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Karuah East Quarry

Environmental Assessment Section 75W Application (MOD 2) to amend Part 3A Project Approval 09_0175 Minor Increase to Approved Disturbance Area

Property:

Various Lots
Pacific Highway, Karuah

Applicant:

Karuah East Quarry Pty Ltd

Date:

August 2018

Document Control Sheet

Issue No.	Amendment	Date	Prepared By	Checked By
A	Draft	24 August 2018	MR	ML
B	Final	30 August 2018	MR	ML
C	Final	30 August 2018	MR	ML

Limitations Statement

This report has been prepared in accordance with and for the purposes outlined in the scope of services agreed between ADW Johnson Pty Ltd and the Client. It has been prepared based on the information supplied by the Client, as well as investigation undertaken by ADW Johnson and the sub-consultants engaged by the Client for the project.

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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1.0 Introduction

1.1 PROJECT DETAILS

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PROJECT DETAILS:	
Description of Proposal:	Modification under Section 75W of the Environmental Planning and Assessment Act 1979 to Project Approval 09_0175 (as Modified). Proposal to increase the approved area of disturbance by 1.133ha.
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:	Lot 12 DP 1024564 (Karuah East Quarry site). Lot 13 DP1024564 (Karuah East Quarry site). Lot 202 DP1042537 (approved roadworks). Not affected by proposed modification. Lots 26 and 27 DP1024341 (approved roadworks). Not affected by proposed modification. Lots 16 and 17 DP 1024564 (approved roadworks). No affected by proposed modification.

1.2 BACKGROUND AND ENVIRONMENTAL ASSESSMENT OVERVIEW

On 28 February 2018 a Modification Application (referred to as MOD 4 at the time of lodgement) under Section 75W of the *Environmental Planning & Assessment Act 1979* (EP&A Act 1979) was lodged with the NSW Department of Planning and Environment (NSW DPE). The application was lodged by ADW Johnson Pty Ltd on behalf of the proponent Karuah East Quarry Pty Ltd to modify Project Approval 09_0175 for the Karuah East Quarry.

The modification was one of six (6) separate modification applications (MOD 2 - MOD 7) that were lodged concurrently with NSW DPE in February 2018. The modifications as lodged on 27 and 28 February 2018 are summarised as follows:

- Modification 2 proposes to delete two commitments from Appendix 6 of the Project Approval that require:
 - enclosing the crusher; and
 - installation of a four metre high acoustic barrier around the stockpile and stacker area;
- Modification 3 proposes to amend the quarry's approved hours of operation;
- Modification 4 proposes additional site disturbance of approximately 1.195 hectares (ha);
- Modification 5 proposes additional site disturbance of approximately 1,660 m²;
- Modification 6 proposes additional site disturbance of approximately 5.257 ha; and

- Modification 7 is to clarify the use of the approved pug mill.

Following lodgement of the abovementioned modification applications, ongoing consultation has been carried out with the NSW DPE assessment staff. The following approach / actions have been identified as a direct result of this consultation and legislation reforms winding up the use of Section 75W to modify transitional Part 3A projects:

- Modification 4 as originally lodged will progress as a stand alone Section 75W application. This matter is a priority for the proponent as it will result in improved surface water management, operational safety and operational efficiency and will be undertaken in an already heavily disturbed area. For sequencing, the application has been renamed to Modification 2 (MOD 2). This application is the subject of this EA and is referred to as MOD 2 throughout the remainder of this EA;
- Modification 7 has been withdrawn; and
- At the time of writing this EA, the balance of the modifications are in the process of being transitioned to Section 4.55(2) Modifications and are also being consolidated as follows:
 - Modifications 2 and 3 are to be combined (now referred to as MOD 3); and
 - Modifications 5 and 6 are to be combined (now referred to as MOD 4).

MOD 2 proposes to amend the existing Project Approval to expand the area of disturbance of the approved Karuah East Quarry. Following detailed quarry plant design and commencement of operations, it has been identified that a minor extension to the western edge of the approved disturbance area (adjacent to the internal quarry haul road) will allow for improved environmental management, improved operational safety and increased efficiency.

MOD 2 is minor in nature and seeks an expansion to the approved area of disturbance (31.88ha) by an additional 1.133ha as shown on the plan provided within **Appendix B** of this document and also **Figure 1** (note: when the application was originally lodged on 28 February 2018, it was identified that the additional disturbance area was approximately 1.195ha however this has been reduced to 1.133ha). The resulting new total area of disturbance of the Karuah East Quarry is 33.01ha. The proposed modification represents less than a 3.6% increase in disturbance area when compared with the existing approval.

The area subject to MOD 2 is heavily disturbed and is devoid of any significant vegetation. It contains an existing dwelling, access track to the dwelling and an electricity easement.

The Project Approval as it relates to extraction rates, quarrying, processing, operational activity and rehabilitation will not be affected by the proposed amendment.

Following review of the preliminary documentation lodged as part of the MOD 2 application, NSW DPE assessment staff has confirmed that additional information relevant to the proposed additional disturbance area is required to be lodged to allow assessment of the application to progress. This is summarised as follows:

- Flora and fauna assessment;
- Water management assessment;
- Noise impact assessment;
- Air quality impact assessment;
- Visual impact assessment; and
- Aboriginal Cultural Heritage.

This EA addresses the above and all key issues relating to the proposed modification.

1.3 DEVELOPMENT HISTORY

Project Approval 09_0175 was granted for the Karuah East Quarry Project on 17 June 2014 under the provisions of Section 75J of the *EP&A Act 1979*.

Key features of the approval include:

- Quarrying operation is permitted on the site until 31 December 2034;
- The extraction (excluding overburden), processing and transport of quarry products is limited to 1.5 million tonnes in any calendar year;
- Hours of operation are specified in Condition 7 and apply to quarrying operations, construction activities and maintenance activities; and
- 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.

Construction works are well advanced and quarrying activity has recently commenced.

Modification (MOD 1) to Project Approval 09_0175 for the Karuah East Quarry Project was approved on 27 April 2018 under the provisions of Section 75W of the *EP&A Act 1979*. The modification allows a nominal expansion to the approved area of disturbance by an additional 2,500m². The additional area will allow for substantially improved vehicle manoeuvring associated with the quarry plant infrastructure which will result in improved operational efficiencies.

1.4 STRUCTURE OF REPORT

This Environmental Assessment Report has been prepared to address the key relevant issues relating to the proposed development. The format is as follows:

- Chapter 1 provides an introduction to this Environmental Assessment and the MOD 2 documentation previously lodged with the NSW DPE on 28 February 2018;
- Chapter 2 details key consultation undertaken with:
 - NSW DPE assessment staff since lodgement of MOD 2 on 28 February 2018; and
 - The Community Consultative Committee (CCC) for the Karuah East Quarry established in accordance with the Project Approval;
- Chapter 3 details the proposed development;
- Chapter 4 provides a site description;
- Chapter 5 considers relevant planning legislation;
- Chapter 6 undertakes an environmental assessment of the proposed modification, in particular:
 - Chapter 6.1 flora and fauna assessment;
 - Chapter 6.2 surface water assessment;
 - Chapter 6.3 assessment of groundwater;

- Chapter 6.4 noise impact assessment;
 - Chapter 6.5 air quality impact assessment;
 - Chapter 6.6 visual impact assessment;
 - Chapter 6.7 assessment of soil and land resources;
 - Chapter 6.8 assessment of rehabilitation;
 - Chapter 6.9 heritage impact assessment; and
 - Chapter 6.10 other matters not relevant to the proposed modification.
- Chapter 7 provides a Statement of Commitments specifically relevant to the proposed modification; and
 - Chapter 8 provides a conclusion.

2.0 Consultation

2.1 NSW DEPARTMENT OF PLANNING & ENVIRONMENT

Following lodgement of MOD 2 on 28 February 2018, the following key matters have been discussed with NSW DPE assessment staff:

Table 1: Key Matters Discussed

Item	Comment
<p>MOD 2 was one of six separate modification applications lodged on 27 & 28 February 2018. The modifications (as lodged) are summarised as follows:</p> <ul style="list-style-type: none"> Modification 2 proposes to delete two commitments from Appendix 6 of the Project Approval that require: <ul style="list-style-type: none"> enclosing the crusher; and installation of a four metre high acoustic barrier around the stockpile and stacker area; Modification 3 proposes to amend the quarry's approved hours of operation; Modification 4 proposes additional site disturbance of approximately 1.195 hectares (ha); Modification 5 proposes additional site disturbance of approximately 1,660 m²; Modification 6 proposes additional site disturbance of approximately 5.257 ha; and Modification 7 is to clarify the use of the approved pug mill. <p>It was recommended by the NSW DPE assessment officer that given the overlapping nature of the above modifications, that the proponent consolidates the applications into as few as possible to allow more efficient assessment to occur.</p> <p>The proponent should also be aware that the transitional arrangements for former Part 3A Projects were discontinued from 1 March 2018. In order to proceed under the Section 75W approval pathway, EA's need to be lodged by 1 September 2018. If lodgement by this date is not feasible, further consultation with the NSW DPE should be undertaken to discuss extending the deadline or shifting the modification applications to Section 4.55 modification.</p>	<p>As a result of ongoing consultation with the NSW DPE as well as legislation reforms winding up the use of Section 75W to modify transitional Part 3A projects, the following has occurred:</p> <ul style="list-style-type: none"> Modification 4 (as lodged) will progress as a stand-alone Section 75W application. For sequencing, the application has been renamed to Modification 2 (MOD 2). This application is the subject of this EA and is referred to as MOD 2 throughout this EA. <p>Progressing MOD 2 is the priority for the proponent and noting the benefits of the proposal (including improved surface water management, improved operational safety & efficiency) which can be achieved through minor additional disturbance of already highly disturbed land, it was established that the proposal would be progressed as a standalone Section 75W modification.</p> <ul style="list-style-type: none"> Modification 7 (as lodged) has been withdrawn. At the time of writing this EA the balance of the modifications are currently being transitioned to Section 4.55(2) Modifications but are being consolidated as follows: <ul style="list-style-type: none"> Modifications 2 and 3 (as lodged) are to be combined (now referred to as MOD 3); and Modifications 5 and 6 (as lodged) are to be combined (now referred to as MOD 4). <p>MOD 2 (the subject of this EA), was lodged with the NSW DPE via the Major Projects website prior to 1 September 2018.</p>

Item	Comment
The EA's must address all key issues and be submitted via the Major Projects website by the above date.	<p>No SEARs were issued given the minor nature of the modification. EA inputs were confirmed in consultation with NSW DPE staff and include:</p> <ul style="list-style-type: none"> • Flora and fauna assessment (refer to Section 6.1 of this EA). • Surface water assessment relevant to proposed additional disturbance area (refer to Section 6.2 of this EA). • Noise impact assessment relevant to proposed additional disturbance area (refer to Section 6.4 of this EA). • Air quality impact assessment relevant to proposed additional disturbance area (refer to Section 6.5 of this EA). • Visual impact assessment relevant to proposed additional disturbance area (Refer to Section 6.6 of this EA). • Rehabilitation of the MOD 2 area (refer to Section 6.8 of this EA). • Aboriginal cultural heritage assessment and European heritage assessment relevant to proposed additional disturbance area (refer to Section 6.9 of this EA).
The NSW DPE should be contacted at least two weeks prior to lodgement.	Contact was made with the NSW DPE in excess of 2 weeks prior to lodgement of the MOD 2 EA (07/08/18).

2.2 KARUAH EAST QUARRY COMMUNITY CONSULTATIVE COMMITTEE

The Community Consultative Committee (CCC) established for the Karuah East Quarry (required by Condition 6 of Schedule 5 of the Project Approval) were provided with a preliminary brief on the proposed modification by the proponent at the CCC meeting held on the 5th March 2018.

The briefing included:

- Preliminary details of the proposal; and
- Justification for the proposal.

No issues were raised by CCC members specifically in relation to MOD 2.

The next CCC meeting is scheduled for 3 September 2018. The proponent will further inform the CCC of the progress of MOD 2 and continue to inform the CCC as assessment of the MOD 2 application progresses.

3.0 Description of Proposal

The details of the proposed amendment remain generally the same as proposed in the Section 75W Modification application documentation submitted to the NSW DPE on 28 February 2017, except the proposed additional disturbance area has reduced slightly in size from 1.195ha to 1.133ha. This is a result of recent survey works of the MOD 2 area being completed and refinement of design of the additional disturbance area.

The proposed amendment is minor in nature and seeks consent to expand the approved area of disturbance (31.88ha) by an additional 1.133ha, within a heavily disturbed area of the subject site. The resulting new total area of disturbance of the Karuah East Quarry will be 33.01ha. This is calculated as follows:

- Original Project Approval disturbance area (17 June 2014) – 31.63ha;
- MOD 1 Approved additional disturbance area (27 April 2018) – 2,500m². Therefore the cumulative total approved disturbance area is 31.88ha; and
- MOD 2 proposed additional disturbance area is 1.133ha. Therefore the proposed cumulative total disturbance area is 33.01ha.

Figure 1 below shows the currently approved disturbance area of 31.88ha (ie. original approval plus the MOD 1 approval) and also the proposed MOD 2 additional disturbance area of 1.133ha in solid orange color.

The MOD 2 proposal represents less than a 3.6% increase in disturbance area when compared with the Project Approval (as amended).

The proposed additional disturbance area is heavily disturbed and devoid of any significant vegetation. The proposed additional disturbance area is located adjacent to the western edge of the quarry, and adjoins the north-south internal quarry haulage road. The additional disturbance area includes an electricity easement, an existing dwelling and an access road to the existing dwelling. Accordingly, nominal vegetation clearing is required.

The additional disturbance area will be utilised as follows:

- It will allow for the narrow internal north south internal haulage road to be widened between the plant and southern stockpile area. Widening of the internal haulage road will substantially improve operational safety, in particular for passing vehicles;
- It will allow water management along the north south internal haulage road and within the MOD 2 area (which is heavily disturbed) to be improved. Erosion and sediment controls will be implemented that will involve changing the grade of the MOD 2 extension area to maximise the drainage of water into the disturbed area of the site (dirty water catchment) established as part of the original Project Approval. The shaping will ensure water from the haulage road as well as the MOD 2 area flows to Dam 1 and Dam 2 (refer to **Figure 2**); and
- Additional area will be made available adjacent to the existing dwelling on Lot 12 for product stockpiling. This location is in close proximity to the crushing plant and establishment of a stockpiling area in this location will result in improved operational efficiencies through reduced haulage distance (ie. less material being transported to the southern stockpile area). This will also generate the benefit of less noise and dust

impact, with haulage trucks being refined in a smaller area of the quarry, further separated from residential receivers to the east and south.

The additional disturbance area will be gravel sealed to be consistent with other internal roads and disturbance areas within the approved quarry.

The Project Approval as it relates to extraction rates, quarrying, processing, operational activity and rehabilitation will not be affected by the proposed development.

It is proposed to retain the dwelling and sheds within the MOD 2 area. However in the event that the proponent decides at a later date to remove the structures, it is noted that Condition 9 of Schedule 2 of the Project Approval addresses any demolition works that may be necessary.

The proposed additional area of disturbance is shown in solid orange in **Figures 1 and 2** below and within **Appendix B**.

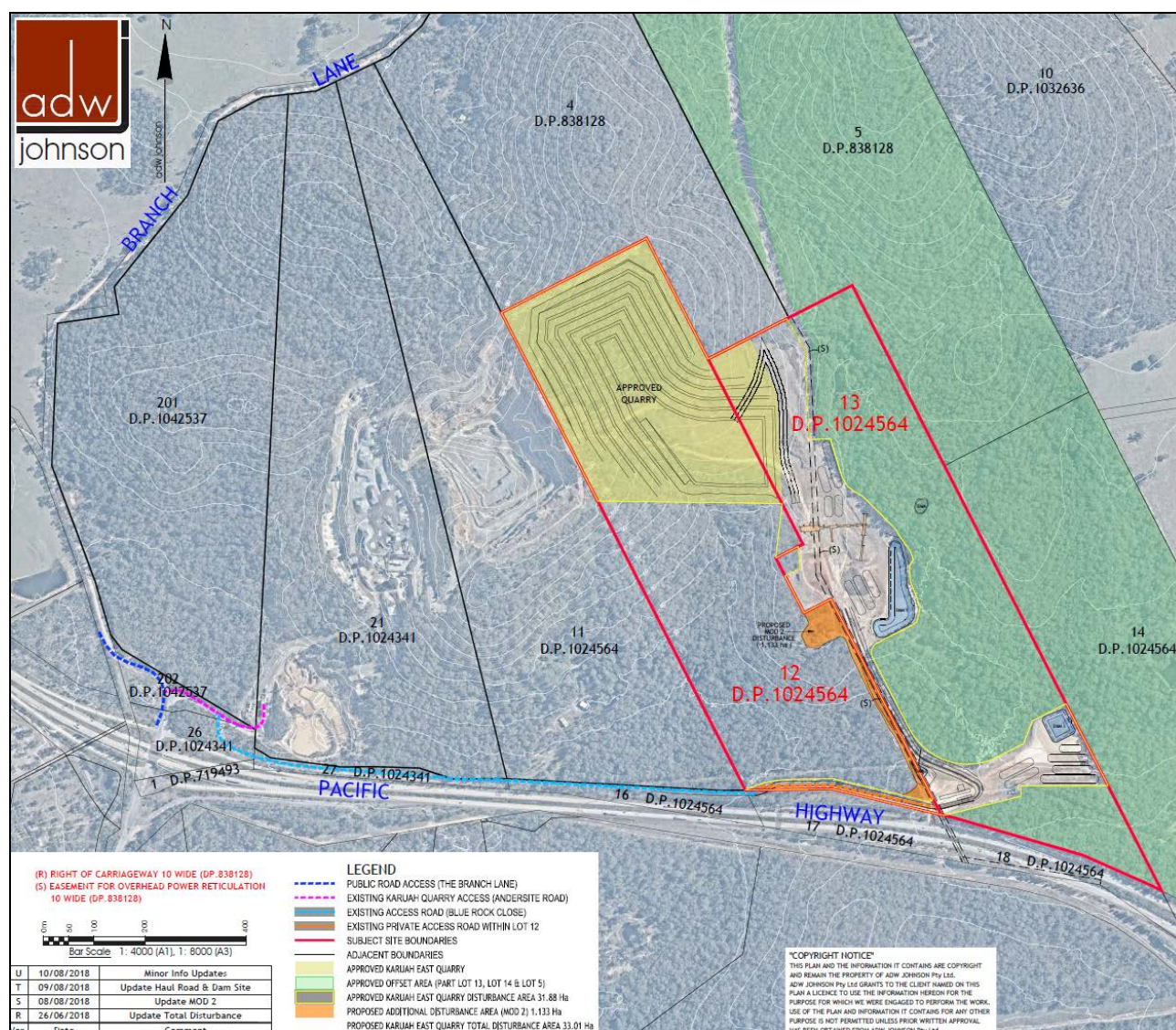


Figure 1: Proposed Additional Area of Disturbance (in solid Orange) and its Relationship to the Approved Quarry (Original Approval and MOD 1 Approval).



Figure 2: Proposed Additional Area of Disturbance (in solid orange).

3.1 ALTERNATIVES TO THE PROPOSED MODIFICATION

3.1.1 Alternate Location of Additional Disturbance Area

The minor additional area of disturbance proposed has been identified through the detailed quarry plant design process (which sited the plant and internal north south haul road in the most appropriate position within the approved quarry footprint relevant to a range of considerations including topography, operational functionality, environmental considerations and civil design considerations) and commencement of quarry operations.

Noting the siting of the quarry plant and internal north south haul road, the land subject to MOD 2 (refer to **Figures 1** and **2**) is the only location that can facilitate the identified improvements in environmental management, operational safety and operational efficiency noting the following:

- To widen the north south haul road (inclusive of surface water management upgrades) there are two options:
 - Utilise heavily disturbed land adjacent to the west of the haul road (as is proposed by MOD 2); or
 - Disturb established biodiversity offset land to the east of the haul road.
 It is considered that utilisation of heavily disturbed land to the west is the most appropriate option for haul road widening in this instance.
- In relation to improving site operational efficiencies, the following is noted:
 - Areas to the north, east and south of the existing quarry plant (quarry pit, quarry operational area and stockpiling area) are already approved for disturbance under the existing project approval and utilised for other quarry operations.
 - A small area (2,500m²) west of the plant has recently been approved for additional disturbance to assist with improving operational efficiencies (MOD 1). Land further west is heavily vegetated and would require significantly more vegetation removal than the MOD 2 proposed disturbance area to accommodate a similar level of operational efficiencies.
 Accordingly, it is considered that the location of MOD 2 is the most appropriate option to achieve improvements in operational efficiencies.

3.1.2 Do Nothing Option

The impact of not proceeding with MOD 2 would result in the Karuah East Quarry operating in a less efficient and environmentally sensitive manner than would be possible if the proposed minor additional disturbance area was able to be utilised. Opportunity for improved surface water management, operational safety and operational efficiencies would be lost.

4.0 Site Description & Location

4.1 PROPERTY DESCRIPTION & LAND OWNERSHIP

Key details relevant to the land subject to Project Approval 09_0175 is described in the table below.

The only parcels of land that are affected by the MOD 2 application are Lots 12 and 13 DP 1024564.

Table 2: Key Project Details

Description of Subject Land				
	Lot and Deposited Plan	Address	Total Site Area (Approximate)*	Land Owner
Quarry and Operations	Lot 12 DP 1024564	5887 Pacific Highway Karuah	36.4ha	Branch Land Pty Ltd
	Lot 13 DP 1024564	5893 Pacific Highway Karuah	37.91ha	Hilton Ross Grugeon and Beverley Clare Grugeon
Existing Quarry Access (not affected by MOD 2 Proposal)	Lot 202 DP 1042537	N/A	1.289ha	Roads and Maritime Services
	Lot 26 DP 1024341	N/A	2.743ha	Roads and Maritime Services
	Lot 27 DP 1024341	N/A	1.195ha	Roads and Maritime Services
	Lot 16 DP 1024564	N/A	2.21ha	Roads and Maritime Services
	Lot 17 DP 1024564	N/A	3.597ha	Roads and Maritime Services

* Areas have been derived from registered Deposited Plan information.

Landowners consent for the MOD 2 application has been provided to the NSW DPE under separate cover.

4.2 THE LOCALITY & SITE

The Karuah East Quarry is located north east of Raymond Terrace, south east of Dungog, south-west of Bulahdelah and west of Hawks Nest. Travel time to the site from Newcastle via the Pacific Highway is approximately 45 minutes.

The operational area of the approved quarry is described as Lots 12 and 13 DP 1024564 and is located off the Pacific Highway, Karuah. The Karuah East Quarry is accessed via an extension of Blue Rock Close which was approved as part of Project Approval 09_0175 (extension works completed and now operational).

The proposed additional disturbance area subject to MOD 2 is located to the south-west of the approved infrastructure plant and adjacent to the west of established internal north south haul road (refer to **Figures 1 and 2**).

4.3 EXISTING SITE IMPROVEMENTS

Construction works for the approved Karuah East Quarry are well advanced in accordance with Project Approval 09_0175 (as modified) and the quarry is operational. This can be seen in the aerial image shown in **Figure 4**.

Areas of the site not affected by the project approval remain predominately well vegetated, comprising uncleared bushland.

Specifically relevant to the area subject to MOD 2, the following is noted (refer to **Figure 5**):

- An existing dwelling and sheds are located on Lot 12 DP 1024564;
- An access driveway to the existing dwelling exists; and
- An electricity easement extends along the eastern edge of the MOD 2 area.

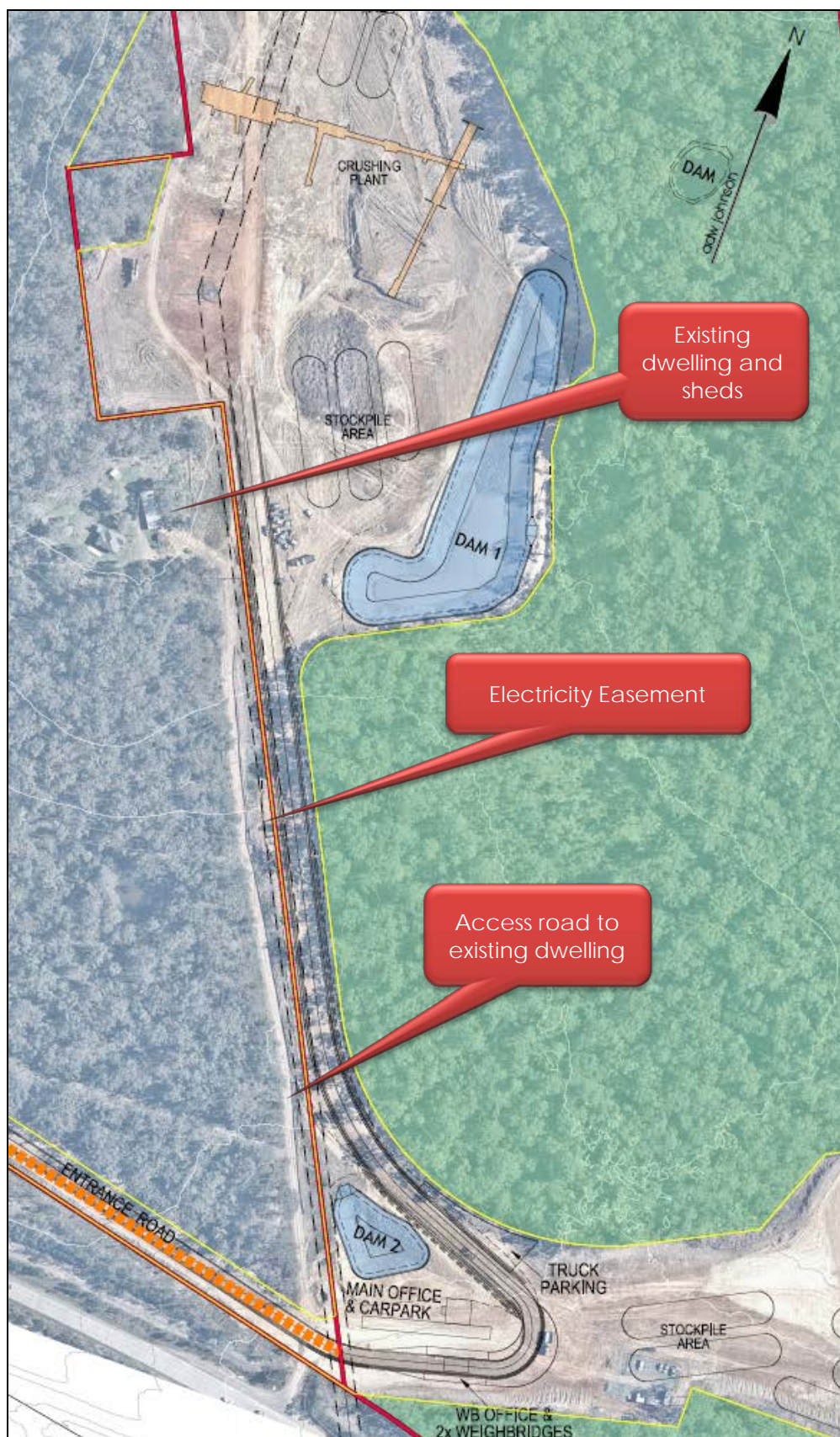


Figure 5: Aerial Photograph – Existing Site of Proposed MOD 2 and Surrounds.

4.4 VEGETATION

The MOD 2 site is largely free of vegetation noting the existing dwelling & sheds; access driveway to the existing dwelling and an electricity easement.

The vegetation that remains is heavily disturbed. This is detailed further within Section 6.1 of this EA.

4.5 ACCESS, ROAD NETWORK & TRAFFIC

Access to the Karuah East Quarry site is provided from the approved and constructed quarry access, which comprises an extension to Blue Rock Close which extends adjacent to the Pacific Highway.

Blue Rock Close is a sealed road that extends off Andersite Road in an easterly direction. Andersite Road is a sealed road that provides access to the existing Karuah Quarry off the Branch Lane.

Branch Lane to the north of the Andersite Road intersection reverts to a gravel road. Branch Lane links at grade to the Old Pacific Highway corridor into the Karuah Township to the south of the Karuah Interchange.

The existing road network is shown in **Figure 1**.

The proposal does not involve any changes to access or the approved Karuah East Quarry extraction rate and accordingly the proposal will have no impact on traffic or access.

4.6 TOPOGRAPHY, DRAINAGE & FLOODING

The approved Karuah East Quarry site and proposed area of additional disturbance is characterised by a mostly steep landscape. The majority of this area lies within the Yalimbah Creek catchment draining to the south west, with only a small portion of the area draining to the east into the stormwater management system of the Karuah East Quarry.

MOD 2 will allow improved surface water management to be established along the internal north south haulage road. Surface water management is discussed in Section 6.2 of this EA Report and **Appendix D**.

The site is not affected by flooding.

4.7 SOILS & GEOTECHNICAL

The geology and soils of the locality have previously undergone assessment to confirm suitability for quarrying.

A Soil Survey and Land Resource Assessment and Groundwater Impact Assessment formed part of the package of information supplied and approved as part of the Project Approval (09_0175). The assessments confirmed the suitability of the Karuah East Quarry site for quarrying activities and that the site is not affected by potential acid sulfate soils.

It is important to note that the proposed additional disturbance area is small in size (ie. less than 3.6% of the total approved disturbance area) and will not incorporate an extension to the quarry pit itself, but rather an area to facilitate improved environmental management and the safety and efficiency of quarry operations. The land subject to the MOD 2 application is acceptable for the purpose proposed and this is confirmed in Sections 6.3 and 6.7 of this EA.

4.8 BUSHFIRE

The area subject to MOD 2 is mapped as bushfire prone land on Mid Coast Council's mapping. The proposed development is not identified as being a 'special fire protection purpose' as defined by the *Rural Fires Act 1997*.

The proposed development will not increase the threat of bushfire to life or property within the subject site and adjoining properties. MOD 2, which will provide additional area for widening of the north south internal haulage road, will improve site access for emergency vehicles in the event of a bushfire.

A Bushfire Safety Authority is not required having regard to the operation of Part 3A of the EP&A Act 1979.

4.9 EASEMENTS

A 10m wide easement for overhead power reticulation extends through the approved Karuah East Quarry site (on Lot 12 and 13 DP 1024564), which in part extends through the eastern edge of the MOD 2 site.

The former purpose of the electricity easement was to supply overhead power reticulation to the dwellings on Lot 5 DP 838128 and Lot 12 DP 1024564. These dwellings are owned by the proponent and are no longer reliant on the electricity easement.

5.0 Planning Context

Compliance with all relevant legislation as identified in the approved Environmental Assessment Report (31 January 2013) and Preferred Project Report (30 July 2013) remains applicable to the proposed area of additional disturbance.

Additional comment is provided below where appropriate.

5.1 ENVIRONMENT PROTECTION & BIODIVERSITY CONSERVATION ACT 1999

EPBC Approval 2014/7282 for the Karuah East Quarry was granted on 20 March 2015.

The proponent is fully aware of its obligations under EPBC Approval 2014/7282 and has maintained contact with Federal Department of Environment and Energy (DoEE) staff during the construction and operational phases of the Karuah East Quarry to date.

Contact will be made with the DoEE (post approvals department) via the proponent's project ecologist Kleinfelder to determine if an amendment to the EPBC approval is necessary for the MOD 2 proposal. Kleinfelder have formed the position that the MOD 2 proposal will not have a significant impact on any Matter of National Environmental Significance (MNES), in particular noting that the area subject to MOD 2 is already heavily disturbed, is largely free from vegetation and does not contain any MNES. Accordingly it is considered that no further action is necessary.

In the event that a modification to the EPBC Approval is necessary, there is no statutory requirement that MOD 2 be assessed concurrently with a proposed amendment to EPBC approval 2014/7282.

The proponent is aware that if a modification to EPBC approval 2014/7282 is necessary, that no works are to be undertaken within the area subject to the MOD 2 proposal until EPBC approval has been obtained. If a modification to EPBC approval 2014/7282 is necessary, it is the proponent's intention to progress this matter separately to the MOD 2 assessment by NSW DPE.

5.2 ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

This application to extend the development footprint by 1.133ha is lodged in accordance with Section 75W of the EP&A Act 1979. Section 75W of the EP&A Act 1979 remains applicable under the transitional provisions identified in Schedule 2 of the *Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017* (EP&A Saving Regulation 2017) as follows:

Schedule 2 Transferred Transitional Arrangements on Repeal of Part 3A – former Schedule 6A to the Act'

2 Transitional Part 3A Projects

- (1) *The following are, subject to this Schedule, transitional Part 3A projects:*
- (a) *an approved project (whether approved before or after the repeal of Part 3A),*

Clause 3 of Schedule 2 of the *EP&A Saving Regulation 2017* states that the provisions of any State Environmental Planning Policy (SEPP) or other instrument implemented under Part 3A continue to apply in respect of a transitional Part 3A project:

3 Continuation of Part 3A—transitional Part 3A projects

(1) *Part 3A of the Act (as in force immediately before the repeal of that Part and as modified under this Schedule after that repeal) continues to apply to and in respect of a transitional Part 3A project.*

(2) *For that purpose:*

(a) any State environmental planning policy or other instrument made under or for the purposes of Part 3A, as in force on the repeal of that Part and as amended after that repeal, continues to apply to and in respect of a transitional Part 3A project,

Clause 3BA of Schedule 2 of the *EP&A Saving Regulation 2017* contains provisions relating to the winding-up of transitional Part 3A modification applications (as relevant to MOD 2):

3BA Winding-up of Transitional Part 3A Modification Provisions on Cut-Off date of 1 March 2018 and other Provisions relation to Modifications

(1) For the purposes of this clause, the cut-off date is 1 March 2018.

(2) An approved project or a concept plan cannot be modified under section 75W on or after the cut-off date, except as provided by this clause.

(3) Subclause (2) does not apply if the request to modify the approved project or concept plan under section 75W was lodged before the cut-off date. Accordingly, the provisions of this Schedule relating to a modification made pursuant to such a request continue to apply.

(4) A request to modify an approved project or concept plan under section 75W that may be dealt with because of subclause (3) cannot be dealt with under section 75W if:

(a) the request has not been determined by 1 September 2018, and

(b) the Secretary is of the opinion that insufficient information has been provided to deal with the request and notifies the person who made the request that it will not be dealt with under section 75W.

Ongoing consultation has been maintained with NSW DPE assessment staff in relation to the Section 75W transitional provisions. Relevant to the above clause, the following is noted:

- MOD 2 was lodged with the NSW DPE on 28 February 2018 (ie. before the cut-off date); and
- This EA has been submitted to the NSW DPE prior to 1 September 2018.

Based on the above, it is established that MOD 2 can be assessed as a Section 75W application. Section 75W of the EP&A Act is addressed further below.

75W Modification of Minister's approval

In this section:

Minister's approval means an approval to carry out a project under this Part, and includes an approval of a concept plan.

modification of approval means changing the terms of a Minister's approval, including:

(a) revoking or varying a condition of the approval or imposing an additional condition of the approval, and

(b) changing the terms of any determination made by the Minister under Division 3 in connection with the approval.

(2) The proponent may request the Minister to modify the Minister's approval for a project. The Minister's approval for a modification is not required if the project as modified will be consistent with the existing approval under this Part.

(3) The request for the Minister's approval is to be lodged with the Director-General. The Director-General may notify the proponent of environmental assessment requirements with respect to the proposed modification that the proponent must comply with before the matter will be considered by the Minister.

(4) The Minister may modify the approval (with or without conditions) or disapprove of the modification.

(5) The proponent of a project to which section 75K applies who is dissatisfied with the determination of a request under this section with respect to the project (or with the failure of the Minister to determine the request within 40 days after it is made) may, within the time prescribed by the regulations, appeal to the Court. The Court may determine any such appeal.

(6) Subsection (5) does not apply to a request to modify:

(a) an approval granted by or as directed by the Court on appeal, or

(b) a determination made by the Minister under Division 3 in connection with the approval of a concept plan.

(7) This section does not limit the circumstances in which the Minister may modify a determination made by the Minister under Division 3 in connection with the approval of a concept plan

No provisions of Section 75W prohibit or restrict the proposed modification to the Project Approval. It is considered that MOD 2 remains consistent with this section of the EP&A Act 1979.

5.3 WATER MANAGEMENT ACT 2000

The *Water Management Act 2000* (WM Act 2000) contains provisions for the licensing of water capture and use.

The currently approved Karuah East Quarry project does not require any separate approvals under the provisions of the WM Act 2000. It is anticipated that MOD 2 will not require any additional approval under this act.

5.4 PROTECTION OF THE ENVIRONMENT OPERATIONS ACT 1997

An Environmental Protection License (EPL) (No. 20611) has been obtained for the Karuah East Quarry.

The proposed MOD 2 amendment will not impact on the approved quarry operations or extraction volumes.

Any variation to the EPL (if required) will be undertaken in consultation with the NSW Environment Protection Authority.

5.5 NATIONAL PARKS & WILDLIFE ACT 1974

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

A Due Diligence Cultural Heritage Assessment relevant to the proposed additional disturbance area has been prepared as part of this EA, refer to Section 6.9 and **Appendix E**.

5.6 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.

A Cultural Heritage Assessment was completed by RPS HSO and was submitted as part of the approved EA for the Karuah East Quarry. The area subject to MOD 2 is heavily disturbed and contains an existing dwelling & sheds; an access road to the existing dwelling and an electricity easement.

No heritage impacts are envisaged as a result of the proposed MOD 2 additional disturbance area. This matter is addressed further in Section 6.9 of this EA.

5.7 BIODIVERSITY CONSERVATION ACT 2016

The *Biodiversity Conservation Act 2016* (BC Act 2016) commenced on 25 August 2017 and replaced the *Threatened Species Conservation Act 1995* (TSC Act 1995) as well as the animal and plant provisions of the *National Parks & Wildlife Act 1974*.

The purpose of the BC Act 2016 is 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.

A Flora and Fauna Impact Assessment relevant to the proposed MOD 2 additional disturbance area has been completed as part of this Environmental Assessment (refer to **Appendix C**). This is discussed further in Section 6.1 below.

Schedules 1 and 2 of the BC Act 2016 contain lists of flora and fauna species and communities, which have been determined by the NSW Scientific Committee as being under threat of serious decline that could ultimately lead to extinction. The BC Act 2016 provides for a five part test of significance and impact to be applied to any of these listed species or communities that are found in an area subject to the proposed development. Schedule 4 of the BC Act 2016 contains a list of 'key threatening processes' that are deemed to have a negative impact on threatened species, populations or communities.

The BC Act 2016 introduces the Biodiversity Offset Scheme (BOS). Where certain thresholds are triggered by a development, offsets are subsequently required. The Flora and Fauna Impact Assessment completed as part of this EA (refer to **Appendix C**) confirms that the proposal does not trigger any of the thresholds, therefore the proposal does not trigger the BOS.

Developments that do not trigger the BOS require a Flora and Fauna Impact Assessment to determine the likely impact of the development on biodiversity. Accordingly a Flora and Fauna Impact Assessment has been prepared as part of this EA (refer to Section 6.1 below and **Appendix C**).

5.8 NATIONAL GREENHOUSE & ENERGY REPORTING ACT

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

MOD 2 will not alter the approved operational procedures and practices for the quarry, other than to support a reduction in internal site truck movements through the provision of additional stockpiling areas closer to the established quarry plant; to support improved surface water management; and to improve operational safety.

5.9 STATE ENVIRONMENTAL PLANNING POLICIES

The assessment of relevant State Environmental Planning Policies, carried out as part of the approved EA (January 2013) remain applicable to the proposed amendment.

5.9.1 SEPP (Major Development) 2005

SEPP (Major Development) 2005, in its former currency, defined certain developments that were major projects under Part 3A of the EP&A Act 1979 and determined by the Minister for Planning. The SEPP also listed State significant sites.

The Karuah East Quarry was determined to be a 'Major Project' to which the Major Projects SEPP (and Part 3A of the Act) applied under Schedule 1 of the SEPP. The Karuah East Quarry was approved by the NSW Planning Assessment Commission, as delegate for the Minister for Planning, on 17 June 2014.

Given the minor nature of MOD 2, SEPP (Major Development) 2005 is not particularly relevant to the proposal.

5.9.2 SEPP (Infrastructure) 2007

SEPP (Infrastructure) 2007 (ISEPP) 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 ISEPP supports greater flexibility in the location of infrastructure and services along with improved regulatory certainty and efficiency.

Division 17 – Roads and Traffic, Clause 104 ‘Traffic Generating Development’ and Schedule 3 of the ISEPP identify traffic generating development that requires referral to RMS. MOD 2 does not change approved quarrying, extraction rates, processing or operational activity other than to improve internal vehicle safety and quarry operational efficiency. Accordingly, MOD 2 is not categorised as traffic generating development that requires referral to NSW RMS.

5.9.3 SEPP (Mining, Petroleum Production and Extractive Industries) 2007

SEPP (Mining, Petroleum Production and Extractive Industries) 2007 (SEPP MPPEI) 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.

SEPP MPPEI was considered during the assessment process for the Karuah East Quarry. In addition to providing permissibility for the Karuah East Quarry (under clause 7(3)(a)) and extinguishing any LEP provisions (Clause 8), Part 3 of SEPP MPPEI provided that additional matters be considered by the consent authority relating to:

- Compatibility with other land uses;
- Compatibility with mining, petroleum production or extractive industry;
- Natural resource management and environmental management;
- Resource recovery;
- Transport; and
- Rehabilitation.

These matters were satisfactorily addressed by the EA Report (January 2013) and Preferred Project Report (July 2013) for the Karuah East Quarry. Given the minor nature of MOD 2 (ie. less than 3.6% increase in total disturbance area) and noting that the Project Approval as it relates to quarrying, extraction rates, processing and operational activity will not be affected by MOD 2, it is considered that the proposal is acceptable in terms of each of the above considerations.

5.9.4 SEPP 14 (Coastal Wetlands)

SEPP 14 (Coastal Wetlands) (SEPP CW) ensures coastal wetlands are preserved and protected for environmental and economic reasons. The policy applies to local government areas outside the Sydney metropolitan area that front the Pacific Ocean. The policy identifies over 1300 wetlands of high natural value from Tweed Heads to Broken Bay and from Wollongong to Cape Howe. Land clearing, levee construction, drainage work or filling may only be carried out within these wetlands with the consent of the local Council and the agreement of the Secretary of the NSW DPE.

There is one SEPP 14 “Coastal Wetland” comprising an upper arm of the Karuah River situated to the south west approximately 1.5km from the proposed MOD 2 site.

A Surface Water Impact Assessment relevant to MOD 2 has been prepared by SLR (**Appendix D**) and is discussed in detail in Section 6.2 of this EA. Implementation of sediment and water management strategies during construction and operational phases will appropriately mitigate any potential impacts.

5.9.5 SEPP (Coastal Management) 2018

SEPP (Coastal Management) 2018 updates and consolidates into one integrated policy the former SEPP 14 (Coastal Wetlands), SEPP 26 (Littoral Rainforests) and SEPP 71 (Coastal Protection), including Clause 5.5. of the Standard Instrument – Principal Local Environmental Plan. These policies are now repealed.

Notwithstanding, SEPP (Coastal Management) 2018 does not apply to the proposal on the basis of transitional provisions provided in Clause 21(1). Accordingly, the provisions of SEPP 14 (refer to Section 5.9.4 above) are applicable to the proposed MOD 2 development.

5.9.6 SEPP 44 (Koala Habitat Protection)

SEPP 44 (Koala Habitat Protection) (SEPP 44) aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for Koalas to ensure a permanent free-living population over their present range and reverse the current trend of Koala population decline.

The Flora and Fauna Impact Assessment prepared by Kleinfelder (**Appendix C**) gives consideration to SEPP 44. The assessment confirms that due to the lack of canopy trees within the MOD 2 site, the MOD 2 site does not constitute Potential Koala habitat and as such no further assessment under SEPP 44 is required.

5.9.7 SEPP 33 (Hazardous & Offensive Development)

SEPP 33 (Hazardous & Offensive Development) (SEPP 33) 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. SEPP 33 also requires specified matters to be considered for proposals that are ‘potentially hazardous’ or ‘potentially offensive’ as defined in SEPP 33.

Storage of minor amounts of fuel and oil were addressed as part of the existing project approval. MOD 2 is for a minor increase in quarry disturbance area and does not result in the storage of any additional fuels or oils.

Accordingly, it is considered that MOD 2 does not trigger the provisions of SEPP 33.

5.10 HUNTER REGIONAL PLAN 2036

The NSW Government has developed the Hunter Regional Plan 2036 as an overarching framework to guide land use planning priorities and infrastructure funding decisions in the Hunter region over the next 20 years.

The Plan sets priorities and provides a direction for regional planning decisions. It focuses on new housing and jobs, and targets growth in strategic centres and renewal corridors close to transport to deliver social and economic benefits. It sets in place line-of-sight land use planning for the region, regional districts like the Greater Newcastle metropolitan area and each Council area.

The vision of the Hunter Regional Plan 2036 is for the Hunter to be the leading regional economy in Australia with a vibrant new metropolitan city at its heart. To achieve this vision, the NSW Government has set the following regionally focused goals:

- The leading regional economy in Australia;
- A biodiversity-rich natural environment;
- Thriving communities; and
- Greater housing choice and jobs.

Whilst very minor in nature, MOD 2 is consistent with the Hunter Regional Plan, in particular noting the following:

- Relevant to the Mid Coast area, the plan promotes the growth of industries that can leverage accessibility provided by the Pacific Highway (Goal 1, Direction 6). MOD 2 is entirely in keeping with this objective noting that it will improve the operational efficiency of the Karuah East Quarry, which will capitalise on excellent access available from the Pacific Highway;
- The MOD 2 proposal will result in improved operational environmental performance, in particular noting that surface water management along the internal north south haulage road will be improved;
- MOD 2 will have negligible environmental impact, in particular noting that the MOD 2 area is heavily disturbed and contains a dwelling & sheds, access driveway for the dwelling and an electricity easement;
- The proposal will improve the efficiency of the Karuah East Quarry, which in turn will support its long term viability and local employees of the quarry; and
- The Karuah East Quarry will extract a valuable hard rock resource and make it available to the construction industry for use in significant infrastructure projects within the Hunter Region, for example motorway upgrades as identified within Goal 1 Direction 4 of the plan. MOD 2 will improve the operational efficiency of the Karuah East Quarry and will therefore support this objective of the regional plan.

5.11 LOCAL ENVIRONMENTAL PLANS

5.11.1 Great Lakes Local Environmental Plan 1996 (superseded)

The now superseded Great Lakes Local Environmental Plan 1996 (GLLEP 1996) was applicable at the time of lodgement of the project application, under which the subject land was zoned 1(a) Rural zone.

Permissibility

The Karuah East Quarry was defined as an '*extractive industry*' under the GLLEP 1996. An '*extractive industry*' was permissible with consent within 1(a) Rural zone.

5.11.2 Great Lakes Local Environmental Plan 2014

The Great Lakes Local Environmental Plan 2014 (GLLEP 2014) replaced the now superseded GLLEP 1996 and is applicable to the site.

The site is zoned RU2 Rural Landscape under the GLLEP 2014. An extract of the zoning plan is shown in **Figure 6**.

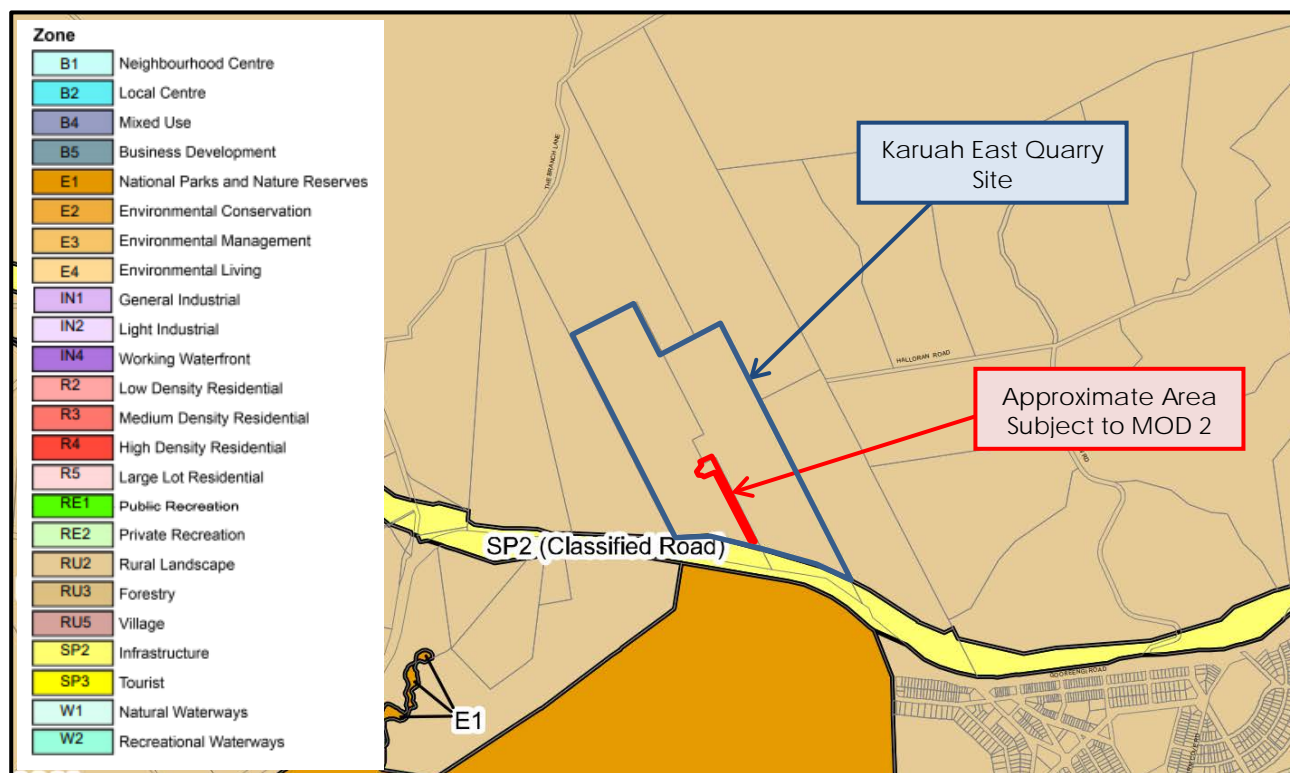


Figure 6: Zoning Plan.

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.

Within Zone RU2 Rural Landscape, an extractive industry land use is permissible with consent.

6.0 Environmental Assessment of MOD 2

This section provides an assessment of the key environmental issues associated with proposed MOD 2.

6.1 FLORA & FAUNA

6.1.1 Introduction & Methodology

A Flora and Fauna Impact Assessment has been prepared by Kleinfelder to accompany the MOD 2 application. The assessment is provided in full in **Appendix C**.

The methodology of the assessment included a review of the project background and existing data, a detailed legislative review and targeted field surveys undertaken in accordance with the 'NSW Guide to Surveying Threatened Plants' (OEH, 2016), 'NSW Guide to Surveying Threatened Species' (OEH, 2016) and 'Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities (DEC, 2004). The field surveys were conducted on 18 July 2018.

6.1.2 Results & Impact Assessment

Vegetation

The MOD 2 site has a total area of 1.133ha. Within this area, the proposal will impact upon a total of 0.57ha of heavily degraded vegetation. The balance of the MOD 2 site is already cleared due to historical uses such as the dwelling, access road to the dwelling and electricity easement.

The proposal may also have potential for minor indirect impact upon the remnant vegetation to the west of the MOD 2 site associated with erosion and sedimentation (only in the event that control measures are not implemented).

Provided in **Figure 7** below is a figure demonstrating the vegetation identified during fieldwork as well as survey effort.

Vegetation Communities

No vegetation communities were mapped on the MOD 2 site.

Only heavily disturbed vegetation occurs within the electricity easement and small patches in the north of the MOD 2 site around the existing dwelling. This vegetation contains a mix of native and exotic species and is dominated by *Setaria sphacelata* (South African Pigeon Grass), with native regeneration of *Hardenbergia violacea* (Purple Coral Pea), *Pultenaea villosa* (Hairy Bush-pea), *Kennedia rubicunda* (Dusky Coral-pea), *Schoenus apogon* (Common Bog-rush), and *Dodonaea triquetra* (Large-leaf Hop-bush).

Flora

A total of 35 flora species were recorded during field surveys. No threatened flora species were identified within the MOD 2 site.

One of the species recorded, *Macadamia integrifolia* (Macadamia Nut), is listed as vulnerable under both the BC Act 2016 and EPBC Act 1999. Two (2) *M. integrifolia* were detected within the MOD 2 site, however they were planted as an ornamental garden feature next to the existing dwelling and are not naturally occurring (this species is not endemic to the region).

As this species was planted as a garden feature associated with the existing dwelling and does not occur naturally, no assessment of the impacts of MOD 2 on this species was necessary.

RPS (2013) within the *Terrestrial Ecology Survey & Assessment Report* that forms part of the original Project Approval, previously identified two (2) *tetralochea juncea* (Black-eyed Susan) individuals on the eastern edge of the MOD 2 site (interface where the MOD 2 boundary adjoins the existing quarry haul road), and three (3) individuals within the remnant native vegetation to the west of the MOD 2 site. This species is listed as vulnerable under both the BC Act 2016 and the EPBC Act 1999. The following is noted:

- The two (2) individuals of *tetralochea juncea* on the edge of the haul road were previously translocated in accordance with the original Project Approval; and
- The three (3) individuals to the west of the MOD 2 site were previously recorded within 50m from the western edge of the MOD 2 subject site. These individuals will not be directly impacted due to the MOD 2 proposal; however there is potential for indirect impacts (only in the event that management measures are not implemented). As no individuals will be directly impacted, the assessment of significance concluded that the MOD 2 proposal will not significantly impact on the local population. Implementation of the mitigation measures (refer to Section 6.1.3 below) will minimise any potential indirect impact to this species.

One threatened flora species, *Asperula asthenes* (Trailing Woodruff), was previously identified approximately 150m west of the MOD 2 site. This species was not deemed to be potentially affected by proposed MOD 2, as stormwater management and erosion and sedimentation controls will be implemented to best practice standards.

Of the 35 flora species identified, seven exotic species were detected. Whilst not within the MOD 2 subject site, one exotic species, *Lantana camara* (lantana) was detected in the broader study area (which includes a 50m buffer from the edge of the MOD 2 site).

Hollow Bearing Tree Survey

No hollow bearing trees or dead stags were identified within the MOD 2 site.

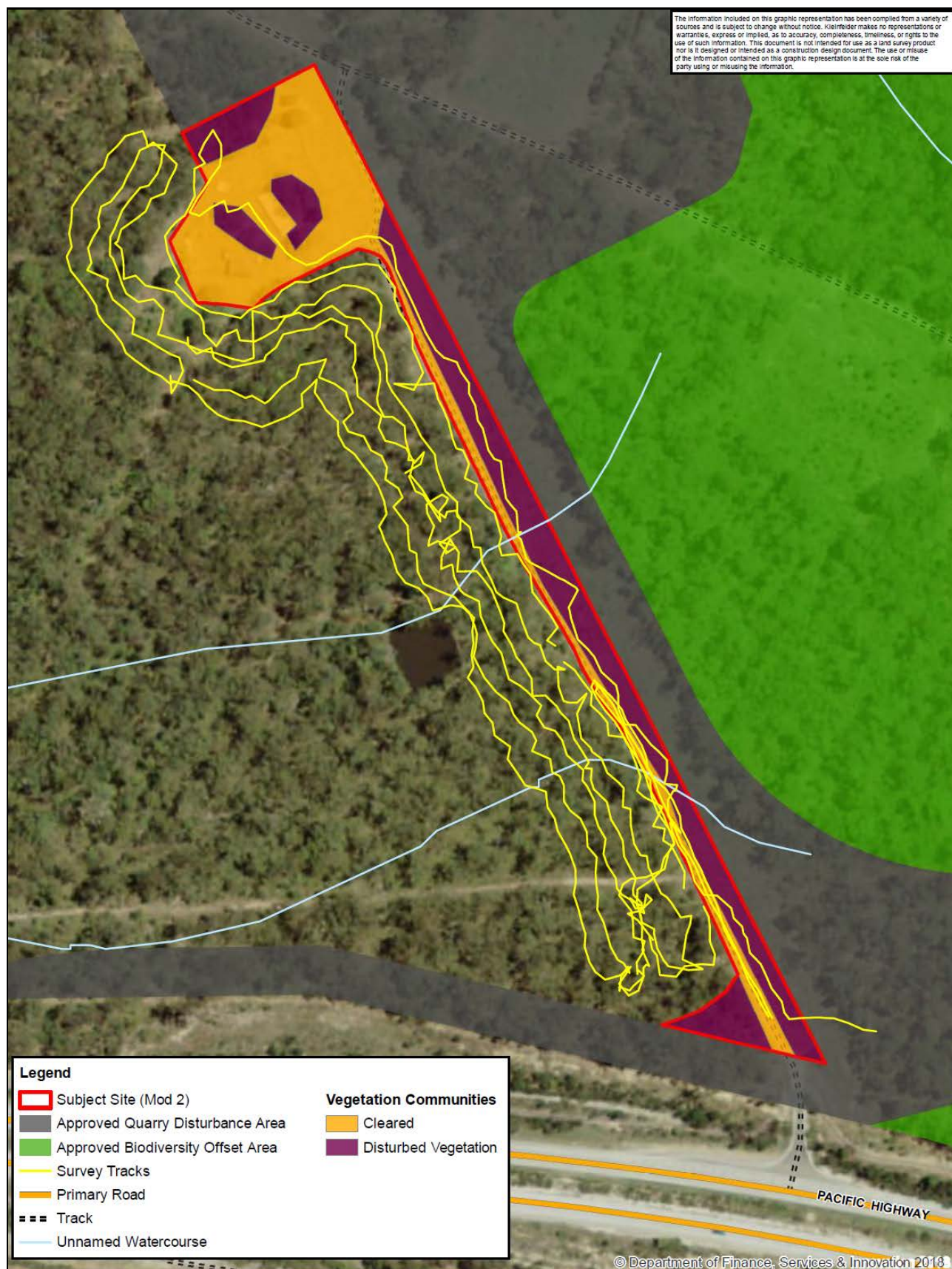


Figure 7: Vegetation Communities and Survey Effort.

Fauna

Eighteen (18) threatened fauna species listed under the BC Act 2016 were identified as having suitable habitat within the study area (which includes the MOD 2 site and a 50m buffer from the edge of the MOD 2 site). These include:

- Regent Honeyeater (also listed as critically endangered under the EPBC Act 1999);
- Dusky Woodswallow;
- Glossy-black Cockatoo;
- Varied Sitella;
- Little Lorikeet;
- Swift Parrot (also listed as critically endangered under the EPBC Act 1999);
- Powerful Owl;
- Masked Owl;
- Spotted-tailed Quoll (also listed as endangered under the EPBC Act 1999);
- Eastern False Pipistrelle;
- Little Bentwing-bat;
- Eastern Bentwing-bat;
- Eastern Freetail-bat;
- Koala (also listed as vulnerable under the EPBC Act 1999);
- Long-nosed Potoroo (also listed as vulnerable under the EPBC Act 1999);
- Grey-headed flying fox (also listed as vulnerable under the EPBC Act 1999);
- Greater Broad-nosed bat; and
- Eastern Cave bat.

The likely impact on native fauna from proposed MOD 2 is minimal. While the area surrounding contains intact native vegetation, the area to be removed is 0.57ha and a large area of native vegetation continues to the west and established biodiversity offset area to the east (on the opposite side of the haulage road).

Additionally, the area subject to MOD 2 includes an existing dwelling, a pre-existing unsealed road to the existing dwelling and an electricity easement adjacent to the operational Karuah East Quarry. Its removal will not create any further fragmentation of vegetation that is already present onsite, such that local fauna species would be impacted. Accordingly, impacts on native fauna are considered to be minimal as a result of the MOD 2 proposed additional disturbance area.

Assessments of significance for each of the above species (as well as consideration of EPBC Significant Impact Guidelines where required) concluded that MOD 2 is unlikely to have a significant impact due to the removal of a minor area (0.57ha) of degraded vegetation and the retention of native vegetation communities in adjacent areas.

In addition, there is potentially suitable foraging habitat for four (4) migratory species listed under the EPBC Act 1999:

- Fork – tailed Swift;
- White – throated Needle-tail;
- Rainbow Bee – eater; and
- Black – faced Monarch.

None of these species are considered to have breeding habitat within the MOD 2 site.

Considering that the proposal will remove a minor area of potential habitat (0.57ha) for these species, it is unlikely that the proposal will significantly impact on migrant populations. This was confirmed following considering of EPBC Significant Impact Guidelines.

Koala Habitat Assessment (SEPP 44 – Koala Habitat Assessment)

No tree species listed under Schedule 2 of SEPP 44 were identified within the MOD 2 site.

Due to the lack of canopy trees within the MOD 2 site, this area does not constitute Potential Koala habitat and as such no further assessment is necessary.

6.1.3 Conclusion and Recommended Mitigation Measures

Provided that the below recommendations are implemented, it is considered that the proposed MOD 2 application to increase the disturbance area of the Karuah East Quarry by 1.133ha is acceptable in terms of ecological considerations.

The Flora and Fauna Impact Assessment concludes the following:

- A total of 0.57ha of heavily degraded vegetation occurs within the MOD 2 site, which does not form part of any threatened ecological community;
- No threatened flora species were identified within the MOD 2 site. A total of two (2) *tetratheca juncea* individuals were previously identified on the eastern edge of the MOD 2 site (where it adjoins the now established quarry haul road) however these individuals were translocated as part of the original Project Approval. A further three (3) *tetratheca juncea* individuals were previously identified adjacent to the MOD 2 site (to the west) within a 50m buffer area. The impact assessment confirms that due to the minor nature of the MOD 2 proposal, it is unlikely that it will have a significant impact on the local population of the species;
- Eighteen (18) threatened fauna species were identified as having suitable habitat within the study area (which includes the MOD 2 site and a 50m buffer to the west). This includes eight (8) bird and ten (10) mammal species. The impact assessment concludes that the MOD 2 proposal is unlikely to have a significant impact on any locally occurring threatened fauna or migratory species due to the small area of impact; and
- Proposed MOD 2 will not significantly affect any native flora species or ecological communities therefore there is no requirement for consideration of or establishment of biodiversity offsets.

The following recommendations are provided to protect the integrity of the native vegetation, threatened species and fauna habitats adjacent to the MOD 2 site:

- The construction site will be managed so that no accidental incursions occur into areas that are not part of the MOD 2 proposal area. There is an existing fence line that extends along the length of the vehicle track (western side) to the dwelling which can be used as delineation;
- All plant, machinery and equipment to be used for vegetation clearing will be washed down before entering and leaving the site to prevent the spread and establishment of weeds, or fungal pathogens;
- Best practice erosion and sedimentation control methods will be adopted, enforced and maintained throughout earthworks, during the construction phase to avoid having a negative impact on the surrounding vegetation, threatened species and fauna

habitats. Upon completion of the works, long term erosion and sedimentation control measures should be implemented to limit the potential for run-off from the haul road having a negative impact of the adjacent vegetation; and

- The Biodiversity Offset Area Management Plan (November 2015, Kleinfelder) will be updated to reflect the MOD 2 additional disturbance area.

6.2 SURFACE WATER MANAGEMENT

An assessment of Surface Water Management relevant to MOD 2 has been undertaken by SLR Global Environmental Solutions to accompany this modification application (refer to **Appendix D**).

6.2.1 Existing Environment

The current dirty water management system was established as part of the original Project Approval and the subsequent NSW DPE Secretary approved Water Management Plan (SLR, 2015).

The proposed upgrades will improve surface water management at the site.

6.2.2 Assessment of Impacts

Given the minor nature of MOD 2, no additional surface water modelling was deemed necessary by SLR.

Construction

There will be no increased impacts from surface water (erosion and uncontrolled discharge) provided that controls are implemented during the construction phase (refer to Section 6.2.3 below). During the construction phase, it is recommended that works are completed generally in accordance with **Figure 8** below, which includes erosion and sediment controls.

Operational

Any potential impacts from surface water will be effectively managed with mitigation measures implemented during the operational phase (refer to Section 6.2.3 below).

6.2.3 Summary of Mitigation Measures

Construction

Temporary erosion and sediment controls will be implemented that could include the use of strategically placed silt fencing, straw bales or similar (as has been done during construction of the Karuah East Quarry - refer to Section 6.2.3 of the approved Surface Water Management Plan). Temporary sediment controls will be constructed to intercept sediment laden runoff prior to discharge into the natural drainage system.

Conceptual arrangement of controls during construction activities is shown in **Figure 8** below and could include:

- Placement of sediment fencing at strategic locations on the western side of the haul road;

- A temporary toe drain or bund on the western side of the haul road to direct construction site disturbance towards a sump;
- A sump at the low point to collect runoff, which will be pumped out to the sediment dam (Sediment Dam 2);
- Managing bulk earthworks so that potential runoff towards the western boundary is reduced;
- Early establishment of ground cover on the external batter. This may also comprise of mulch or stone pitching utilising hard quarry stone; and
- Monitoring of water quality within Dam 2, and discharging to Yalimbah Creek when suspended solids are below 50mg/L (in accordance with the approved Water Management Plan, SLR 2015). This is likely to require flocculation. Alternatively dewatering to Dam 1 could be undertaken.

All construction activities including erosion and sediment control will be completed within the proposed MOD 2 disturbance footprint.

Operation

To achieve successful water management for the operational phase, water management and erosion & sediment controls will be implemented. This will involve changing the grade of the proposed MOD 2 extension area to maximise the drainage of water into the disturbed area of the site (dirty water catchment). This will involve the addition and shaping of material within the proposed MOD 2 extension area to achieve desired water flow direction. Once shaping has been completed the water from the proposed MOD 2 extension area will flow to Dam 1 and Dam 2.

Sediment basin sizing calculations in accordance with Managing Urban Stormwater (Blue Book) were undertaken by SLR and it is confirmed that Dam 2 has adequate capacity to accommodate the minor MOD 2 extension area. Dam 2 will also be reshaped (to be partially located within the MOD 2 area) and nominally modified.

Dam 1 has a much greater capacity than Dam 2 and will also account for the small increase in catchment associated with the MOD 2 extension.

Figure 8 below demonstrates the proposed water management, erosion and sediment control for the MOD 2 area that will be generally implemented. The conceptual design detail for the external embankment includes the following key aspects:

- Batter design in accordance with engineering design requirements;
- A mulched or stone pitched batter, generally with larger diameter rocks towards the base; and
- Road surface graded back towards the existing Dam 1 and Dam 2.

The engineering design for the proposed works may also include appropriate details for scour protection at the clean water culvert headwall and sediment dam spillway, and scour protection along steep sections of the dirty water drain alongside the road surface.

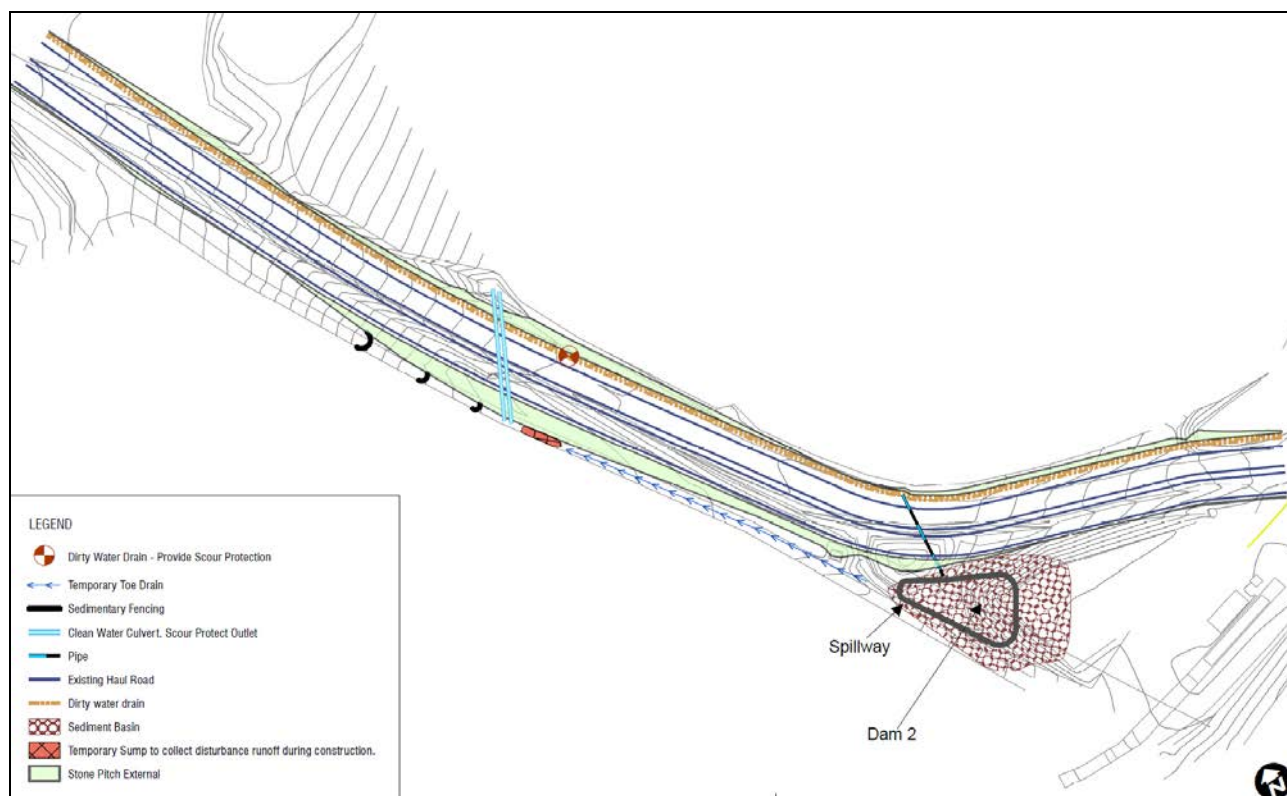


Figure 8: Water Management – MOD 2 Proposed Extension Area.

The following additional operational mitigation measures will be employed:

- Maintenance of gravel on the road surface, as cover material in trafficable areas of MOD 2 extension area to control erosion;
- Monitoring the condition of the external embankment to ensure there are no erosional features such as rilling or slumping, and implementation of correctional measures (as necessary);
- Continuation of surface water monitoring at dams and surrounding creeks (Bulga Creek and Yalimbah Creek) in accordance with Section 8 of the approved Water Management Plan (SLR 2015);
- Maintenance of erosion and sediment controls; and
- The NSW DPE Secretary approved Water Management Plan (SLR, 2015) will be updated following determination of the MOD 2 application to reflect the minor increase to the disturbance footprint.

MOD 2 will have no adverse impact on surface water management provided the above construction and operational mitigation measures are implemented.

6.3 GROUNDWATER

Consideration of potential groundwater impacts relevant to MOD 2 has been undertaken by SLR Global Environmental Solutions to accompany this EA (refer to **Appendix D**).

6.3.1 Existing Environment

The groundwater conditions at the Karuah East Quarry site are well understood and the proponent monitors a series of groundwater bores for groundwater quality and depth as part of the NSW DPE Secretary approved Water Management Plan (SLR, 2015).

The typical groundwater RL at the quarry site is greater than 10m below the planned quarry base. Excavation in the quarry is therefore not anticipated to intersect the groundwater surface.

6.3.2 Assessment of Impacts

Given the minor nature of MOD 2, no additional ground water modelling was deemed necessary by SLR.

Construction & Operation

There are no predicted additional groundwater impacts associated with construction and operations for the proposed MOD 2 additional disturbance area. The proposed MOD 2 additional disturbance area is not an extension of the quarry pit and will not cause any additional groundwater impact.

6.3.3 Summary of Mitigation Measures

Groundwater monitoring is undertaken at Karuah East Quarry in accordance with the NSW DPE Secretary approved Water Management Plan (SLR 2015). The existing monitoring and reporting program will continue following the MOD 2 extension of the quarry disturbance area.

It is expected that MOD 2 will have no impact on groundwater.

6.4 NOISE IMPACT ASSESSMENT

Consideration of potential noise impact has been undertaken by SLR Global Environmental Solutions to accompany MOD 2 (refer to **Appendix D**).

6.4.1 Existing Environment

Noise associated with the Karuah East Quarry is associated with construction and operations. There is also cumulative noise associated with the adjacent operational Karuah Quarry as well as other noise sources associated with the Pacific Highway.

6.4.2 Assessment of Impacts

Given the minor nature of MOD 2, no additional acoustic modelling was deemed necessary by SLR.

Construction

The Project Approval and Environment Protection Licence (EPL) 20611 do not provide specific construction noise criteria for the Karuah East Quarry. The NSW EPA Interim Construction Noise Guideline (ICNG) sets out noise criteria applicable to construction site noise for the purpose of defining intrusive noise impacts. ICNG Construction Noise Goals are outlined within Section 5.1 of the NSW DPE Secretary approved Noise Management Plan (SLR 2015) as required by Schedule 3 Condition 7 of the Project Approval.

Construction noise monitoring for the Karuah East Quarry was completed during 2016 and 2017. The monitoring for vegetation clearance activities was completed on 29 April 2016, with the results from this monitoring indicating that the site was compliant within the adopted construction noise goals for the site.

Noise generating activities will be generated in the MOD 2 additional disturbance area from the clearing of vegetation as well as work associated with shaping and grading the landform. It is predicted that the MOD 2 area will not cause additional construction noise impacts at the site above those already approved.

Operational

The proposed additional disturbance area (MOD 2) will be utilised for increased operational efficiency, improved operational safety and improved environmental management (particularly relevant to surface water management).

Noting the minor nature of MOD 2, it is predicted to constitute a negligible change in the current operational noise level.

No blasting is proposed to be undertaken within the MOD 2 area.

6.4.3 Summary of Mitigation Measures

There are no specific additional controls proposed in relation to the extension area other than those required to be adopted under the approved Noise Management Plan (SLR 2015). The Noise Management Plan (SLR 2015) will be updated once the MOD 2 application has been determined to reflect the nominal increase to the disturbance footprint.

Relevant to MOD 2, the noise controls include:

Construction Activities and Construction Traffic

The following best practice noise control measures will be implemented:

- Adherence to operating hours outlined within the approved Noise Management Plan (SLR 2015) as follows:

Activity	Operating Hours
Operational Activity	7.00am to 6.00pm, Monday to Friday; 7.00am to 1.00pm, Saturdays. No quarrying operations on Sundays or Public Holidays
Construction Activities	7.00am to 6.00pm, Monday to Friday; 8.00am to 1.00pm, Saturdays. Unless noise from the activities does not exceed 35dB(A) _{L_{Aeq}(15 minute)} at any privately owned residences.
Maintenance Activities	24 hours a day, 7 days per week, provided activities are inaudible at any privately-owned residence.

Note: The above do not apply in the event of a direction from police or other relevant authority for safety or emergency reasons regarding works which may be needed to be undertaken to avoid loss of life, property loss and/or to prevent environmental harm.

- Noise monitoring at the Karuah East Quarry site and within the community;
- Regularly train staff and contractors (ie toolbox talks) to use equipment in ways to minimise noise;
- Switching off vehicles and plant when not in use;
- A speed limit of 40 km/hour will be applied and enforced for all construction-related vehicles onsite; and
- Prompt response to any community issues of concern.

Operational Activities

A speed limit of 40 km/hour has been applied and will continue to be enforced for all project-related vehicles onsite.

The best practice noise control measures outlined above shall continue to be implemented for operational activities.

Overall, it is expected that MOD 2 will have no adverse acoustic impact.

6.5 AIR QUALITY IMPACT ASSESSMENT

Consideration of potential Air Quality Impact Assessment has been undertaken by SLR Global Environmental Solutions to accompany the MOD 2 application.

6.5.1 Existing Environment

Dust associated with the Karuah East Quarry is currently associated with construction and operations. There are also cumulative air quality impacts associated with the adjacent operational Karuah Quarry.

6.5.2 Assessment of Impacts

Given the minor nature of MOD 2, no additional air quality modelling was deemed necessary by SLR.

Construction

The Air Quality Impact Assessment approved as part of the Project Approval did not specify dust levels during the construction phase. Air quality monitoring has been completed during the construction phase at Karuah East Quarry in accordance with the Project Approval, with results summarised below:

- The High Volume Air Sampler (HVAS) total suspended particles (TSP) monitoring results from 29 April 2016 until end of August 2017 have been within the Project Approval operational criteria;
- The PM10 monitoring results from 29 April 2016 until end of August 2017 have been within the annual average and 24 hour maximum criteria; and
- The depositional dust monitoring (DDG1-5) during the construction period indicate that results have been below the 4 g/m²/month criteria.

With construction monitoring results being well below the criteria, and the proposed additional disturbance area only equating to 1.133ha there is predicted to be negligible additional air quality impacts associated with MOD 2.

It is also noted that much of the MOD 2 area has already been cleared and includes an existing dwelling, access road to the existing dwelling and an electricity easement.

Operational

The Air Quality Impact Assessment approved as part of Project Approval 09_0175 confirmed the cumulative dust concentrations for both the existing Karuah Quarry and the Karuah East Quarry will be below the Project Approval criteria for depositional dust, total suspended particulates and PM₁₀. Operational dust monitoring has indicated that dust levels have been within criteria.

As the MOD 2 area is minor, there are no predicted additional air quality impacts at Karuah East Quarry during the operational phase. There will be no increase to the approved production limit, therefore vehicle movements (and associated dust) will be within the maximum predicted as part of the approved Air Quality Impact Assessment.

6.5.3 Summary of Mitigation Measures

Given that the proposed MOD 2 additional disturbance area will be a heavily trafficked area, it will be watered regularly to effectively manage air quality (dust) impacts. Gravel will be used as cover material in the MOD 2 additional disturbance area to make a compact surface layer and reduce air quality impacts.

The approved Air Quality and Greenhouse Gas Management Plan (SLR 2015) will be updated once the MOD 2 application has been determined to reflect the increase to the disturbance footprint. Controls relating to air quality are outlined within Section 7 of the approved Air Quality and Greenhouse Gas Management Plan (SLR, 2015). Controls relevant to MOD 2 are as follows:

- Air quality monitoring will continue to be undertaken in accordance with the conditions of the Project Approval. The monitoring will consider the performance of the quarry in relation to the criteria outlined in the SLR Air Quality Impact Assessment (July 2013) and conditions of the Project Approval;
- The MOD 2 additional disturbance area will be watered regularly to effectively manage potential air quality impact;
- Exposed areas are rehabilitated as soon as practical with inert material and revegetated;
- Regular inspections of weather conditions will be performed to identify conditions which would be unfavourable in terms of dust levels at nearest sensitive locations blowing in the direction of sensitive receivers and implement remedial measures if necessary; and
- All trafficable areas and vehicle maneuvering areas will be maintained, at all times, in a condition that will minimise the emission of dust to the air, or emission from the site of windblown or traffic generated dust.

Overall, MOD 2 is expected to have no adverse air quality impact.

6.6 VISUAL IMPACT ASSESSMENT

Consideration of visual impacts relevant to MOD 2 has been undertaken by SLR Global Environmental Solutions (refer to **Appendix D**).

The proposed MOD 2 additional disturbance area is not visible from any receptors or the Pacific Highway. Accordingly, the proposed MOD 2 additional disturbance area will not cause any additional visual impacts for the project.

No additional controls or management measures are recommended.

6.7 SOIL & LAND RESOURCES

Consideration of soil and land resources relevant to MOD 2 has been undertaken by SLR Global Environmental Solutions (refer to **Appendix D**).

The proposal represents a minor increase in disturbance of 1.133ha. This represents less than a 3.6% increase in the overall Karuah East Quarry disturbance footprint.

Noting that the Soil Survey and Land Resource Assessment (GSS Environmental 2013), which formed part of Project Approval 09_0175, confirmed the suitability of the project site for quarrying activities, SLR confirm that proposed MOD 2 is acceptable for the purpose proposed. It is also noted that the majority of the MOD 2 area is already heavily disturbed (noting the existing dwelling, access to the existing dwelling and electricity easement).

No additional controls or management measures are recommended.

6.8 REHABILITATION

Consideration of rehabilitation relevant to MOD 2 has been undertaken by SLR Global Environmental Solutions (refer to **Appendix D**).

The proposed MOD 2 additional disturbance area will be required for the life of the quarry, and no rehabilitation of this area will be completed until closure. Final rehabilitation will be undertaken in accordance with Section 9 of the NSW DPE Secretary approved Landscape and Rehabilitation Management Plan (SLR 2015) required as part of the Project Approval. This plan will be updated to reflect to proposed MOD 2 additional disturbance footprint following determination of the MOD 2 application.

6.9 HERITAGE

6.9.1 Aboriginal Cultural Heritage

6.9.1.1 Impact Assessment

RPS Group have undertaken a Due Diligence Cultural Heritage Assessment of the MOD 2 proposed additional disturbance area (refer to **Appendix E**).

The assessment included:

- A review of the NSW Office of Environment and Heritage (OEH) Aboriginal Heritage Information Management System (AHIMS) database;
- A review of existing documentation, including the approved Heritage Management Plan (RPS, December 2015) prepared in accordance with Schedule 3 Condition 36 of the 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 approved Cultural Heritage Assessment (RPS, June 2012) that formed part of the original Project Approval; and the Cultural Heritage Assessment (Insite Heritage 2004)

undertaken on a nearby site for a separate project (extension of the Karuah Red Quarry); and

- Inspection of the MOD 2 site.

6.9.1.2 Results

The assessment did not identify any items of Aboriginal Archaeological significance or any potential areas of Aboriginal Archaeological sensitivity. The assessment noted that the MOD 2 site is heavily disturbed and contains an existing dwelling, an access road for the existing dwelling and an electricity easement. Based on inspections completed by RPS in 2018 (specifically of the MOD 2 site) and 2011 (as part of the Cultural Assessment that forms part of the original approval for the Karuah East Quarry), and an understanding of the archaeological landscape, RPS confirm that the risk of harm to Aboriginal objects associated with MOD 2 is low and the archaeological sensitivity of the MOD 2 area is low.

Accordingly, it is considered that the MOD 2 proposal is acceptable in terms of Aboriginal Archaeology considerations, and no further assessment is required provided that appropriate management measures are implemented.

6.9.1.3 Recommended Mitigation Measures

The following mitigation measures are recommended:

1. In accordance with Condition 36(c) of Project Approval 09_0175 for the Karuah East Quarry, RAPs must be provided the option to monitor initial surface disturbance within the MOD 2 project area for the identification of unrecorded Aboriginal objects. RAPs must be notified 14 days in advance of work.
2. If any Aboriginal objects are identified, work must cease immediately within that area and the area cordoned off. The Karuah East Quarry Manager must be notified, and the Aboriginal objects managed in accordance with the Karuah East Quarry Heritage Management Plan.
3. If human remains are identified, work must cease immediately within that area and the area cordoned off. The Karuah East Quarry Manager must contact the NSW Police. The NSW Police will assess if the remains are part of a crime scene or possible Aboriginal remains. If determined to be Aboriginal remains, the NSW Police will contact OEH and OEH will confirm the determination in writing. If determined to be a NSW Police matter, NSW Police instructions must be followed. Clearance to recommence work must be sought from the NSW Police. If OEH confirms the remains are Aboriginal, OEH in consultation with RAPs will develop a management plan. The Karuah East Quarry Manager must document the implementation of the plan.
4. The approved Heritage Management Plan (RPS, 2015) will be updated, as necessary, to reflect the MOD 2 increase to the disturbance footprint.

6.9.2 European Heritage

6.9.2.1 Impact Assessment

The MOD 2 site does not contain any items of European Heritage significance and is not located within a heritage conservation area.

A search of the Australian Heritage Database confirms that no items are listed within the MOD 2 site.

A search of the NSW Heritage Inventory indicates that there is one (1) item listed in the Karuah Area:

- Karuah Bridge, Pacific Highway Karuah. Listing by NSW State Government.

Two (2) items of local significance in Karuah are listed under Schedule 2 of the Port Stephens LEP 2013 (it is noted that the subject site is within the Mid Coast Council LGA):

- Item 26 – Karuah Town War Memorial, 1 & 11 Memorial Drive (Memorial Park / Lion Park), Karuah; and
- Item 27 – Karuah Cemetery, Wattle Street, Karuah.

The nearest of the above listed heritage items is located in excess of 5km south from the MOD 2 site. Accordingly, the proposed modification will have no impact.

6.9.2.2 Conclusion & Recommended Mitigation Measure

The proposed modification is considered acceptable in terms of European heritage considerations. The following mitigation measure is recommended:

- If, during the course of development works, significant European cultural heritage material is discovered, work should cease in that area immediately. The NSW OEH should be notified and works only recommenced when an approved management strategy has been implemented.

6.10 OTHER MATTERS

The key items relevant to the MOD 2 application have been addressed in Sections 6.1 – 6.9 above (as confirmed in consultation with NSW DPE assessment staff following lodgement of the Section 75W MOD 2 application, refer to Section 2 of this EA).

The proposal for a minor increase in disturbance area to allow improved surface water management, improved operational safety and increased operational efficiency will have no adverse impact or not be impacted upon by any of the following considerations:

- Access, road network and traffic;
- Geotechnical;
- Bushfire;
- Social & economic considerations; 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. It is considered that the minor increase in disturbance area of 1.133ha directly adjacent to the western edge of the existing quarry (which is less than 3.6% of the overall approved Karuah East Quarry footprint) will not affect or be affected by any of these considerations.

Relevant to social and economic considerations, the MOD 2 proposal, whilst minor in nature, will generate positive impacts noting that it will improve the efficiency of the Karuah East Quarry, which in turn will support its long term viability and local employees of the quarry.

7.0 Statement of Commitments Relative to MOD 2

Provided below is a Statement of Commitments specifically relevant to MOD 2 that will form an addendum to the Statement of Commitments approved under Project Approval 09_0175.

7.1 PLANS, DOCUMENTS AND APPROVALS

The MOD 2 development will be completed generally in accordance with the submitted plans and descriptions of the proposed development provided in the Environmental Assessment Report (August 2018) prepared by ADW Johnson.

The proposed development will be carried out in general accordance with the MOD 2 Project Approval.

7.2 REVISION OF MANAGEMENT PLANS

The following Management Plans, approved by the NSW Secretary on 14 December 2015, will be updated to reflect the MOD 2 determination:

- Biodiversity Offset Area Management Plan (Kleinfelder, November 2015);
- Noise Management Plan (SLR, October 2015);
- Air Quality and Greenhouse Gas Management Plan (SLR, November 2015);
- Water Management Plan (SLR, December 2015);
- Heritage Management Plan (RPS, December 2015); and
- Landscape and Rehabilitation Management Plan (SLR, November 2015).

Additionally, the Environmental Management Strategy (SLR, December 2015) will be updated to reflect MOD 2.

7.3 FLORA AND FAUNA

- The construction site will be managed so that no accidental incursions occur into areas that are not part of the MOD 2 proposal area. There is an existing fence line that extends along the length of the vehicle track (western side) to the dwelling which can be used as delineation;
- All plant, machinery and equipment to be used for vegetation clearing will be washed down before entering and leaving the site to prevent the spread and establishment of weeds, or fungal pathogens;
- Best practice erosion and sedimentation control methods will be adopted, enforced and maintained throughout earthworks, during the construction phase to avoid having a negative impact on the surrounding vegetation, threatened species and fauna habitats. Upon completion of the works, long term erosion and sedimentation control measures should be implemented to limit the potential for run-off from the haul road having a negative impact of the adjacent vegetation; and
- The Biodiversity Offset Area Management Plan (November 2015, Kleinfelder) will be updated to reflect the MOD 2 additional disturbance area.

7.4 SURFACE WATER MANAGEMENT

Construction

- Temporary erosion and sediment controls will be implemented that could include the use of strategically placed silt fencing, straw bales or similar; and
- Temporary sediment controls will be constructed to intercept sediment laden runoff prior to discharge into the natural drainage system.

Conceptual arrangement of controls during construction activities is shown in **Figure 9** below and will be generally implemented. Conceptual controls could include:

- Placement of sediment fencing at strategic locations on the western side of the haul road;
- A temporary toe drain or bund on the western side of the haul road to direct construction site disturbance towards a sump;
- A sump at the low point to collect runoff, which will be pumped out to the sediment dam (Sediment Dam 2);
- Managing bulk earthworks so that potential runoff towards the western boundary is reduced;
- Early establishment of ground cover on the external batter. This may also comprise of mulch or stone pitching utilising hard quarry stone; and
- Monitoring of water quality within Dam 2, and discharging to Yalimbah Creek when suspended solids are below 50mg/L (in accordance with the approved Water Management Plan, SLR 2015). This is likely to require flocculation. Alternatively dewatering to Dam 1 could be undertaken.

All construction activities including erosion and sediment control will be completed within the proposed MOD 2 disturbance footprint.

Operation

- Erosion & sediment controls will be implemented to change the grade of the proposed MOD 2 extension area to maximise the drainage of water into the disturbed area of the Karuah East Quarry site (dirty water catchment). This will involve the addition and shaping of material within the proposed MOD 2 extension area to achieve desired water flow directions; and
- Once shaping has been completed the water from the proposed MOD 2 extension area will flow to Dam 1 and Dam 2.

Implementation of the water management, erosion and sediment control measures for the MOD 2 additional disturbance will be undertaken generally in accordance with **Figure 9** below. The key aspects of the conceptual design of the external embankment are as follows:

- Batter design in accordance with engineering requirements;
- A mulched or stone pitched batter, generally with larger diameter rocks towards the base; and
- Road surface graded back towards the existing Dam 1 and Dam 2.

The engineering design for the proposed works may also include appropriate details for scour protection at the clean water culvert headwall and sediment dam spillway, and scour protection along steep sections of the dirty water drain alongside the road surface.

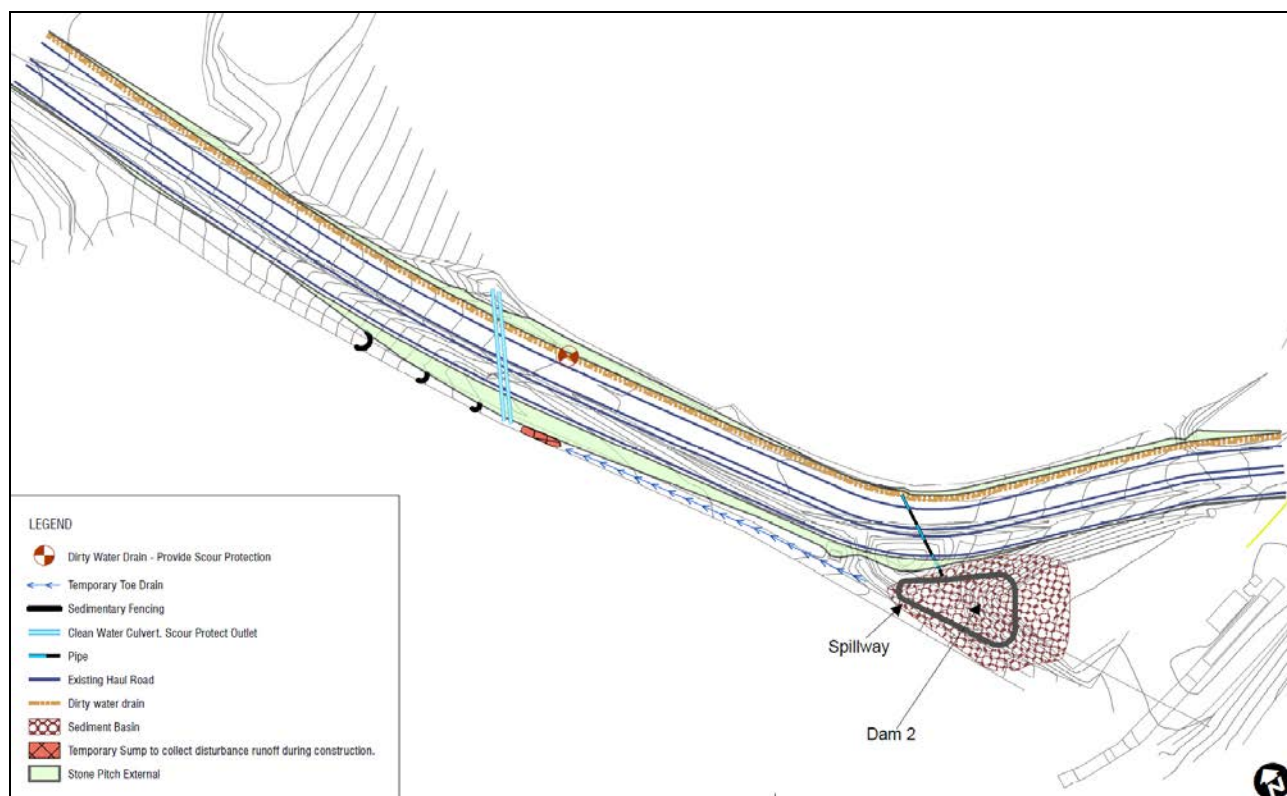


Figure 9: Water Management – MOD 2 Proposed Extension Area.

The following additional operational mitigation measures will be employed:

- Maintenance of gravel on the road surface, as cover material in trafficable areas of the MOD 2 extension area to control erosion;
- Monitoring the condition of the external embankment to ensure there are no erosional features such as rilling or slumping, and implementation of correctional measures (as necessary);
- Continuation of surface water monitoring at dams and surrounding creeks (Bulga Creek and Yalimbah Creek) in accordance with Section 8 of the approved Water Management Plan (SLR 2015);
- Maintenance of erosion and sediment controls; and
- The NSW DPE Secretary approved Water Management Plan (SLR, 2015) will be updated following determination of the MOD 2 application to reflect the minor increase to the disturbance footprint.

7.5 GROUNDWATER MANAGEMENT

- Groundwater monitoring is undertaken at Karuah East Quarry in accordance with the NSW DPE Secretary approved Water Management Plan (SLR 2015). No additional mitigation measures are required in relation to the extension area;
- The existing monitoring and reporting program will continue following extension of the quarry disturbance area (MOD 2); and
- As necessary, the approved Water Management Plan (SLR, 2015) will be updated following determination of the modification application (MOD 2) to reflect the minor increase to the disturbance footprint.

7.6 NOISE MANAGEMENT

- The Noise Management Plan (SLR 2015) will be updated once the MOD 2 application has been determined to reflect the increase to the disturbance footprint;
- There are no specific additional noise mitigation measures required in relation to the MOD 2 extension area other than those required to be adopted in the approved Noise Management Plan (SLR, 2015). Relevant to MOD 2, these include:

Construction Activities and Construction Traffic

Adherence to operating hours outlined within the approved Noise Management Plan (SLR 2015) as follows:

Activity	Operating Hours
Operational Activity	<ul style="list-style-type: none"> • 7.00am to 6.00pm, Monday to Friday; • 7.00am to 1.00pm, Saturdays. • No quarrying operations on Sundays or Public Holidays
Construction Activities	<ul style="list-style-type: none"> • 7.00am to 6.00pm, Monday to Friday; • 8.00am to 1.00pm, Saturdays. • Unless noise from the activities does not exceed 35dB(A)_{L_{Aeq}(15 minute)} at any privately owned residences.
Maintenance Activities	<ul style="list-style-type: none"> • 24 hours a day, 7 days per week, provided activities are inaudible at any privately-owned residence.

Note: The above do not apply in the event of a direction from police or other relevant authority for safety or emergency reasons regarding works which may be needed to be undertaken to avoid loss of life, property loss and/or to prevent environmental harm.

- Noise monitoring at the Karuah East Quarry site and within the community;
- Regularly train staff and contractors (ie toolbox talks) to use equipment in ways to minimise noise;
- Switching off vehicles and plant when not in use;
- A speed limit of 40 km/hour will be applied and enforced for all construction-related vehicles onsite; and
- Prompt response to any community issues of concern.

Operational Activities

- A speed limit of 40 km/hour will be applied and enforced for all project related vehicles onsite; and
- The best practice noise control measures outlined above shall continue to be implemented for operational activities.

7.7 AIR QUALITY MANAGEMENT

- There are no additional air quality mitigation measures necessary other than those controls relating to air quality outlined within Section 7 of the approved Air Quality and Greenhouse Gas Management Plan (SLR, 2015), relevant to MOD 2 as follows:
 - Air quality monitoring will continue to be undertaken in accordance with the conditions of the Project Approval. The monitoring will consider the performance of the quarry in relation to the criteria outlined in the SLR Air Quality Impact Assessment (July 2013) and conditions of the Project Approval;

- Exposed areas are rehabilitated as soon as practical with inert material and revegetated;
 - Regular inspections of weather conditions will be performed to identify conditions which would be unfavourable in terms of dust levels at nearest sensitive locations blowing in the direction of sensitive receivers and implement remedial measures if necessary; and
 - All trafficable areas and vehicle manoeuvring areas will be maintained, at all times, in a condition that will minimise the emission of dust to the air, or emission from the site of windblown or traffic generated dust.
- The MOD 2 additional disturbance area will be watered regularly to effectively manage potential air quality impact;
 - Gravel will be used as cover material in the MOD 2 additional disturbance area to make a compact surface layer; and
 - The Air Quality and Greenhouse Gas Management Plan (SLR 2015) will be updated once the MOD 2 application has been determined to reflect the increase to the disturbance footprint.

7.8 REHABILITATION

- Final rehabilitation will be undertaken in accordance with Section 9 of the approved Landscape and Rehabilitation Management Plan (SLR, 2015); and
- The approved Landscape & Rehabilitation Plan (SLR, 2015) will be updated to reflect to proposed additional disturbance footprint following determination of the MOD 2 application.

7.9 HERITAGE

7.9.1 Aboriginal Cultural Heritage

- In accordance with Condition 36(c) of Project Approval 09_0175 for the Karuah East Quarry, RAPs must be provided the option to monitor initial surface disturbance within the MOD 2 project area for the identification of unrecorded Aboriginal objects. RAPs must be notified 14 days in advance of work;
- If any Aboriginal objects are identified, work must cease immediately within that area and the area cordoned off. The Karuah East Quarry Manager must be notified, and the Aboriginal objects managed in accordance with the Karuah East Quarry Heritage Management Plan;
- If human remains are identified, work must cease immediately within that area and the area cordoned off. The Karuah East Quarry Manager must contact the NSW Police. The NSW Police will assess if the remains are part of a crime scene or possible Aboriginal remains. If determined to be Aboriginal remains, the NSW Police will contact OEH and OEH will confirm the determination in writing. If determined to be a NSW Police matter, NSW Police instructions must be followed. Clearance to recommence work must be sought from the NSW Police. If OEH confirms the remains are Aboriginal, OEH in consultation with RAPs will develop a management plan. The Karuah East Quarry Manager must document the implementation of the plan; and
- The approved Heritage Management Plan (RPS, 2015) will be updated, as necessary, to reflect the MOD 2 increase to the disturbance footprint.

7.9.2 European Heritage

- If, during the course of MOD 2 development works, significant European cultural heritage material is discovered, work should cease in that area immediately. The NSW OEH should be notified and works only recommenced when an approved management strategy has been implemented.

8.0 Conclusion

This modification application (MOD 2) is made under Section 75W of the *Environmental Planning and Assessment Act 1979* and seeks to amend Project Approval 09_0175 for the Karuah East Quarry.

The proposed modification is minor in nature and will remain entirely consistent with the current Project Approval for the Karuah East Quarry.

The amendment seeks a minor expansion to the approved area of disturbance (31.88ha) by an additional 1.133ha, adjacent to the western edge of the approved quarry. The resulting new total area of disturbance of the Karuah East Quarry will be 33.01ha. The proposed modification represents less than a 3.6% increase in disturbance area when compared with existing approval (as modified).

During detailed quarry plant design undertaken since issue of the Project Approval and commencement of operations, it has been identified that the additional disturbance area, which is located adjacent to the internal north south haulage road between the quarry plant and southern stockpile area, will allow for the following:

- Improved surface water management associated with the north south internal haulage road;
- Widening of the narrow north south haulage road, which will improve operational safety, in particular for passing vehicles; and
- Additional stockpiling area will be created in close proximity to the crushing plant. This will result in improved operational efficiencies as a result of reduced internal haulage vehicle movements.

Each of the above beneficial outcomes can be achieved by extending the footprint of the quarry onto a small area of adjacent land that is already heavily disturbed due to an electricity easement, a dwelling and an access driveway to the dwelling.

Consultation has been undertaken with NSW DPE assessment staff and key issues relevant to the proposed modification have been confirmed. This Environmental Assessment has addressed each of the key issues identified, including:

- Flora and fauna;
- Noise;
- Air quality;
- Water management;
- Visual impact;
- Rehabilitation; and
- Heritage.

Assessment of each of the above has confirmed that the site and receiving environment is appropriate for the proposed modification. A range of management measures will be implemented to ensure that no significant adverse impacts will result from the proposed modification.

Overall it is considered that the proposed amendment to Project Approval 09_0175 to increase the disturbance area of the Karuah East Quarry footprint by 1.133ha is a suitable development and will contribute to improved environmental management, operational safety and operational efficiency.

Appendix A

APPROVED DEVELOPMENT PLAN (MP 09-0175 (AS AMENDED BY MOD 1))

Appendix B

PROPOSED MODIFICATION TO SITE LAYOUT (MOD 2)

Appendix C

FLORA & FAUNA IMPACT ASSESSMENT - KLEINFELDER

Appendix D

ENVIRONMENTAL ASPECTS & CONTROLS ASSESSMENT – SLR GLOBAL ENVIRONMENTAL
SOLUTIONS

Appendix E

DUE DILIGENCE CULTURAL HERITAGE REPORT – RPS GROUP