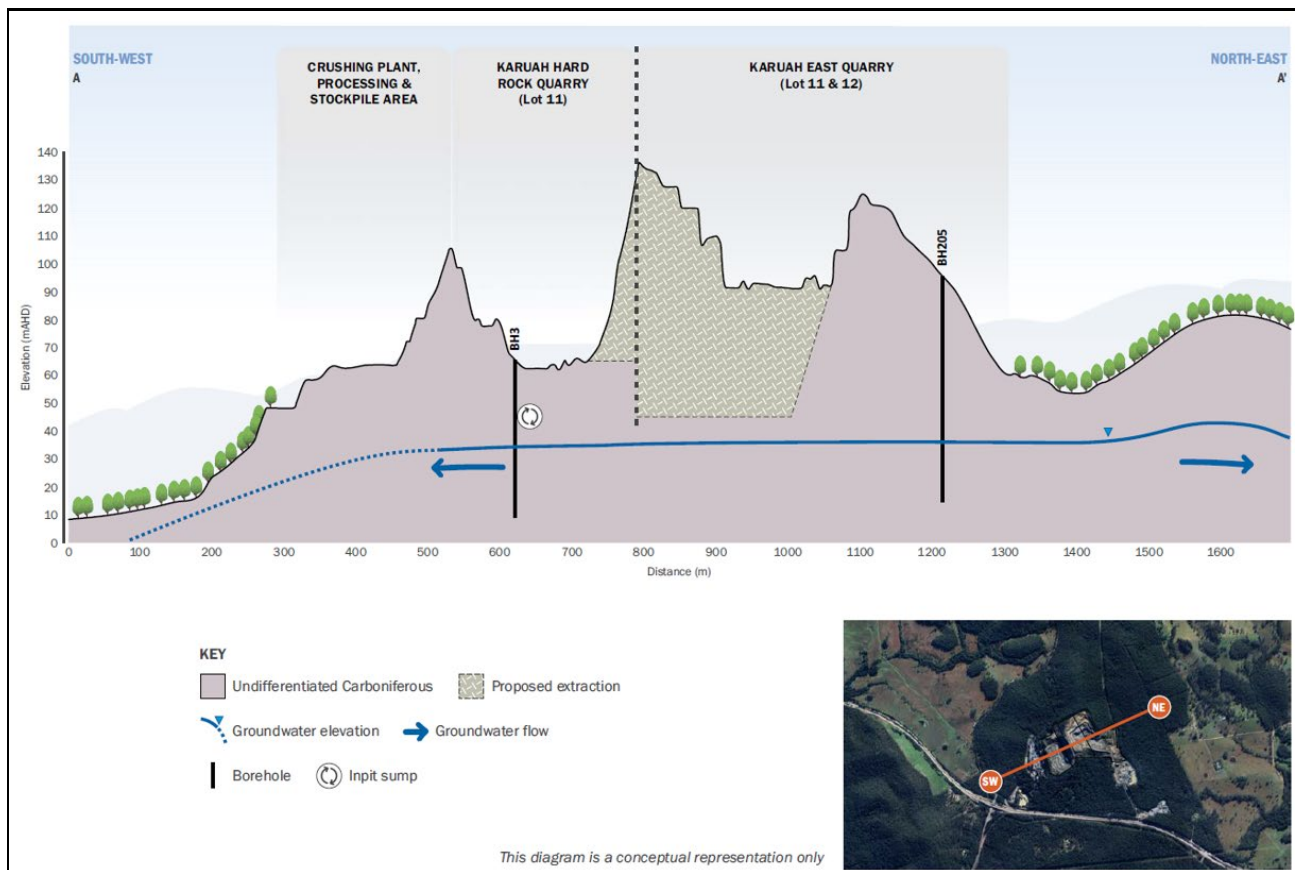


Figure 17: Hydrogeological Conceptual Diagram

6.6.2 Impact Assessment

Groundwater will not be intercepted by the proposed KEQ MOD 11 development. The indicative groundwater level under the quarry extraction area is between 32m to 39m AHD with water level fluctuations of less than 2.5 m. The final KEQ pit floor will remain unchanged at 45m AHD (the existing approved depth), which is approximately 6 m above the maximum groundwater level under the quarry extraction area.

Groundwater seepages from the unsaturated zone are minor and is expected to be controlled by evaporation. There is no evidence of groundwater inflow at the existing quarry pit walls at KEQ and KHRQ.

Aquifer Interference

The NSW Aquifer Interference Policy (AIP) has been considered and is not applicable to the MOD 11 development noting the following:

- There will be no groundwater take because the proposed MOD 11 application will not extract below the groundwater table.
- Proposed MOD 11 will not alter the existing groundwater levels or flow direction and is not expected to impact down hydraulic gradient groundwater users.

- Proposed MOD 11 will not intercept groundwater and is not expected to impact the supply of the closest landholder bore (GW201611) which is located approximately 3 km north-west of the subject site.

Groundwater Quality

The key risk for consideration of potential impacts from MOD 11 is potential groundwater contamination resulting from quarry operations. (e.g. potential diesel spills).

Any potential groundwater contamination is expected to be minor and localised to within the project area where there are no groundwater users (GDEs or third party bores).

Mitigation measures can be readily implemented to minimise any risk. These are provided in **Section 6.6.4** below.

Development of Groundwater Triggers

Groundwater level and quality triggers will be developed and incorporated in an updated Water Management Plan post determination of MOD 11.

The triggers will support a tiered Trigger Action Response Plan so that 'minor' and 'major' changes in groundwater levels and quality are clear and can be reported against.

Licensing

Proposed MOD 11 will not intersect or take any groundwater; therefore, no groundwater licencing is required.

The site water demands are supplied from captured runoff stored in onsite dams under the maximum harvestable right for coastal drainage catchments.

6.6.3 Conclusion

The Groundwater Assessment confirms that the proposed MOD 11 project is acceptable in terms of groundwater considerations provided that the below mitigation and management measures are implemented.

6.6.4 Mitigation and Management Measures

The following mitigation measures will be implemented to minimise potential groundwater impacts associated with the MOD 11 proposal:

- Benches and pit floor will be graded to promote drainage toward the entrance of the extraction area.
- Minor seepage and ponding of water resulting from excessive rainfall/runoff will be managed by conventional drainage measures within the quarry such as periodic pumping of in-pit sumps out to the surrounding drainage controls. Water will be retained on-site for quarry operations and for environmental mitigation.
- Refuelling will be undertaken in the designated non-permeable refuelling areas.
- Runoff water from the site will be collected and monitored for environmental mitigation to prevent chemicals and hydrocarbons such as petroleum, diesel, and oil seeping into the groundwater system.
- Handling and storage of fuel and oil within the project site will be in accordance with the Australian Standards, AS 1940-2004 (Storage and Handling of Flammable and Combustible Liquids) and NSW Work Cover 2005 Code of Practice for Storage and Handling of Dangerous Goods to reduce the risk of any spills or environmental release. Above ground storage in a bunded facility will be used.
- Safety Data Sheets (SDS) will be kept in the site safety system for all chemicals used on site. The SDS's will contain information on the environmental impacts of the use of certain chemicals and include detail on emergency response, clean up and disposal. Handling and storage of all chemicals within the project sites will be in accordance with Dangerous Goods Act 1975 (NSW), and Australian standards, including AS1940-2004 (Storage and Handling of Flammable and Combustible Liquids).

- Groundwater level and quality monitoring will continue in accordance with the established Water Management Plan for the Karuah East Quarry to identify any potential contamination resulting from quarry operations.
- Quarry rehabilitation will occur consistent with the Rehabilitation and Closure Strategy (IEMA, 2026) prepared for MOD 11 and the KEQ Landscape & Rehabilitation Management Plan.
- An updated Water Management Plan reflecting the proposed KEQ MOD 11 development will be prepared.
- Groundwater level and quality triggers will be developed and incorporated into the updated Water Management Plan post determination of MOD 11.

6.7 Visual

Terras Landscape Architects were commissioned by the Applicant to prepare a Visual Impact Assessment (VIA) for the proposed MOD 11 development.

To assess the visual impacts of the proposed development holistically, the VIA for the KEQ considers visual amenity for sensitive features to the Karuah Quarry Complex east of the site. The separate VIA for the KHRQ (prepared as part of the KHRQ MOD 2 application) considers visual amenity from the west.

The MOD 11 VIA is enclosed as **Appendix L**.

6.7.1 Assessment Methodology

The assessment methodology for the VIA included:

- Systematically evaluating the visual environment pertaining to the site and using value judgements based on responses to scenery. This identifies aspects that are more objective (such as physical setting, character and visibility of a proposal), from more subjective aspects, such as the compatibility of the proposal within the setting.
- Visual data collection that involved a systematic evaluation of the visual environment from relevant viewpoints through fieldwork to determine the actual potential for views to the site.
- The selection of viewpoints was based on locations where potential for views of the proposed development will occur. Viewpoint selection criteria included:
 - Consideration of where views can be obtained from publicly frequented locations, such as major traffic corridors;
 - Prominent look-outs or locations of high scenic value; or
 - Where members of the local community may be affected.

6.7.2 Visual Environment

The location of the site features a mix of natural features and established quarries, resulting in a limited variety of landscape settings and characters. Four (4) key landscape character units are identifiable within a 1 km radius of the site. These are:

1. Major Transport Corridor;
2. Quarry / Infrastructure;
3. Cleared / Grassland; and
4. Vegetation.

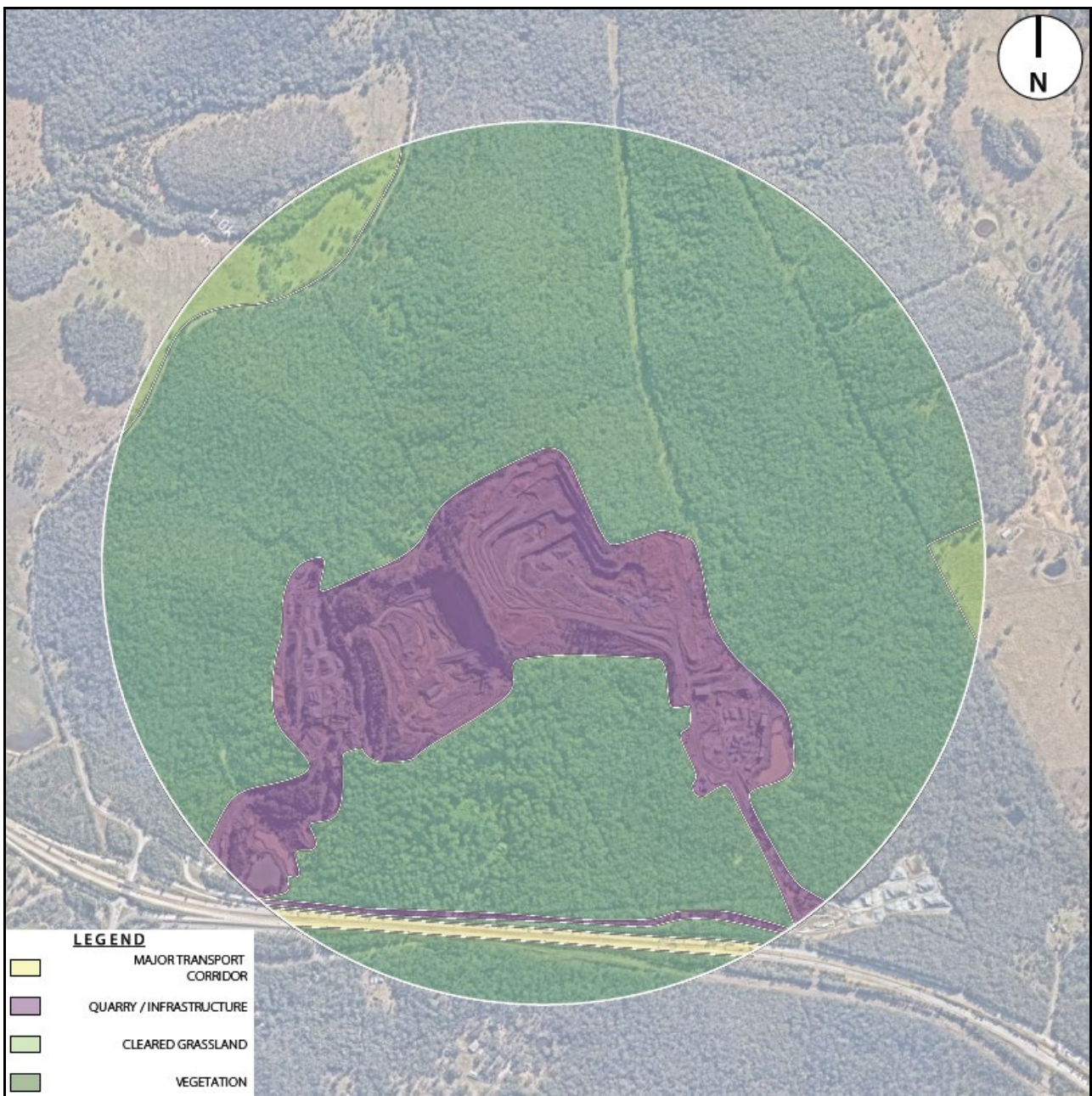


Figure 18: Landscape Character Units Surrounding the Subject Site

Due to local topography, existing vegetation, access and existing development, views to the site are generally limited to less than 1,500m except for filtered views from further distances.

Provided below are viewpoint locations (**Figure 19**) and a viewshed analysis diagram (**Figure 20**).

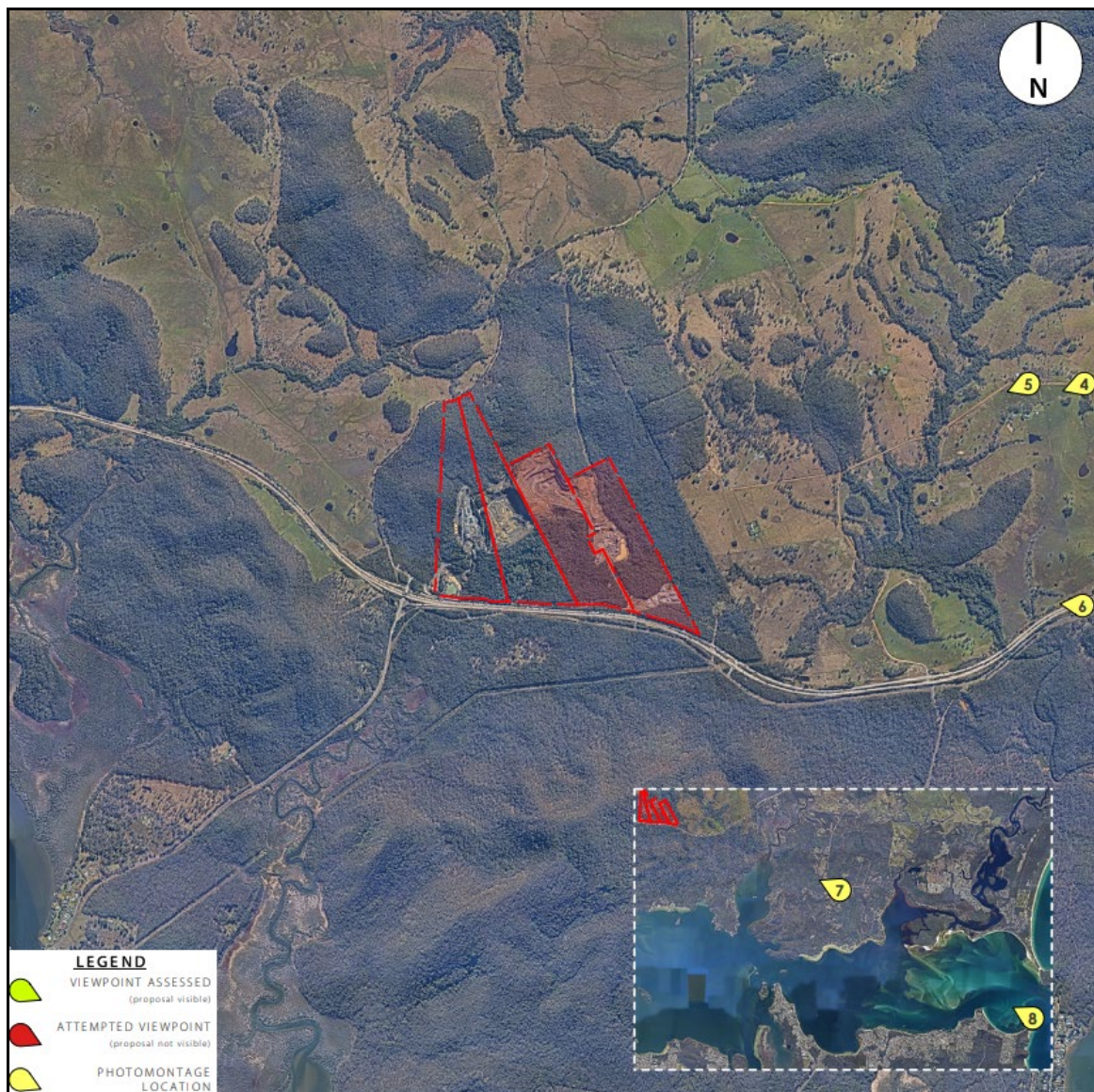


Figure 19: Viewpoint Locations



Figure 20: Viewshed Diagram

6.7.3 Visual Impact Assessment

For the purposes of the MOD 11 Application, the VIA for the KEQ considers Viewpoints 4 to 8 whilst the separately prepared VIA for the KHRQ MOD 2 application considers Viewpoints 1, 2 and 3.

From each of the viewpoint locations, assessment criteria was applied including landscape values, viewer access, visual quality, visual sensitivity, magnitude of change with the subsequent visual impact calculated. The results of the assessment are summarised in **Figure 21** below.

VIEWPOINT SUMMARY					
	ACCESS	SENSITIVITY	MAGNITUDE	IMPACT	ASSESSED IMPACT
Viewpoint 4 / Photomontage Location: Halloran Road, Facing West	LOW	LOW	LOW	LOW	LOW
Viewpoint 5 / Photomontage Location: Halloran Road, Facing West	LOW	NEGLIGIBLE	LOW	NEGLIGIBLE	NEGLIGIBLE
Viewpoint 6 / Photomontage Pacific Highway, Heading West	LOW	LOW	LOW	LOW	LOW
Viewpoint 7 Location: Clarke Road, Facing North-west	MODERATE	LOW	NEGLIGIBLE	LOW	NEGLIGIBLE
Viewpoint 8 Tomaree Head Summit Lookout, Facing West	LOW	LOW	NEGLIGIBLE	NEGLIGIBLE	NEGLIGIBLE

Figure 21: Viewpoint Summary Table

Viewpoint 4 – Halloran Road, Facing West

Viewpoint 4 is located facing west on Halloran Road, approximately 3.9 km to the east of the site.

Viewpoint 4 is taken from the east of the proposal site, specifically along Halloran Road. This viewpoint has a limited number of viewers, mainly accessible to those living on this road due to the lack of a thoroughfare. Currently, there is a view of the highwall, but this will be reduced with the proposed removal of the remnant highwall. The visual impact from this location is assessed as low and regarded as a positive change due to the reduced visibility of the KEQ compared to its current state.

Relevant to viewpoint 4, provided below is a comparison of the existing view as well as an indicative montage of the final landform of the proposed development.



Figure 22: Viewpoint 4 – Existing View & Indicative Montage of Proposal

Viewpoint 5 – Halloran Road, Facing West

Viewpoint 5 is located facing west on Halloran Road, approximately 3.6 km to the east of the site.

Viewpoint 5 is taken from Halloran Road to the east of the proposal site, where there are few viewers and a very brief viewing time, leading to negligible visual sensitivity from this minor road. The magnitude of change is considered low, as there will be no new views of the proposal. The visual impact is low, but it is considered a positive outcome since existing quarry views will be removed and screened by foreground vegetation.

Relevant to viewpoint 5, provided below is a comparison of the existing view as well as an indicative montage of the final landform of the proposed development.



Figure 23: Viewpoint 5 – Existing View & Indicative Montage of Proposal

Viewpoint 6 – Pacific Highway, Heading East

Viewpoint 6 is located heading east along the Pacific Highway, approximately 4.2 km east of the site.

Viewpoint 6 reflects typical views when driving southbound along the Pacific Highway. There is a brief section of the Highway where the existing site is visible, however this is a momentary view noting the 110 km/h speed limit. Despite high viewer numbers, the distance from the site and minimal viewing time result in a low positive visual impact, as the proposed works will eliminate an existing obtrusive component in the landscape.

Relevant to viewpoint 6, provided below is a comparison of the existing view as well as an indicative montage of the final landform of the proposed development.



Figure 24: Viewpoint 6 – Existing View & Indicative Montage of Proposal

Viewpoint 7 – Clarke Road, Facing North-west

Viewpoint 7 is located along Clarke Road, approximately 9 km south-east of the site.

Viewpoint 7 has a negligible visual impact because the views from this location are separated by such a significant distance that the proposal does not present any visual change compared to the existing views towards the KEQ.

Figure 25 below shows viewpoint 7 towards the KEQ.



Figure 25: Viewpoint 7 – View towards the Site Showing Approximate Extents of KEQ

Viewpoint 8 – Tomaree Head Summit Lookout, Facing North-west

Viewpoint 8 is located at the Tomaree Head summit lookout, approximately 19.7 km south-east of the site.

Viewpoint 8 has a negligible visual impact because the views from this location are separated by such a significant distance that the proposal does not present any visual change compared to the existing views towards the KEQ.

Figure 26 below shows viewpoint 8 towards the KEQ.

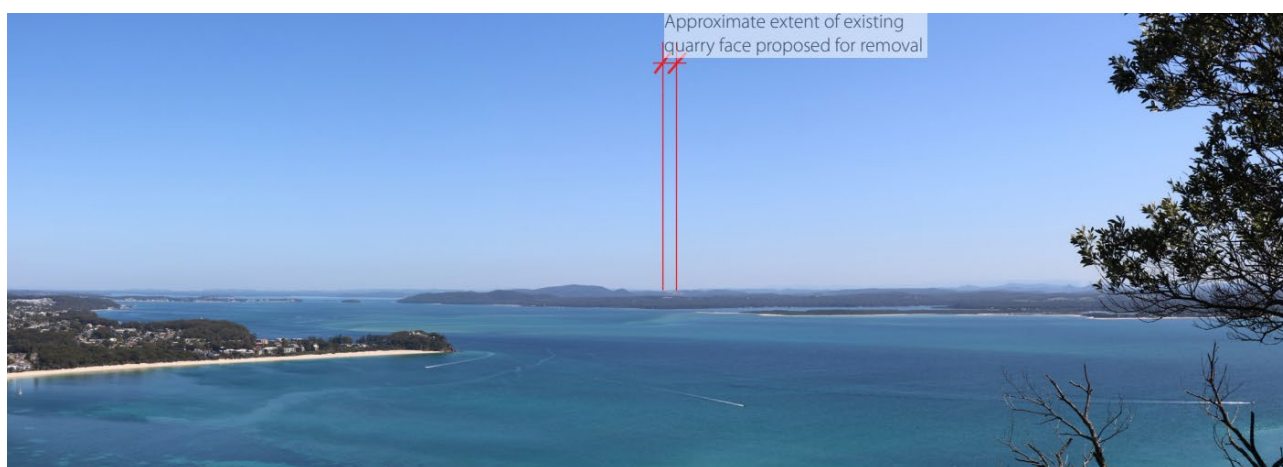


Figure 26: Viewpoint 8 – View towards the Site Showing Approximate Extents of KEQ

Sectional Profiles – Rural Residential Properties

The VIA considers the potential effects of the proposed development on local rural residential properties in the locality. Sectional profiles were created to illustrate the existing views that nearby residents currently experience when looking toward the site.

The locations of sectional profiles are identified in Figure 27 below.

For the purposes of the MOD 11 application, the VIA for the KEQ considers residences 1 to 9 whilst the VIA for the concurrent KHRQ MOD 2 application considers residences 10, 11 and 12.

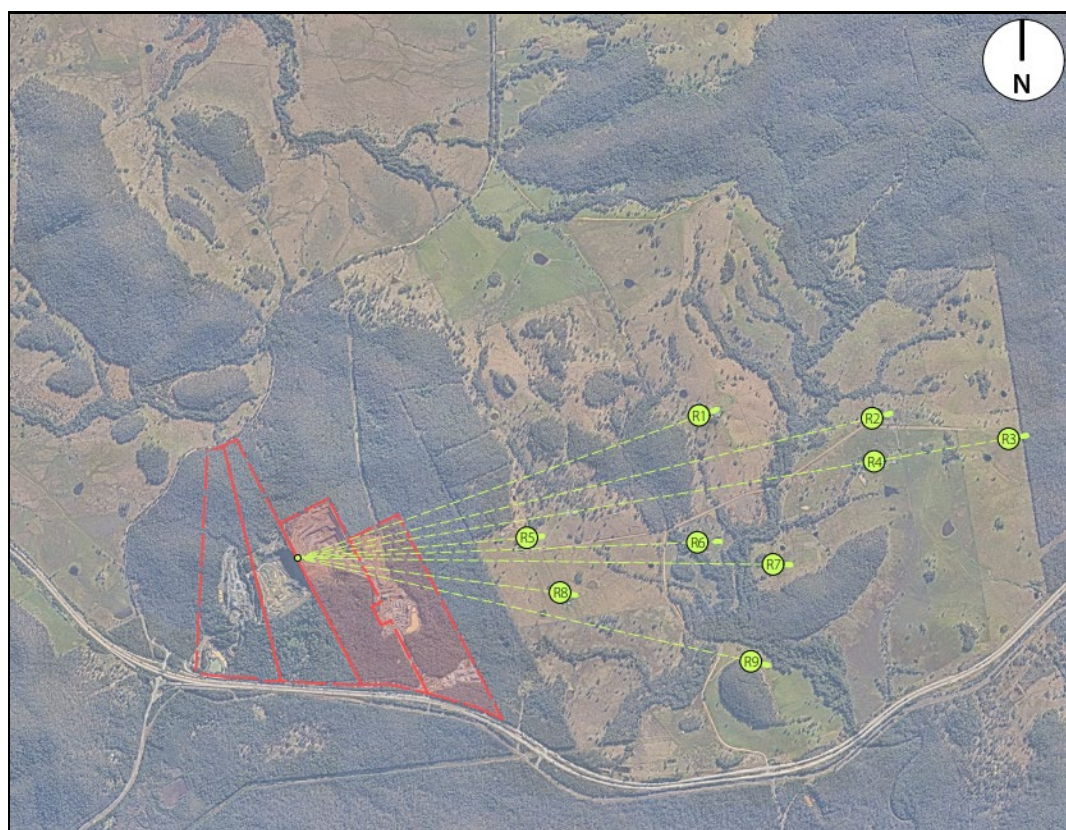


Figure 27: Sectional Profile Locations

Residencies 1

Residencies 1 are located at 129 and 159 Halloran Road, approximately 2.4 km from the KEQ.

3D modelling shows that the KEQ is not visible from these residencies due to existing vegetation within the property boundaries. The visual impact of the proposed MOD 11 development on residencies 1 is considered nil.

Residencies 2

Residencies 2 are located at 191 and 245 Halloran Road, approximately 3.5 km from the KEQ.

3D modelling shows that the KEQ is not visible from these residencies due to existing vegetation. The visual impact of the proposed MOD 11 development on residencies 2 is considered nil.

Residence 3

Residence 3 is located at 314 Halloran Road, approximately 4.3 km from the proposed works.

3D modelling shows that the KEQ is not visible from the residence due to existing vegetation. The visual impact of the proposed MOD 11 development on residence 3 is considered nil.

Residence 4

Residence 4 is located at 238 Halloran Road, approximately 3.7 km from the KEQ.

3D modelling shows that the KEQ is visible from the residence.

The proposed removal of the remnant dividing highwall is likely to reduce these views, there may be some views of the northern face. The visual impact of the proposed MOD 11 development on residence 4 is considered negligible.

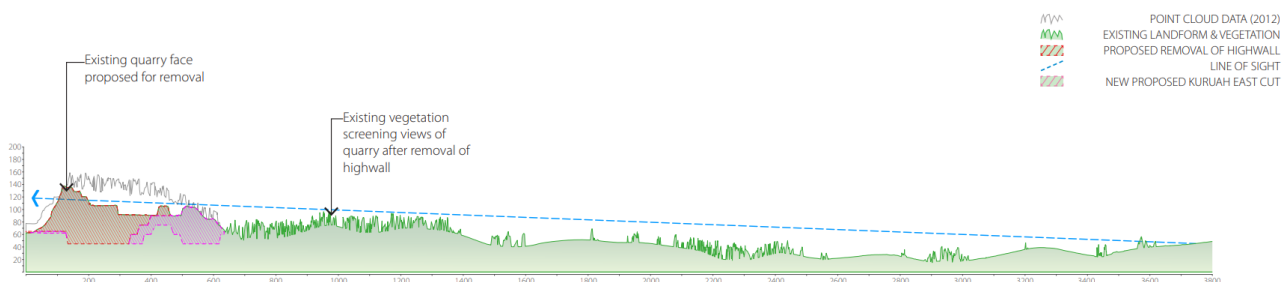


Figure 28: Sectional Profile of Residence 4

Residencies 5

Residencies 5 are located at 21, 51 and 83 Halloran Road, approximately 1.5 km from the proposed works.

3D modelling shows that the KEQ is not visible from these residencies due to existing foreground vegetation. The visual impact of the proposed MOD 11 development on residencies 5 is considered nil.

Residence 6

Residence 6 is located at 126 Halloran Road, approximately 2.4 km from the proposed works.

3D modelling shows that the existing quarry is not visible from the residence due to existing foreground vegetation. The visual impact of the proposed MOD 11 development on residence 6 is considered nil.

Residence 7

Residence 7 is located at 182 Halloran Road, approximately 2.9 km from the proposed works.

3D modelling shows that the KEQ is not visible from the residence due to existing foreground vegetation. The visual impact of the proposed MOD 11 development on residences 7 is considered nil.

Residencies 8

Residence 8 is located at 2 Halloran Road, approximately 1.7 km from the proposed works.

3D modelling shows that the existing KEQ is visible from the residencies.

The proposed removal of the remnant dividing highwall will reduce views of the KEQ. Existing vegetation in the foreground will screen the quarry from view. The visual impact of the proposed MOD 11 development on residence 8 is considered negligible.

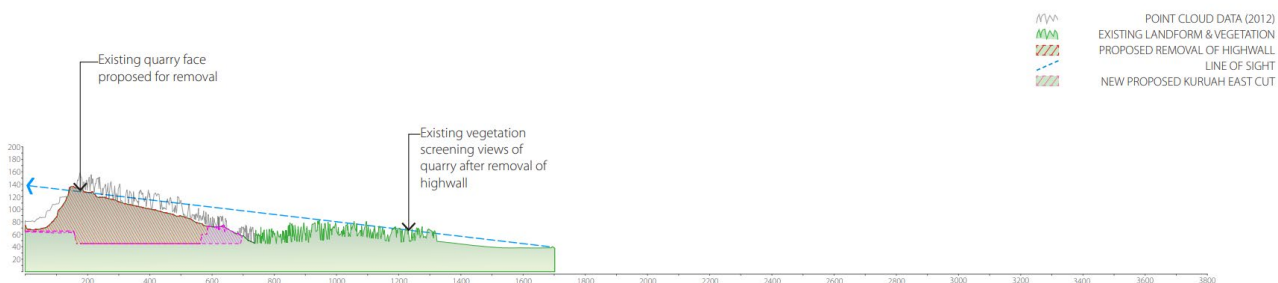


Figure 29: Sectional Profile of Residence 8

Residence 9

Residence 9 is located at 68 Halloran Road, approximately 2.9 km from the proposed works.

Indicative cross sections using 3D modelling shows that the KEQ is not visible from this residence due to existing foreground vegetation. The visual impact of the proposed MOD 11 development on residence 9 is considered nil.

6.7.4 Conclusion

The VIA concludes that a review of the visual catchment for the proposed development indicates that views from the east of the subject site are limited along the Pacific Highway and Halloran Road. Distant public views with are available from elevated areas, such as Shoal Bay.

The clear and filtered views from the Pacific Highway are minimal and are experienced from the perspective of a vehicle traveling at 110 km/h.

The views of the existing quarry face of the KEQ from nearby rural residential properties (2 Halloran Road and 238 Halloran Road) are expected to be eliminated or significantly diminished as a result of the proposal.

Distant views from Clarke Road and Shoal Bay lack sufficient detail to discern specific aspects of the site and the proposed removal of the remnant dividing highwall will result in a benign change from these locations, offering neither beneficial nor adverse visual contrast compared to the current state.

Overall, the proposal has a low to negligible cumulative visual impact, with a beneficial effect on the landscape, as the proposed works will eliminate most views of the site from surrounding areas. By removing views of the existing KEQ, the proposed changes will enhance the visual character through better integration with the landscape.

6.7.5 Mitigation and Management Measures

There are no mitigation measures recommended by the VIA due to the overall positive visual impact the proposal is to have on the visual character of the landscape.

6.8 Rehabilitation and Closure Strategy

IEMA was commissioned by the Applicant to prepare a Rehabilitation and Closure Strategy (RCS) for the proposed MOD 11 development, which is provided in **Appendix M**.

The purpose of the RCS was to confirm that rehabilitation objectives, completion criteria and overarching management approaches as established within MP09_0175 and the KEQ Landscape and Rehabilitation Management Plan (L&RMP) remain appropriate and generally consistent with the NSW Mine Rehabilitation and Closure Planning Guidelines (2021) issued by the NSW Resources Regulator within the Department of Primary Industries and Regional Development (DPIRD).

6.8.1 Proposed MOD 11 Rehabilitation and Closure Context

At the closure phase of the KEQ, the proposed MOD 11 application (and concurrent MOD 2 application to KHRQ) will have resulted in the extraction of the remnant dividing highwall between the KEQ and KHRQ and extended the extraction area into other currently disturbed areas of the KEQ. This will alter the currently approved final landform from two (2) separate quarry voids divided by a remnant highwall to a single consolidated quarry pit that is overall free draining as well as improving long term stability and integration with the surrounding environment to achieve a safe, stable and non-polluting post-quarry landform. Areas around the quarry pit (including remaining overburden) will be shaped, topsoiled and rehabilitated using a woodland seed mix.

Existing water management infrastructure, including sediment dams, will remain to manage surface water flows from the entire CEA in a staged manner. Surface water from the adjoining KHRQ pit will initially drain into the in-pit sump sediment dam before discharge via a purpose-built spillway, channel and drop structure into the KEQ drainage system. A shaped water channel across the KEQ pit will then convey flows in a controlled manner to the existing KEQ Dam 1. The area will be rehabilitated to woodland post closure land use consistent with the surrounding site.

The sediment dams will remain in place after closure, and if necessary, will be reshaped as part of the site decommissioning works. KEQPL will ensure they are safe, stable and non-polluting. Sediment dams will also be desilted to increase capacity to accept dirty water during the rehabilitation phases.

A summary of the key changes as they relate to the Karuah Quarry Complex (i.e. KEQ and KHRQ) is provided below.

Table 30: Summary of Key Changes to Rehabilitation at the Karuah Quarry Complex

Key Area	Description
Lot 21 (KHRQ)	Lot 21 contains the existing plant, processing and stockpile areas for the KHRQ. This area will be rehabilitated to woodland vegetation with retained water sources associated with the current water management infrastructure. No changes are proposed.
Lot 11 (KHRQ extraction area)	Lot 11 contains the current extraction area for the KHRQ and is currently approved to remain as a flooded quarry void at closure. The project proposes to remove the eastern highwall creating a free-draining landscape, that discharges to the KEQ water management system. This change results in the flooded void being replaced with woodland vegetation and a retained water source associated with the conversion of the in-pit sump to a permanent sediment dam. This change is addressed within the concurrent MOD 2 application to KHRQ.
Lot 12 & Lot 13 (KEQ extraction area)	Lots 12 and 13 contain the current extraction area for the KEQ and is currently approved to remain as a flooded void with wetland vegetation at closure. The project proposes to remove the western highwall that will enable the receipt of surface water discharges from the KHRQ extraction area on Lot 11.

Key Area	Description
	Additionally, it is proposed to extend the extraction area within currently disturbed areas to the east and south to create a free draining environment to the existing KEQ Dam 1 (south of the plant and processing area). This change results in the flooded void and associated wetland vegetation being replaced with woodland vegetation consistent with other rehabilitation domains and the surrounding vegetation communities within the Karuah Quarry Complex. No other rehabilitation change area proposed as part of the project.
Lot 13 (KEQ additional disturbance)	An approximate 0.47 ha extension is proposed at the north-eastern boundary of the KEQ disturbance footprint from a now redundant powerline corridor containing disturbed exotic vegetation that was historically cleared. This area is proposed to be rehabilitated with woodland vegetation.

6.8.2 Established KEQ Landscape & Rehabilitation Management Plan

The established KEQ Landscape and Rehabilitation Management Plan (L&RMP) (IEMA & WPC, October 2024) was developed from the rehabilitation objectives provided by Schedule 3, Condition 30 of MP09_0175 and is currently implemented by KEQPL.

The intent of the key rehabilitation and closure objectives, methodologies, monitoring programs, performance standards and completion criteria from the L&RMP have been applied for the proposed MOD 11 project.

The L&RMP currently includes rehabilitation objectives, including the provision of wetland vegetation across the quarry floor, which is proposed to be replaced by woodland vegetation consistent with other rehabilitation domains and the surrounding vegetation communities within the Karuah Quarry Complex.

Whilst the proposed MOD 11 development does not materially alter the rehabilitation scope, closure liability or post quarry land use outcomes established for the KEQ within MP09_0175 and L&RMP, the RCS applies current rehabilitation principles to establish clear rehabilitation objects for the Project Approval as proposed to be modified by MOD 11 (including objectives to revegetate the proposed additional 4,690 m² disturbance area to woodland vegetation) and subsequent revision to the L&RMP post determination of the MOD 11 application.

A minor adjustment to the current rehabilitation objectives will be required by replacing the flooded final void and wetland vegetation with woodland vegetation across the quarry pit floor.

The objectives, methodologies and completion criteria set out in the approved L&RMP have been reviewed in the context of proposed MOD 11 and it is considered that the proposed modification does not result in an adverse change to rehabilitation outcomes.

6.8.3 Rehabilitation and Closure Domains

Rehabilitation and closure domains for the KEQ have been developed with reference to the approved KEQ L&RMP and the previously approved MOD 10 RCS. They have been refined to reflect the proposed MOD 11 development.

The intended post-closure landform outcomes (the final landform) are identified within Figure 30 below and summarised into the following domains:

- Domain 1 Woodland Rehabilitation.
- Domain 2 Benches.
- Domain 3 Water Management (inclusive of infrastructure i.e. sediment dams).
- Domain 4 Haul Roads.

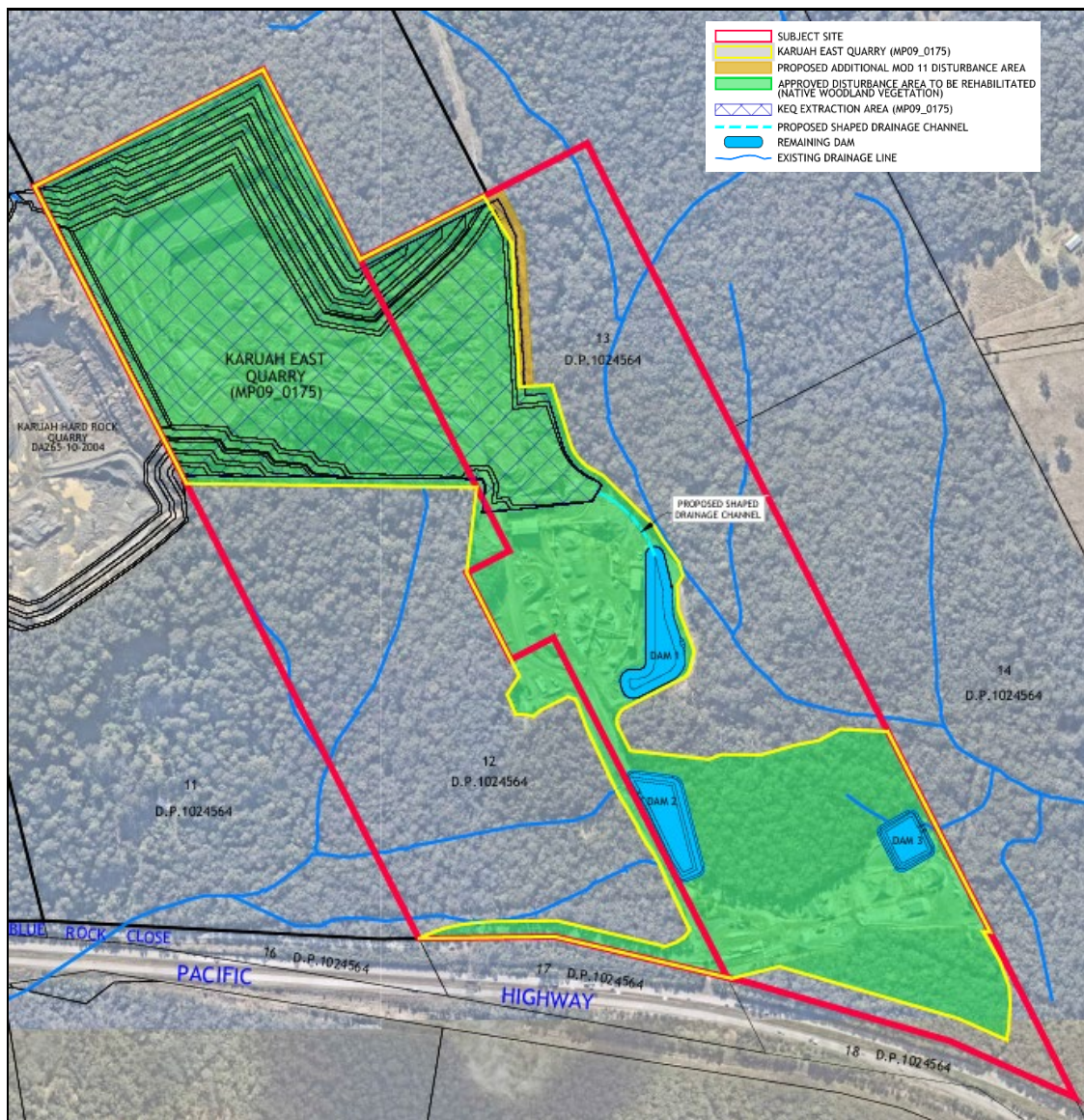


Figure 30: Concept Final Rehabilitation Plan

6.8.4 Rehabilitation and Closure Objectives

While the KEQ and KHRQ remain subject to separate approvals, it is logical for the rehabilitation objectives for both sites to be aligned in intent, reflecting the shared outcomes of landform stability, safety, controlled drainage and rehabilitation to woodland vegetation.

Schedule 3, Condition 30 of MP09_0175 provides statutory rehabilitation objectives for the KEQ based on the approved quarry layout. The rehabilitation objectives and refinements to facilitate proposed MOD 11 are outlined in Table 31 below.

Table 31: Rehabilitation Objectives from Project Approval (MP09_0175) & Proposed Changes

Feature	Current Objectives	Proposed Change
Site (as a whole)	Safe, stable & non-polluting.	No change.
Surface infrastructure	To be decommissioned and removed, unless the Planning Secretary agrees otherwise.	No change.
Quarry Wall Benches	Landscaped and revegetated utilising native tree and understorey species, ensuring that the tree canopy is restored and integrated with the surrounding tree canopy.	No change.

Feature	Current Objectives	Proposed Change
Quarry Pit Floor	Landscaped and revegetated with wetland vegetation.	Landscaped and revegetated with woodland vegetation.
Other land affected by the development	- Restore ecosystem function, including maintaining or establishing self-sustaining eco-systems comprised of: - Native endemic species; and - A landform consistent with the surrounding environment.	No change.
Community	- Ensure public safety. - Minimise the adverse socio-economic effects associated with quarry closure.	No change.

6.8.5 Conceptual Rehabilitation and Closure Completion Criteria

Conceptual rehabilitation success criteria has been developed to provide long-term performance goals for rehabilitation activities associated with the following:

- Benches, including closure success criteria for:
 - Landform stability;
 - Topsoil material;
 - Vegetation; and
 - Safety.
- Quarry plant and stockpile areas, including closure success criteria for:
 - Landform stability;
 - Topsoil material;
 - Vegetation;
 - Fauna; and
 - Safety.
- Dams, including closure success criteria for water quality.

6.8.6 Rehabilitation and Closure Methodology

The adopted 'Form and Way: Rehabilitation Management Plan for Large Mines' (DPIRD, 2025), while designed for mine sites, also discusses the key phases required to achieve successful rehabilitation and closure of a quarry. Relevant to the proposed MOD 11 development, the following is noted:

- Active Quarrying

Vegetation clearing associated with MOD 11 will be undertaken in accordance with the controls established within the current L&RMP. This includes procedures relating to clearing of vegetation, seed collection and topsoil stripping.

- Decommissioning

Decommissioning of the administration building will occur, with opportunities for the sale and/or re-use of assets and recycling of scrap steel will be maximised at closure. Prior to closure, KEQ will undertake an investigation to locate any type of underground service such as conduit, cables and pipe work associated with the administration building.

Concrete footings and pads (likely associated with the admin building) will be broken up to at least 0.5 m below the surface and removed. Options for the re-use of this material (for example, recycled aggregates) will be investigated as the operation approaches closure. If re-use or recycling opportunities aren't available or viable, all "non-contaminated" waste material will be disposed of at a suitable location on-site or taken off-site to a licensed waste management facility. Once operations have ceased, all buildings and infrastructure will be removed from the hardstand.

Sediment dams (Dams 1, 2 and 3) will be retained as permanent water management infrastructure unless otherwise agreed with the Planning Secretary. During rehabilitation and prior to closure sign-off, dams will be desilted and reshaped where necessary to maintain capacity, structural integrity and safe operation.

Each structure will be assessed to confirm it is safe, stable and non-polluting, consistent with Schedule 3 rehabilitation objectives and the approved post-quarry land use.

- Landform Establishment

Proposed MOD 11 will refine the approved landform establishment phase through removal of the remnant dividing highwall and consolidation of the adjoining quarry pits into a single, free draining landform. The MOD 11 disturbance area will be shaped to the current KEQ L&RMP as it will be used for stockpile storage. Only a small amount of shaping will be required at closure to achieve the consent objective of 'safe, stable and non-polluting'.

Further ripping may also be required during the landform establishment phase. The consolidated landform eliminates the remnant dividing highwall and reduces long-term rockfall and instability risk. Final batters and benches will be constructed consistent with appropriate geotechnical parameters and drainage gradients will ensure no permanent ponding within the pit floor.

- Surface Water and Drainage Integration

Water management infrastructure is addressed as a functional component supporting landform stability and rehabilitation outcomes. A stabilised drainage line and drop structure will be established to convey surface water from the converted KHRQ in-pit sump (RL65m) to the KEQ pit's water management system (RL45m). Flows will be managed within the consolidated drainage system and discharged to the east via the existing licensed discharge point at Dam 1.

These changes facilitate controlled drainage and do not result in permanent ponding, wetlands or new waterbody land uses. Water management during rehabilitation and closure will be undertaken in accordance with the KEQ Water Management Plan. This will include:

- Operation of the converted KHRQ in-pit sump within the consolidated quarry pit.
- Use of a shaped, stabilised drop structure to convey surface water in a controlled manner from KHRQ at RL65 to KEQ at RL45.
- Maintenance of drainage features to prevent erosion or uncontrolled discharge.
- Management of sediment dams as water management infrastructure.

Water management measures will ensure that runoff is managed safely and does not result in off-site impacts.

- Growth Medium Development

Topsoil will be managed in accordance with the established L&RMP. Topsoil stripping within the disturbance area will be undertaken when the soil is in a slightly moist condition to reduce damage to soil structure. A maximum stockpile height of 3 m will be maintained to preserve viability and reduce soil deterioration. Where possible stripped material will be placed directly onto the disturbed areas and spread immediately if excavation sequences, equipment scheduling, and weather conditions permit. Topsoil will be re-spread in the reverse sequence to its removal, so that the organic layer, containing any seed or vegetation, is returned to the surface. Topsoil will be spread and if necessary re-spread topsoil will be levelled to achieve an even surface, avoiding a compacted or an over-smooth finish.

When topsoil is to be used for rehabilitation programs, geochemical soil testing will be undertaken to determine the quality of the soil for rehabilitation. The results will be used to determine specific ameliorant techniques that will be applied to the soil material for rehabilitation to be sustainable.

Ameliorants may include gypsum, lime, fertiliser and biosolids. KEQPL will liaise with NSW Planning if biosolids are required for rehabilitation (prior to use). The use of soil ameliorants is designed to balance pH, prevent surface crusting, increase moisture and organic content, and buffer surface temperatures to improve germination.

- Ecosystem and Landform Establishment

Species selection will be managed in accordance with the KEQ L&RMP. It is planned that the seed mix for the MOD 11 area will be the same seed mix used for the balance of the KEQ site.

A mixture of native trees and shrubs endemic to the area will be sown onto the majority of the reshaped areas following topdressing and site preparation. This tree and shrub seed will complement natural regeneration from seed contained within the soil seed bank. The seed mix used for revegetation of the disturbed MOD 11 area.

- Ecosystem and Land Use Development

Following completion of ecological monitoring, maintenance will be undertaken as directed in the monitoring reports. These reports will include information on the location, timing, species and preferred methods for weed management, and whether any repairs to vegetation protection measures are required (e.g. perimeter fencing). Maintenance will generally be undertaken on an annual basis unless otherwise specified in the monitoring reports and would generally entail:

- Control of weed regrowth and outbreaks.
- Maintaining and repairing fencing.
- Maintaining and repairing erosion/sediment control structures.

6.8.7 Rehabilitation Monitoring and Maintenance

Monitoring requirements for MOD 11 are consistent with those already approved and no new or additional monitoring obligations are necessary.

Rehabilitation monitoring requirements were initially detailed in the Quarry Closure and Rehabilitation Plan prepared by GSSE (2012) which formed part of originally approved Environmental Assessment for the KEQ. Rehabilitation monitoring will continue to be undertaken to demonstrate progression toward the approved rehabilitation objectives and a stable, sustainable post-quarry landform. Monitoring will be undertaken by a suitably qualified person at representative locations and will inform adaptive management where required. Detailed monitoring parameters, plot designs, frequencies and reporting requirements are contained within the approved KEQ L&RMP and are proposed to be retained for MOD 11.

Monitoring is aligned with rehabilitation objectives. Detailed monitoring parameters, frequencies and response measures are specified in the approved KEQ L&RMP.

General Rehabilitation Performance

Monitoring will assess overall rehabilitation performance, including species diversity, vegetation structure, presence of bare areas and progression toward the approved post quarry land use.

Photographic Monitoring

Photographic records will be taken at established monitoring locations to provide a visual record of rehabilitation progress over time.

Habitat Development

Monitoring will assess the development of habitat features, including ground cover, structural complexity and availability of shelter and food resources relevant to the target vegetation community.

Fauna

Where relevant, monitoring will include observations of fauna presence and evidence of habitat use within rehabilitated areas.

Weeds and Pests

Monitoring will assess the presence and extent of weeds and pest species to inform ongoing management and maintenance requirements.

Geotechnical Stability

Rehabilitated landforms will be inspected for evidence of instability, including erosion, slumping or surface cracking, to confirm the landform remains safe and stable.

Surface and Groundwater

Surface water drainage features and sediment controls will be inspected to confirm they are functioning as intended and that runoff does not result in off-site impacts or water quality degradation.

6.8.8 Conclusion

The RCS concludes that proposed MOD 11 can be supported as it does not result in any additional or materially different rehabilitation or closure impacts beyond those previously assessed and approved.

The RCS makes the following conclusions:

- Proposed MOD 11 does not adversely alter the approved and established rehabilitation objectives, completion criteria, post-quarry land use or overarching rehabilitation principles.
- Proposed MOD 11 refines the approved landform configuration through consolidation of adjoining quarry landforms and removal of remnant dividing highwall features, improving long-term stability, drainage, safety and integration with surrounding landforms.
- The proposed additional land disturbance of 4,690 m² (which is within a heavily disturbed area associated with a redundant powerline easement) can be managed by existing rehabilitation domains and no new land uses are introduced.
- Rehabilitation outcomes remain focused on achieving a safe, stable and non-polluting landform rehabilitated to woodland vegetation, consistent with the existing Project Approval (MP09_0175).
- No new rehabilitation success factors or monitoring obligations are introduced, with detailed implementation measures continuing to be addressed through the approved KEQ L&RMP.

6.8.9 Mitigation and Management Measures

The established L&RMP (IEMA & WPC, ver 5C October 2024) be updated as necessary to accommodate the MOD 11 proposal.

6.9 Flora and Fauna

Wedgetail Project Consulting were commissioned by the Applicant to prepare a Streamlined Biodiversity Development Assessment Report (BDAR) for the proposed Modification. The Streamlined BDAR is enclosed as **Appendix N**.

Proposed MOD 11 seeks to establish a minor extension of 0.47 ha at the north-eastern edge of the KEQ disturbance area within a heavily disturbed and redundant powerline corridor. The Streamlined BDAR was prepared specifically to consider the proposed minor extension to the KEQ disturbance footprint. **Figure 31** below shows the location of the proposed additional disturbance area.

The assessment was conducted in accordance with the Biodiversity Assessment Method (BAM) to assess biodiversity impact and offsetting obligation of the project under the NSW *Biodiversity Conservation Act 2016* (BC Act). The Streamlined BDAR was undertaken in accordance with the BAM and Appendix C: Streamlined Assessment Module – Small Area of the BAM.

The Streamlined BDAR also considered the provisions of the *Environment & Biodiversity Conservation Act 1999* and confirmed that no MNES would be impacted by the proposal.

Native vegetation within the subject site was assessed in accordance with Section 4 of the BAM. Fieldwork was completed on 19 March 2025 and 8 January 2026. An assessment of the subject site as well as a 50 m buffer from the edge of the subject site was considered.

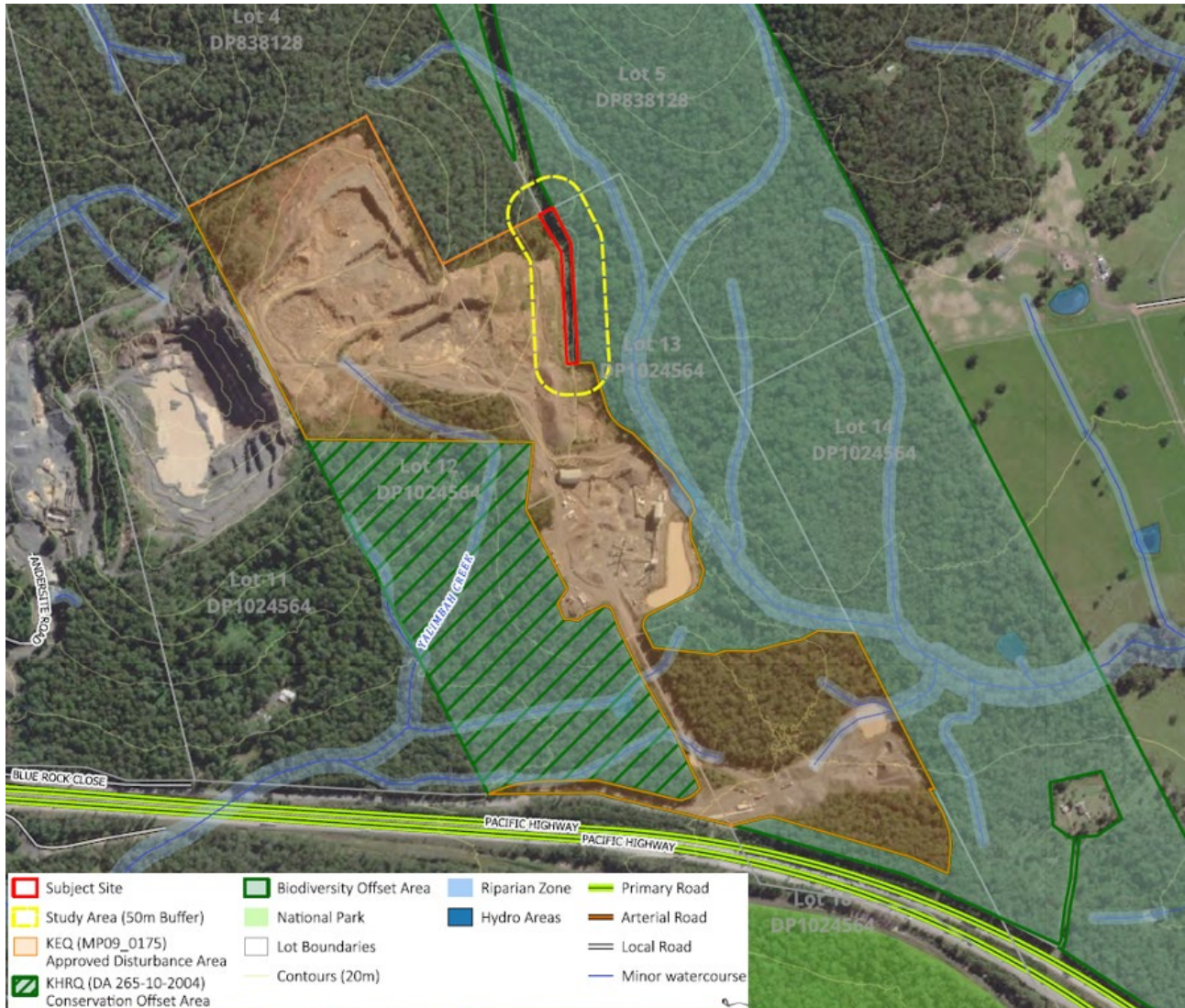


Figure 31: Proposed Additional Disturbance Area

6.9.1 Flora and Fauna Survey Results

Vegetation Mapping Results

A total of 0.47 ha of native vegetation was mapped as occurring within the proposed MOD 11 additional disturbance area. One (1) native vegetation community was identified and assigned to two (2) vegetation zones delineated based on variation in management, condition, structure and floristics:

- Vegetation Zone 1:
PCT 3433 – Hunter Coast Foothills Spotted-Gum Ironbark Grassy Forest, 0.05ha. Moderate condition.
- Vegetation Zone 2:
PCT 3433 – Hunter Coast Foothills Spotted-Gum Ironbark Grassy Forest, 0.42ha. Poor condition.

PCT 3433 does not constitute a Threatened Ecological Community (TEC) under the BC Act or the EPBC Act.

Figure 32 below shows the location of the mapped vegetation zones.



Figure 32: Vegetation Zones and Plant Community Types

Flora

No threatened flora species were recorded within the proposed additional disturbance area.

Vegetation within the proposed additional disturbance area is largely disturbed by historical clearing activity and maintenance associated with the redundant powerline corridor. There is a small area of moderate condition vegetation present in the far north portion of this corridor (see **Figure 32** above).

The vegetation within Vegetation Zone 1 represents a moderate condition derivative of PCT 3433, with a midstory a mix of exotics and native. No large trees or hollows were present. The vegetation within Vegetation Zone 2 is almost exclusively exotic, with low diversity, dominated by *Setaria sphacelata* (South African Pigeon Grass) and *Lantana camara* (Lantana).

A search of the BioNet Atlas of NSW Wildlife returned records of 11 threatened plant species within a 5 km radius of the proposed additional disturbance area. An additional seven (7) threatened plant species predicted to occur within the locality through an EPBC Protected Matters Search. A 'likelihood of occurrence' assessment was undertaken which determined that the proposed additional disturbance area is likely to constitute marginally suitable habitat for two (2) threatened plant species including:

- *Asperula asthenes* (Trailing Woodruff) – Not observed during surveys though known to occur within the Eastern Biodiversity Offset Area (EBOA) to the east (established as part of the KEQ Project Approval MP09_0175).
- *Tetradlea juncea* (Black-eyed Susan) – Not observed during surveys though known to occur within the EBOA to the east (established as part of the KEQ Project Approval MP09_0175).

Fauna

No threatened flora species were recorded within the proposed additional disturbance area.

The proposed additional disturbance area is predominately characterised with exotic vegetation dominated by *Setaria sphacelata* (South African Pigeon Grass) and *Lantana camara* (Lantana) which provides suitable shelter for small mammal species and small birds.

An assessment of key fauna habitat features within the proposed additional disturbance area identified:

- No hollow-bearing trees were identified during site assessment.
- A low to moderate abundance of fallen logs and rocky areas present.
- Lack of mature Eucalypt species present within study site, only immature *Eucalyptus acmenoides* (White mahogany), *Corymbia maculata* (Spotted Gum), *Glochidion ferdinandi* (Cheese Tree), *Syncarpia glomulifera* (Turpentine) with the occasional *Allocasuarina torulosa* (Forest Oak) and *Acacia irrorata* (Green wattle).
- The drainage line that extends across the northern and eastern portions of the proposed additional disturbance area provides marginal habitat for foraging for Microchiroptera species. However, no permanent standing water occurs in the drainage line, and due to the high density of *Lantana camara*, potential Microchiroptera flyways are limited.
- There is a potential for Microchiroptera habitat to occur within the vertical side wall of the extraction area (highwall), through the presence of small cracks and crevices, however this is likely unoccupied due the proximity of ongoing quarry operations and disturbance. A Blast Impact Assessment commissioned by KEQPL (and provided in **Appendix G**), determined that the highwall structure is likely to experience vibrations over 10 mm/s due to the proximity of quarry operations during extraction of the remnant rock mass; in which the structure is unsuitable habitat to support Microchiroptera species.

A BioNet Atlas of NSW Wildlife search returned records of 39 threatened fauna species that have been previously recorded within 5 km of the proposed additional disturbance area. An EPBC Protected Matters Search identified an additional 28 threatened fauna species predicted to occur within the locality.

A 'likelihood of occurrence' assessment determined that the proposed MOD 11 development site has a moderate likelihood of providing habitat for three (3) highly mobile, locally occurring threatened fauna species primarily due to the presence of suitable foraging habitat.

Species include:

- Koala (*Phascolarctos cinereus*) – Marginally suitable foraging habitat, albeit likely unoccupied, though species is known to occur within the EBOA to the east.
- Glossy Black Cockatoo (*Calyptorhynchus lathami lathami*) – Marginally suitable foraging habitat and no suitable roosting habitat.
- Squirrel Glider (*Petaurus norfolcensis*) – No suitable roosting habitat due to the absence of any hollows, though species is known to occur within the Conservation Offset Area to the west (established as part of the Karuah Hard Rock Quarry Development Consent, DA265-10 2004).
- Powerful Owl (*Ninox strenua*) – No suitable habitat due to the absence of large hollow, though the species is known to occur within the EBOA to the east

There are a number of other species have a low likelihood of occurring within the proposed additional disturbance area, largely using the vegetation within the site as part of a much larger range of available foraging habitat.

Hollow Bearing Tree Assessment

No hollow bearing trees were identified within the proposed additional area of disturbance.

6.9.2 Avoiding and Minimising Impacts

Native Vegetation & Threatened Species Habitat

The proposed MOD 11 development has considered steps to avoid, minimise and mitigate impacts on native vegetation, threatened species, populations and their habitat. The following considerations with regard to the avoid and minimise principles are noted:

- The proposal avoids areas of higher condition vegetation to the north and east of the existing KEQ and proposed additional disturbance area.
- The proposal impacts predominately low condition, exotic dominated vegetation that has been historically cleared and maintained as a powerline corridor.

6.9.3 Assessment of Impacts

Impacts on Native Vegetation & Habitat

No serious or irreversible impacts were identified within the MOD 11 development site.

The proposed development will directly impact on approximately 0.47 ha of native vegetation identified within the proposed additional disturbance area. The proposed development has the potential to cause the following indirect impacts:

- Increased weed invasion and potential spread/introduction of pathogens to retained vegetation.
- Accidental incursions during clearing.

Provided that the mitigation measures as detailed in **Section 6.9.6** below are implemented, the proposal is unlikely to indirectly impact threatened species and their habitats during construction and operational phases.

The proposal is not expected to contribute to a prescribed impact.

6.9.4 Biodiversity Offsets

The proposed MOD 11 development will result in an increase in the approved disturbance area of 0.47 ha. In accordance with the BAM, **Table 32** below provides a summary of the impacts on native vegetation and the required ecosystem credits.

Table 32: Summary of Ecosystem Credit Requirements

Vegetation Zone	Vegetation Zone Name	Impact Site (ha)	Credits Required
Zone 1	PCT 3433 – Hunter Coast Foothills Spotted-Gum Ironbark Grassy Forest (Moderate condition)	0.05	1
Zone 2	PCT 3433 – Hunter Coast Foothills Spotted-Gum Ironbark Grassy Forest (Poor condition)	0.41	0
Total Ecosystem Credit Requirement			1

No species credits are generated by the proposed MOD 11 development.

Retirement of the single ecosystem credit will occur prior to the commencement of clearing activity associated with the proposed MOD 11 development.

The Applicant seeks to ensure that credits for the KEQ project can be retired in a staged manner commensurate with the specific proposal that generated the offset credit obligation. Accordingly, clear regulatory separation between the MOD 11 development and the previously approved KEQ MOD 10 Stockpile Extension Project is sought to be established in MP09_0175. To achieve this, suggested updates for Schedule 3, Condition 28 (Biodiversity Offset Strategy) and 29 (Long Term Security of Offsets) of MP 09_0175 has been provided within **Section 3.2** of this report.

6.9.5 Commonwealth Environment and Biodiversity Conservation Act 1999

The EPBC Act requires that developments or undertakings that are likely to have a significant impact on Matters of National Environmental Significance (MNES) be referred for a determination as to whether they are a controlled action that requires approval under the EPBC Act.

Of the nine MNES listed under the Act, the one MNES considered relevant to the proposed MOD 11 development was potential impacts on marginal habitat for listed threatened species or communities.

Four threatened species listed under the EPBC Act were considered to have a moderate or high likelihood of occurrence within the subject site:

- Koala (*Phascolarctos cinereus*).
- Glossy Black Cockatoo (*Calyptorhynchus lathami lathami*).
- Trailing Woodruff (*Asperula asthenes*) – vulnerable.
- Black-eyed Susan (*Tetratheca juncea* – Vulnerable).

Impacts to the habitat for these species were considered in accordance with *MNES - Significant impact guidelines 1.1*.

The assessments conclude that impacts to habitat for these species were considered unlikely to be significant and accordingly a referral to the Commonwealth Minister for the Environment is therefore not considered necessary for the MOD 11 application.

6.9.6 Conclusion and Management Measures

The Streamlined BDAR makes the following conclusions:

- The proposed MOD 11 development will impact on approximately 0.47 ha of native vegetation of *PCT 3433: Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest*.
- No threatened fauna or flora species were recorded within the proposed area of additional disturbance.
- No SAIL assessment were deemed required as no serious and irreversible impacts will occur as a result of the proposed MOD 11 development.

- Offsets are required as a result of residual impacts to vegetation in accordance with the BAM, including:
- *PCT 3433: Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest* – 1 credit.
- Assessment of Significance were undertaken in accordance with the Commonwealth's EPBC Act. Impacts were determined to be not significant.
- Appropriate impact avoidance and minimisation measures have been implemented for the MOD 11 development.

The proposed MOD 11 development is acceptable in terms of ecology considerations provided that the below mitigation measures in Table 13 are implemented. As necessary the Biodiversity Offset Area Management Plan will be updated to accommodate the MOD 11 development.

Table 33: Summary of Mitigation and Management Measures for Direct and Indirect Impacts of the Proposed MOD 11 Development

Impact	Action and Outcome	Timing
Direct Impact		
Clearing of native vegetation	• Avoid and minimise clearing impacts to native vegetation where possible. • Clearly delineate the boundaries of the project footprint to prevent any unnecessary clearing beyond its extent. • Ensure vehicle and equipment parking areas and stockpile areas are identified and positioned to avoid areas containing ecological value. Stockpiling must not occur within, or in close proximity (such as 5 m) to, the established EBOA. • Appropriate signage such as 'no go zone' or 'environmental protection area' should be maintained surrounding the EBOA. • Clearly identify and communicate the location of any 'no go zones' in site inductions. • Tree protection measures will be implemented to protect retained trees and native vegetation adjacent to the Impact Area. Tree protection measures should consider allowances for Tree Protection Zones in accordance with AS4970 (Standards Australia, 2009).	Prior to and during vegetation clearing.
Removal of vegetation resulting in fauna injury and mortality	• Limit removal of trees to that required within the project footprint where possible. • Due to the lack of hollows recorded during site surveys, a pre-clearance survey is not requirement. • Any vegetation requiring removal as part of the development should be done so in accordance with KEQ Landscape & Rehabilitation Management Plan (2024).	Prior to and during tree clearing.
Impacts to surface and groundwater quality and quantity due to sediment run off and/or contaminant runoff into adjacent watercourses	• Source controls such as sediment fences, mulching and jute matting will be utilised where appropriate. • Site-based vehicles and plant equipment will carry spill kits. • Erosion and sediment control will be implemented required in accordance with Managing Urban Stormwater: Soils and Construction (Landcom, 2004) prior to commencement of construction. • Limit the use of pesticides in the project footprint where possible to avoid contamination of nearby watercourses/wetland areas.	During vegetation clearing, construction and operation.
Vehicle collision with fauna	• Speed limits within the subject site will be limited to 30 km/h during construction.	During construction and operation.

Impact	Action and Outcome	Timing
	The area of additional disturbance will be separated from vegetated areas throughout the construction and operational phases of the development. This separation should be achieved through physical barriers including fencing and appropriate signage.	
Indirect Impact		
Transfer of weeds and pathogens to and from site	- The fungal pathogens <i>Phytophthora cinnamomi</i> and Myrtle Rust (<i>Puccinia psidii</i>) are known to occur in the MidCoast LGA, however, it is unknown if they occur within the proposed area of additional disturbance. - All plant and equipment brought on to site should be assessed (or declared) as clean of biological contamination. - Ensure soil seed material is not transferred.	During vegetation clearing, construction, and operation.
Noise, vibration, lighting, waste and air pollution impacts to adjacent sensitive habitat areas	- Increased human activity (from workers and traffic levels) directly adjacent to sensitive habitat areas may cause disturbance to flora and fauna species in adjoining habitat. - Impacts from construction and operational activities, such as disturbance to an animal's normal behaviour patterns due to noise, vibration, lighting or dust may cause areas of previously suitable habitat to become sub-optimal and may cause fauna species to vacate previously suitable areas. - Measures to mitigate impacts on flora and fauna from noise, vibration, waste, light and air pollution such as: - Enforce 'carry-in, carry-out' policy regarding rubbish and waste materials generated on-site during construction to avoid waste materials entering adjacent vegetation. - Dust control measures such as covering loads where required; amending operations under excessive wind conditions including ceasing operations if required; use of water tankers as required, to control dust; rehabilitation through vegetation of surfaces to be left unsealed; and truck wheel washes or other dust removal measures. - Levels of lighting within the site will be reduced to a minimal level to reduce any adverse effects upon the essential behavioural patterns of light-sensitive fauna. - Lighting to comply with Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting. - Noise minimisation practices in accordance with the KEQ approved Noise Management Plan.	During construction and operation.

6.10 Aboriginal Archaeology

6.10.1 Impact Assessment

Heritage Now was engaged by the Applicant to prepare an Aboriginal Heritage Due Diligence Assessment Addendum to accompany the MOD 11 application (refer to **Appendix O**). The assessment was undertaken specifically in relation to the proposed additional disturbance area (4,690 m²) at the eastern edge of the KEQ extraction area.

The due diligence assessment was conducted in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010b), and with the approved Karuah East Quarry Heritage Management Plan (Heritage Now 2023). The assessment also addresses the requirements of the *Guide to Investigating, Addressing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011) and the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010).

The due diligence assessment included:

- A review of the environmental context for the assessment of past Aboriginal occupation in the area, with particular focus on whether there were any landscape features likely to indicate the presence of Aboriginal objects.
- A review of the Heritage NSW Aboriginal Heritage Information Management System (AHIMS) database.
- A review of existing heritage documentation relevant to the KEQ including the Cultural Heritage Assessment (RPS, June 2012) that formed part of the original KEQ Project Approval, the Cultural Heritage Assessment (January 2018) prepared by the Karuah Local Aboriginal Land Council that formed part of the MOD 1 approval, the Due Diligence Assessment prepared by RPS (2018) for MOD 2; the Due Diligence Assessment prepared by RPS (2021) for MOD 10; as well as other heritage reports undertaken for other projects in the area.
- A visual inspection of the proposed MOD 11 additional disturbance area was undertaken to identify whether Aboriginal objects are present on the ground surface or are likely to be present below the ground surface.

Environmental Context Review

The subject site lies within 200m of two (2) minor creeks which may have provided a source of fresh water for Aboriginal people in the past, however locations closer to the Karuah River and Port Stephens estuary would most likely have been more suitable for resource gathering and long-term habitation.

Given the steepness of the subject site, it is considered unlikely that it would have been used as a place to camp or as a travel route by past Aboriginal people.

The land-use analysis suggests that the subject site has been disturbed by vegetation clearance and creation of an electricity infrastructure easement in the early 2000s and the ongoing use and maintenance of the easement.

AHIMS Search Results

The AHIMS search did not identify any Aboriginal sites or declared Aboriginal places within the subject site.

The nearest items identified by the AHIMS search are located approximately 1.7km away to the south-west of the project area on the southern side of the Pacific Highway. The proposal will not result in any impacts on these items.

Existing Documentation Results

The review of existing heritage reports confirmed that no Aboriginal sites have previously been recorded within the subject site.

Visual Inspection Results

No Aboriginal objects, sites or areas of archaeological sensitivity were identified during the visual inspection.

It was noted that the subject site slopes steeply to the east. Ground surface visibility was low throughout with the project area predominantly covered in thick grass with a few minor trees. The areas of exposure revealed shallow rocky soils with little to no topsoil, indicating low potential for archaeological deposit.

Impact Assessment

The assessment confirms that there are no proposed impacts to Aboriginal sites or areas of sensitivity.

The subject site is very steep with shallow topsoils and is unlikely to have been used by past Aboriginal people as a place to camp or as a travel route.

No further archaeological investigation is required for the proposed development and works may proceed subject to the recommendations provided in **Section 6.10.3** below.

6.10.2 Aboriginal Stakeholder Engagement

Consultation was undertaken with the established group of Registered Aboriginal Parties (RAPs) for the KEQ project by Heritage Now. In particular, the Due Diligence Assessment Addendum was provided to the Aboriginal stakeholders identified in the KEQ Heritage Management Plan (Heritage Now, 2023).

Responses were received from two (2) RAPs, with a summary of comments provided in **Table 34** below.

Table 34: Comments Received from Registered Aboriginal Parties

Comment	Heritage Now Response
General environmental concerns and native flora and fauna.	An ecological assessment of the subject site has been completed as part of the MOD 11 application. MOD 11 is subject to rigorous environmental assessment to appropriately consider all relevant environmental considerations.
It is possible that the area was a travel route.	There were no Aboriginal objects such as scarred trees in the subject site to indicate this and travel routes themselves are not protected by the Heritage Act.
Information was provided in relation to connection to country and people living in the Worimi Nation.	Acknowledged the comment.
Not all Aboriginal sites in NSW are registered.	A visual inspection of the subject site was undertaken and no unregistered Aboriginal sites were identified.
Clarification on seafood sourcing practices linked to vegetation flowering, tools, weapons and materials used.	Section 3.2 of the Due Diligence Report Addendum was updated where relevant. Heritage Now invited any further comment regarding heritage, customs, practices, religions and traditions in relation to the subjects site which would be forwarded to the regulator. No further response was received.
Description of Gan Gan soil landscape.	The Gan Gan soil landscape is a nominated scientific name and is not meant to represent a direct Aboriginal word in its meaning.

6.10.3 Conclusion and Mitigation and Management Measures

The Due Diligence Assessment Addendum concludes that no Aboriginal sites or areas of archaeological sensitivity were identified during the inspection of the subject site.

The land is very steep with shallow topsoils and is unlikely to have been used by past Aboriginal people as a place to camp or as a travel route.

There are no proposed impacts to Aboriginal sites and no further archaeological investigation is required for the proposed MOD 11 development.

The following recommendations were provided:

1. All on-site personnel are to be made aware of their obligations under the National Parks and Wildlife Act 1974, which includes protection of Aboriginal sites and the reporting of any new, or suspected, Aboriginal heritage sites. This may be done through an on-site induction or other suitable format.

2. In the unlikely event that Aboriginal, or suspected Aboriginal, archaeological material is uncovered during the development, then works in that area are to stop and the area is to be cordoned off. The KEQPL Environment & Development Manager is to contact the Heritage Consultant to make an assessment as to whether the material is classed as Aboriginal object/s under the National Parks and Wildlife Act 1974 (NSW) and advise on the required management and mitigation measures. Works are not to recommence in the cordoned off area until heritage clearance is given and/or the required management and mitigation measures have been implemented.
3. In the very unlikely event that human remains, or suspected human remains, are uncovered during the development, then works in that area are to stop and the area is to be cordoned off. The KEQPL Quarry Manager is to contact the NSW Police to establish whether the area is a crime scene. If it is not a crime scene, and the remains are determined to be Aboriginal ancestral remains, then Heritage NSW is to be notified via the Environment Line on 131 555 and management measures are to be devised in consultation with the local Aboriginal community. Works are not to recommence in the area until the management measures have been implemented.
4. The KEQ Heritage Management Plan must be updated to include the increase in disturbance footprint subject to the MOD 11 proposal.

6.11 Other Considerations

The purpose of this modification is to enable the extraction of previously sterilised andesite resource from the remnant dividing highwall as well as within other disturbed areas from the KEQ site in a coordinated approach with the KHRQ.

The key considerations for this modification application have been confirmed in consultation with the NSW Planning and have been addressed in the preceding sections above.

It is considered that the proposal will have no impact nor will it be impacted upon by any of the following considerations:

- European Heritage;
- Bushfire; and
- Waste Management.

Assessment of the overall Karuah East Quarry in relation to the above items was undertaken as part of the Project Approval process (including MOD 1, MOD 2, MOD 8, MOD 9 and MOD 10 approvals). It is considered that the proposed modification will not affect or be affected by any of these considerations.

In terms of social and economic impact considerations, the proposal will have a positive impact noting that:

- MOD 11 will support the efficient long-term operation of the KEQ and KHRQ;
- The proposal will result in the efficient long-term delivery of a known quality andesite resource to the market. This will support local and regionally significant construction and infrastructure projects and promote continued growth;
- Improving operational efficiencies between KEQ and KHRQ will lead to positive flow on effects to the local and regional economies and will generate ongoing employment opportunities; and
- MOD 11 can be undertaken satisfactorily with regard to key environmental considerations and will result in a substantial visual impact improvement.

Section 7 Justification of Modified Project

7.0 Justification of Modified Project

7.1 Project Justification

The Karuah Pit Consolidation Project is considered to be strongly justified. The following is noted:

Continued Economic, Efficiency, Operational & Safety Benefits

- There is a proven, high quality andesite resource in the disturbed areas of the site, including the remnant highwall.
- The remnant highwall is situated across two well established quarry operations, both operated by the Applicant (and affiliated companies) and infrastructure is readily available to extract and process the resource.
- The proposal will ensure continued and uninterrupted employment for existing KEQPL and HQPL staff.
- Extraction of the remnant dividing highwall will result in significantly improved safety outcomes during operations of the KEQ & KHRQ.
- The remnant dividing highwall between the KEQ & the KHRQ was recognised at the time of the assessment of the KEQ application (it was a logical consideration that the KHRQ be extended to the east into Lot 12 and Lot 13). As was demonstrated in detail during the assessment process for the KEQ, the Applicant was unable to reach an agreement with the Lot 11 landowner at that time to extend the Lot 11 quarry pit into Lot 12 and Lot 13 (which now contains the KEQ pit). Now that the Applicant owns Lot 11, the highwall resource is no longer sterilised and this important project can progress.
- There is a proven market demand for the andesite resource available at the KEQ site. The Applicant has well established markets in the Greater Newcastle, the Hunter Valley and Mid-North Coast regions. The product that will be extracted from the site will contribute to servicing the construction industry in these markets.
- Since the time of approval of the KEQ, the customer and project base of the quarry has evolved, with the quarry now servicing a number of large public infrastructure projects. The evolving client base includes a range of government agencies/organisations including Transport for NSW, a number of local Councils, the Port of Newcastle, Ausgrid, Newcastle Airport and Tier 1 infrastructure providers. The product that will be extracted from the Karuah Pit Consolidation Project will contribute to servicing these important customers that deliver key infrastructure projects.
- In addition to the above, HQPL supply material to State Significant Infrastructure (SSI) projects including the Singleton Bypass, the Newcastle Inner City Bypass (SSI-6888), Pacific Highway widening at Hexham Straight, and the M1 Pacific Motorway Extension to Raymond Terrace (SSI-7319), which are critical to deliver improved connectivity of the Mid-North Coast (including the MidCoast LGA) to Sydney, Newcastle and the Hunter Valley.
- The proposal will result in the orderly and efficient use of the subject site, which is consistent with the objectives of the EP&A Act.

Visual Impact and Rehabilitation Improvements

- The proposal will involve removing the remnant dividing highwall between KEQ & KHRQ, resulting in a substantial visual amenity improvement, particularly when viewed from the Pacific Highway, Halloran Road, Taren Road and Mill Hill Close.
- Extraction of the remnant dividing highwall will result in improved long-term landform and land use outcomes associated with rehabilitation and closure of both the KEQ and KHRQ sites.
- The proposal will result in improved long-term landform drainage (a free-draining landscape will be established) and reduced geotechnical risk with a long-term landscape that will achieve greater consistency with the surrounding landscape.

Environmental Management Benefits

- Key environmental considerations in the area are well understood and can be readily managed. KEQPL is affiliated with HQPL, who operate the established KHRQ on Lot 11 and Lot 21. Noting the adjoining operations, HQPL and KEQPL can extract and process the resource within the CEA in an efficient manner whilst ensuring that coordinated operational and environmental management (as needed) can readily occur.

- The proposal does not seek to intensify quarry operations in terms of annual extraction limits, processing throughput, hours of operation or traffic generation. The KEQ extraction limit will remain capped at 1.5 Mtpa.
- Additional resource can be extracted and processed without the need for any additional land disturbance and the approved disturbance footprint of the quarry will remain largely unchanged (except for a nominal 4,690 m² increase within an already heavily disturbed area associated with a redundant powerline corridor).
- The proposal seeks to contemporise environmental management arrangements, particularly for air quality, noise and community engagement activities.
- The subject site is well separated from any sensitive receivers or significant areas of urban development.
- The KEQ has direct access available to the Pacific Highway interchange (via The Branch Lane interchange to Andersite Road and Blue Rock Close). The haulage route to the Pacific Highway does not require heavy vehicles to pass any sensitive receivers (e.g. a property with a rural dwelling).
- The receiving environment is very well understood by KEQPL. Environmental safeguards currently in place can be readily adjusted to accommodate the pit consolidation project (including the establishment of any cooperative protocols (as necessary) with the adjoining KHRQ operation).
- The findings of the environmental assessments (refer to **Section 6.0**) undertaken confirm that the site is suitable to accommodate proposed modification.

7.2 Alternatives to the Proposed Modification

The need for the proposed development is a logical outcome noting that it will facilitate the extraction of a known high quality andesite resource located between two established quarry operations in an orderly and efficient manner. Due to previous land ownership constraints (which have recently been resolved) application to remove the remnant dividing highwall has not been possible until now.

7.2.1 Consolidated Pit Design and Process to Remove Highwall

To consider the project holistically, the Applicant undertook a detailed design review of the approved extraction and disturbance areas of the KEQ and adjoining KHRQ to determine the most practical and safe means of extracting the remnant dividing highwall and appropriate final extraction area landform. This is included a review of existing & approved pit geometry, topographical conditions and areas of existing disturbance.

It was determined that the most appropriate way to extract the dividing highwall is to establish an 'overlapping' extraction area of KEQ and KHRQ that holistically encompasses the entirety of the remnant highwall as well as a suitable safety buffer, with materials processing able to be undertaken at either existing quarry plant to capitalise on operational efficiencies.

It was identified that the most appropriate way to undertake the proposal (inclusive of highwall removal) in terms of practicality, efficiency and safety considerations is through a coordinated and incremental staged extraction sequence as follows:

- Stage 1: Extract the current top benches of the remnant highwall (RL135m) down to RL90m (currently lowest KEQ bench at the time of writing (April 2026)), forming a single extraction level/area on Lot 12. This approach is needed to safely remove the peak of the dividing highwall and make the extraction area level with the current KEQ extraction area.
- Stage 2: Extract Lot 12 from RL90m (currently lowest KEQ bench at the time of writing (April 2026)), down to RL65 m in line with KHRQ pit floor and KEQ boot-bin levels, forming a single extraction level/area over the entire Consolidated Extraction Area.
- Stage 3: Extract final benches at KEQ (Lots 12 & 13) from RL65m down to RL45m. The KHRQ pit floor is to remain at RL65 m.

Relevant to the KEQ, based on resource investigations, it was also a logical outcome to extend the quarry pit to the east and south (within already approved disturbed areas of the KEQ) to optimise extraction of known resource within the disturbance footprint of the established quarry as well as incorporate the small disturbed area east of the KEQ (associated with a now redundant powerline corridor) into the KEQ footprint.

The extraction area of the KEQ is not able to be extended further beyond the currently proposed footprint due to the location of existing plant / processing area and KEQ EBOA on Lot 13 to the south-east and east (respectively) and on Lot 12 to the south (KHRQ COA). The Applicant is currently reviewing appropriate uses of Lot 4 to the north in the medium-term development pipeline.

7.2.2 Extraction Area Depth

It was considered appropriate to retain the currently approved extraction area final floor levels of RL45m at KEQ and RL65m at KHRQ to enable a 'free draining' final landform to be established as part of the long-term rehabilitation outcome for the site.

7.2.3 Operational Coordination

Consideration was given to the current approved operational parameters of the KEQ and adjoining KHRQ. It was considered that non-aligned operational hours, blasting parameters and life of quarry timeframes would result in operational inefficiencies. Accordingly, it is proposed to align the operating hours and life of quarry timeframes with the currently consented KEQ limits and align blasting hours and frequencies between both sites (cumulative reduction to two blasts per week combined between both quarries between 9am-5pm weekdays).

To practically and efficiently complete highwall removal, the ability to process material extracted from the highwall at either the KEQ or KHRQ is considered essential.

7.2.4 'Do Nothing' Option

The 'do nothing' option will result in the remnant dividing highwall remaining in place long term and all the identified benefits of the project will be lost. These include visual amenity, safety, long term rehabilitation improvements, as well as the loss of supply of a proven high-quality resource to the market that can be extracted in a highly efficient manner noting that two established quarry operations (operated by affiliated companies) are located either side of the remnant highwall. The opportunity to maintain local employment and contribute to the growth of the local and regional economies will be lost.

To secure the known amount of andesite resource as identified within the proposal, additional land disturbance would be required elsewhere (either within the Karuah Quarry Complex or elsewhere). The proposal can be delivered with only minor impacts to exotic grassland and 0.05 ha of heavily disturbed vegetation (that formed part of a now redundant powerline corridor). This opportunity would be lost if the 'do nothing' option was to occur.

The 'do nothing' option will result in a medium-term postponement to the completion of rehabilitation at the adjoining KHRQ in accordance with the current KHRQ Rehabilitation and Closure Plan (RCP) which has in part progressed including the side casting of topsoil material across the northern and eastern highwalls. In accordance with the RCP, rehabilitation would be completed between June 2027 to 2030 and this would include the establishment of a large flooded void within the former extraction area and revegetation activities. It is considered that postponing rehabilitation activities in the medium term at KHRQ to accommodate the removal of the highwall is outweighed by a significantly improved long term rehabilitation outcome that includes the establishment of a free draining landscape that is revegetated with native vegetation to achieve greater consistency with the surrounding woodland environment.

The 'do nothing' outcome is considered to be inconsistent with the objectives of the EP&A Act, which seeks to facilitate orderly and efficient development of land.

Section 8 Conclusion



8.0 Conclusion

This modification application (MOD 11) is made under Section 4.55(2) of the *Environmental Planning and Assessment Act 1979* and seeks to modify State Significant Development Consent MP09_0175 for the Karuah East Quarry.

The proposal will facilitate the extraction of the previously sterilised andesite resource from the remnant dividing highwall (as well as within other disturbed areas from the KEQ site) in a coordinated approach with the adjoining KHRQ.

Approved extraction rates, processing activity, and transport rates of 1.5 million tonnes per annum will not be affected by the proposed modification.

MOD 11 has been lodged concurrently with a reciprocal Section 4.55(2) modification to the separate KHRQ Development Consent (DA265-10-2004) to facilitate the pit consolidation project holistically.

The proposal will generate a range of beneficial outcomes including the extraction of a previously sterilised remnant dividing highwall between two established quarries and delivery to market to support the ongoing growth of the local & regional construction industry and key infrastructure projects. The proposal will result in significantly improved visual amenity (particularly when viewed from the Pacific Highway), improved operational and post closure geotechnical safety and will facilitate an improved final landform (with a free draining landscape) that is consistent with the surrounding landscape. The proposal will also ensure continued and uninterrupted employment for existing KEQPL (and HQPL) staff.

Consultation has occurred with NSW Planning, the NSW EPA, CHPR and Water Groups within NSW DCCEE, Transport for NSW, MidCoast Council, Registered Aboriginal Parties and the Joint Karuah Quarry Complex CCC for both KEQ and KHRQ sites.

This Modification Report has demonstrated that the proposal can be readily undertaken with regard to all key environmental considerations.

Overall, it is considered that the proposed amendment to State Significant Development Consent MP09_0175 is a suitable development that can be supported.

Appendix A

Updated Project Description



Appendix B

Updated Summary of Mitigation Measures



Appendix C

Statutory Compliance Table



Appendix D

NSW Planning Requirements Table



Appendix E

Proposed Development Plans



Appendix F

Noise Impact Assessment



Appendix G

Blast Impact Assessment



Appendix H

Air Quality Impact Assessment



Appendix I1

Traffic & Transport Impact Statement



Appendix I2

TTIS Peer Review & Response to
TfNSW Correspondence dated 11
March 2026

Appendix J

Surface Water Assessment



Appendix K

Groundwater Assessment



Appendix L

Visual Impact Assessment



Appendix M

Rehabilitation & Closure Strategy



Appendix N

Streamlined Biodiversity Development Assessment Report



Appendix O

Aboriginal Heritage Assessment Addendum



Appendix P

Agency Consultation
Correspondence

Appendix Q

Community Consultative
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Meeting Minutes 03 November
2025

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