



Peppertree Quarry

Construction Traffic Management Plan

31 August 2021

Project No.: 0392341RP19

PEPPERTREE QUARRY

Construction Traffic Management Plan

Document details	
Document title	Peppertree Quarry
Document subtitle	Construction Traffic Management Plan
Project No.	0392341RP19
Date	31 August 2021
Version	V1
Author/s	Thomas Buchan (TB), Nathan Lynch (NL), Murray Curtis (MC)
Client Name	Boral Resources (NSW) Pty Ltd

Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	01	TB / NL	MC	Jane Barnett	09.04.20	Draft plan for Boral review
Final	01	TB	Nathan Lynch	Jane Barnett	1/11/2021	Final plan for DPIE review

PEPPERTREE QUARRY

Construction Traffic Management Plan

Signature page

31st August 2021

Peppertree Quarry

Construction Traffic Management Plan

Thomas Buchan
Consultant

Nathan Lynch
Principal Consultant

Jane Barnett
Partner

Environmental Resources Management Australia Pty Ltd
Level 15,
309 Kent Street
Sydney NSW 2000 Australia

© Copyright 2022 by ERM Worldwide Group Ltd and / or its affiliates ("ERM").
All rights reserved. No part of this work may be reproduced or transmitted in any form,
or by any means, without the prior written permission of ERM

CONTENTS

1.	INTRODUCTION.....	1
1.1	Background.....	1
1.2	Overview of Proposed Construction Activities.....	1
1.3	Overview of Existing Operations.....	2
1.4	Purpose.....	2
1.5	Objectives.....	3
1.6	Performance Criteria.....	3
1.7	Document Structure.....	5
1.8	Responsibility for Plan Implementation.....	5
1.9	Alignment with Other Plans.....	5
1.10	Agency Consideration.....	5
2.	STATUTORY AND POLICY FRAMEWORK.....	6
2.1	Environmental Planning and Assessment Act 1979 (EP&A Act).....	6
2.2	Integrated Management System.....	9
2.3	Statement of Commitments.....	9
2.4	Relevant Guidelines and Standards.....	9
3.	EXISTING ENVIRONMENT.....	10
3.1	The Local Area.....	10
3.2	The Local and Regional Road Network.....	10
3.3	Background Traffic.....	11
3.4	Rail.....	11
3.5	Traffic Conditions - Modification 5.....	11
4.	POTENTIAL CONSTRUCTION TRAFFIC IMPACTS.....	12
4.1	Estimated Traffic Generation.....	12
4.2	Marulan South Road Intersection.....	12
4.3	Access to Peppertree Quarry.....	12
4.4	Construction Traffic.....	13
4.4.1	Construction Vehicle Type.....	13
4.4.2	Parking Arrangements.....	13
4.4.3	Public Transport Services.....	13
4.4.4	Pedestrians and Cyclists.....	14
4.5	Impact Assessment.....	14
5.	TRAFFIC MANAGEMENT MEASURES.....	15
5.1	Road Upgrades, Quarry Access and Onsite Parking.....	15
5.2	Traffic Control Plans.....	15
5.2.1	Signage.....	15
5.2.2	Modification 5 Targeted Construction Vehicle Controls.....	15
5.3	Operational Hours.....	16
5.4	Management of Emergencies and Incidents.....	16
5.4.1	Emergency Incident Management.....	16
6.	MANAGEMENT PLAN IMPLEMENTATION AND IMPROVEMENT.....	17
6.1	Training and Awareness.....	17
6.1.1	Induction.....	17
6.1.2	Site Specific Training.....	17
6.2	Reporting and Review.....	18
6.2.1	Regulatory Compliance.....	18
6.2.2	Community Communication.....	18
6.2.3	Complaints.....	18

Construction Traffic Management Plan	
6.3 Reporting.....	18
6.3.1 Annual Review (AR)	18
6.3.2 Internal Reporting	18
6.3.3 Incident Reporting	19
6.3.4 Auditing	19
6.3.5 Review of this Management Plan	20
6.3.6 Review Objectives	20
7. REFERENCES.....	21

APPENDIX A TRAFFIC SIGNAGE PLANS

LIST OF FIGURES

Figure 1 Project Layout	4
-------------------------------	---

LIST OF TABLES

Table 1.1 Traffic Management Performance Criteria	3
Table 1.2 Structure of the Management Plan.....	5
Table 2.1 Construction Traffic Conditions of Approval (06_0074 – MOD 5)	7
Table 2.2 Statement of Commitments.....	9
Table 5.1 Hours of Operations	16

Acronyms and Abbreviations

Name	Description
AADT	Average Annual Daily Traffic
Aglime	Agricultural lime
AS	Australian Standards
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environmental Management Plan
CNMP	Construction Noise Management Plan
DPI&E	Department of Planning, Industry and Environment
OEH	Office of Environment and Heritage
EM	Environmental Manager
EMS	Environmental Management Systems
EPA	Environmental Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
ERM	Environmental Resources Management Australia
GMC	Goulburn Mulwaree Council
ISO	International Organisation of Standards
MCoA	Minister's Conditions of Approval
NBMP	Noise and Blast Management Plan
NSW	New South Wales
RAV	Restricted Access Vehicle
RMS	NSW Roads and Maritime Services
RTA	Former NSW Roads and Traffic Authority
SoC	Statement of Commitments
SWOE	Southwestern Overburden Emplacement
vpd	vehicles per day
vph	vehicles per hour

1. INTRODUCTION

This section provides an overview of the project, outlines the objectives of this management plan and describes the alignment of this plan with other plans prepared for the project.

1.1 Background

Boral Resources (NSW) Pty Ltd (Boral) was granted project approval (06_0074) to establish and operate the Peppertree Quarry (a granodiorite hard rock quarry, formerly called the Marulan South Quarry). The project approval includes activities including all in-pit quarrying activities and supporting infrastructure such as a rail siding and loading facility, processing plant and water supply dams under Part 3A of the Environmental Planning and Assessment Act, 1979 (EP&A Act) in February 2007.

The existing Quarry operations have been constructed and operated in accordance with the 06_0074 Project Approval (with modifications in 2009, 2011, 2012, 2016 and 2019) and an Environment Protection Licence (EPL No. 13088).

The 2007 project approval required the preparation and implementation of a number of management plans detailing environmental commitment, controls and performance objectives at the Quarry throughout its operational life. In accordance with Conditions 31 of the project approval, a Construction Traffic Management Plan (CTMP) was first prepared by Environmental Resources Management (ERM) for Boral in 2012 to the satisfaction of RTA (now RMS) and the local council.

In October 2019, the Project Approval was modified for the fifth time (hereafter referred to as Modification 5) to establish a new overburden emplacement area, to the southwest of the existing quarry (South-west Overburden Emplacement – SWOE) along with minor changes to the site to accommodate the proposed SWOE.

The Modification 5 project layout is shown in Figure 1. Modification 5 did not change the approved methods of extraction, blasting frequency, processing or stockpiling activities.

This was followed in April 2020, with the Project Approval modified for the sixth time (hereafter referred to as Modification 6) under Section 4.55 (1A) of the EP&A Act, to allow the replacement of the existing air filtration network with two baghouse air filtration units and associated ducting attached to the existing and approved secondary and tertiary processing facilities (i.e. crushing and screening plant). The baghouses are located within the current operating plant footprint and do not impact on traffic related to construction of the SWOE.

Modification 7 was assessed in August 2021 and approved for the realignment of the project footprint associated with the WOE sediment basin and removal of a specified tree.

This document is a revised version of the initial CTMP prepared in 2012 incorporating changes associated with Modification 5 and other new traffic management practices associated with current Quarry activities.

The CTMP will continue to remain a dynamic document.. It will be updated as required over the life of Quarry construction activities until the Project Approval end date of 31 December 2038.

1.2 Overview of Proposed Construction Activities

The proposed SWOE will be south of the WOE, south of Marulan South Road and in the northwestern corner of the Marulan South Limestone Mine (the Mine). This new overburden emplacement area will be needed in late 2021 and will take approximately four years to establish. The emplacement will cover approximately 44 ha and will be RL650 m at completion.

A new haul road is proposed to be constructed from the southern extent of the pit to the SWOE, including a new intersection to allow haul trucks to cross Marulan South Road.

Part of the WOE is planned for a future shared road sales stockpile area for the Quarry and the adjacent Boral Limestone Mine, and will be a component of the Mine's State significant development application.

The proposed amendment to the WOE would involve replacing the 30 m high triangular section of the emplacement with approximately 2 m of emplaced overburden material, which once completed would serve as a foundation for the shared road sales stockpile area.

Two sediment dams will be constructed either end of the WOE to catch and treat dirty water until the batters are rehabilitated. Sediment dam P1 will be approximately 2.1 ML in volume and sediment dam P2 will be approximately 5.8 ML in volume.

The only ground disturbance associated with the modification will be for the SWOE, sediment dams P1 and P2, and new haul road.

1.3 Overview of Existing Operations

The Quarry has an identified resource area of approximately 250 million tonnes, which dependent upon extraction rates, would allow quarrying for 70 years or more over an area of approximately 104 hectares (ha), within a 650 ha parcel of land owned by Boral. The Quarry produces granodiorite aggregate products and manufactured sand. All Quarry products and materials are transported by rail to a number of Boral rail terminals for distribution by trucks into the Sydney metropolitan area.

Typical quarrying operations involve the stripping of overburden and the extraction of hard rock using open-cut drill and blast techniques. Overburden is stripped by dozer, loaded onto trucks using excavators and/or front-end loaders and transported to the overburden emplacement areas, where it is spread and shaped by dozer. Traditional drill and blast methods are then used to break up the hard rock. A drill rig stationed on top of each production bench drills a series of holes that are later charged with explosives, detonators and delays. Boral apply standard practice of limiting the maximum instantaneous charge to stay within the relevant noise and vibration criteria.

Blasted rock is then processed on-site using various crushers and screens to obtain the desired product.

Material is initially crushed in a primary mobile crusher located within the pit, directly fed by an excavator. After passing through the primary crusher, the crushed material is taken from the pit along a series of conveyors to the first set of screens located to the northwest of the pit and material is stockpiled in a surge pile. Material in the surge pile is reclaimed and conveyed to the main processing area where it undergoes further crushing, screening and shaping. Product material is stored in the various covered storage bins prior to being dispatched off-site by train.

1.4 Purpose

The primary purpose of this CTMP is to provide a reference document to maximise safety of all road users and project personnel by implementing appropriate management practices. In addition, the CTMP:

- describes how Boral will manage and control risks associated with traffic management during construction of the project;
- address the requirements of applicable legislation;
- meets the Project Conditions of Approval (CoA); and
- address the requirements of the Peppertree Quarry – New Overburden Emplacement Modification Assessment Report prepared by the Department of Planning, Industry and Environment (DPIE) in 2019.

1.5 Objectives

The traffic management objectives established for the construction works described in this CTMP includes the following:

- to identify relevant obligations and legislative requirements to be addressed during the construction phase of the SWOE;
- to describe the specific traffic management requirements and identify the best practice methods to be implemented;
- to outline record keeping and management plan monitoring requirements; and
- to define responsibility for implementation.

This CTMP sets out procedures to mitigate and minimise the impacts of the construction of the SWOE project on the capacity, performance and safety of the local road network and traffic systems. The CTMP also addresses the management of construction traffic impacts on pedestrians, public transport and cyclists.

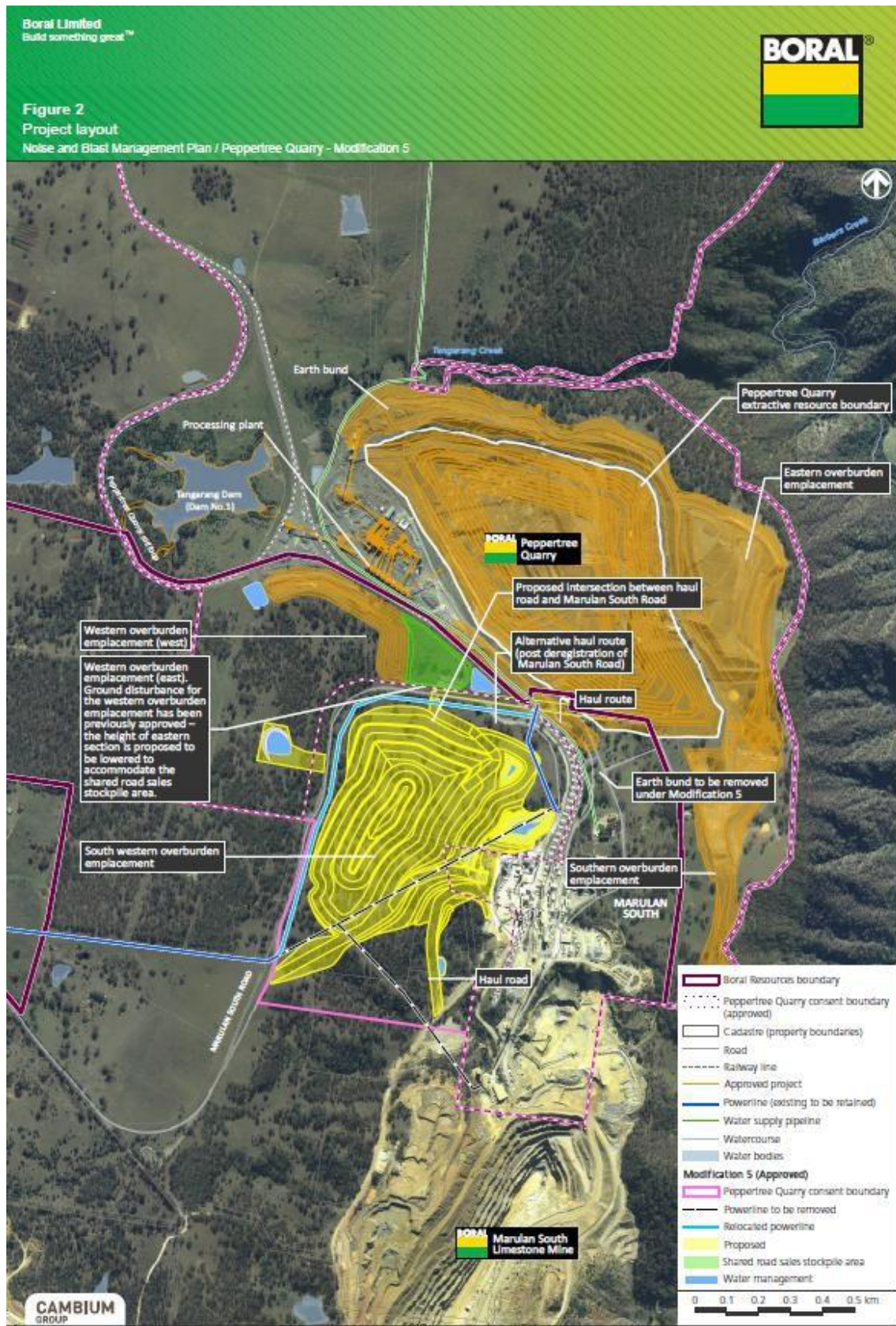
1.6 Performance Criteria

Performance criteria for traffic management issues associated with the construction of the SWOE are provided in **Table 1** below.

Table 1.1 Traffic Management Performance Criteria

Environmental Issue	Performance Criteria
Traffic Management	<ul style="list-style-type: none"> ■ Comply with all applicable legislation, regulations, standards, codes and licenses that relate to the project; ■ No significant degradation to the environment or existing roadways as a result of traffic movements; ■ Maximise the safety of all road users and construction staff; ■ No significant traffic incidents or major traffic delays caused by the project activities; ■ Best Environmental Management Practices implemented for traffic management.

Figure 1 Project Layout



1.7 Document Structure

The structure of the Management plan is outlined in **Table 1.2** below.

Table 1.2 Structure of the Management Plan

Chapter	Content
1	Provides an overview of the project, and objectives of the plan
2	Details the statutory requirements as outlined in the Project Approval (Modification 5)
3	Describes the existing environment and traffic conditions
4	Describes the potential traffic impacts associated with construction and operation of the amended project
5	Describes the traffic mitigation and management actions currently in place, and to be implemented throughout the project (including incident response)
6	Outlines the management plan implementation (including reporting and review requirements)

1.8 Responsibility for Plan Implementation

The Quarry Manager carries ultimate responsibility for the ongoing development and implementation of this CTMP and providing the necessary resources as required. The site Environmental Officer is responsible for carrying out and/or coordinating the monitoring and reporting requirements of this plan, and responding to any community concerns. Operations personnel (Quarry Supervisors) are responsible for implementing any traffic management and/or mitigation measures.

1.9 Alignment with Other Plans

This document is a revised version of the CTMP initially prepared by ERM (2012). This plan has been developed to align with the *Peppertree Quarry – Noise and Blast Management Plan* (NBMP, 2020), dated January 2020 that was developed by Boral (and ERM subject matter experts) in response to Modification 5. It was also developed to align with the *Peppertree Quarry – Construction Noise Management Plan* (CNMP, 2020), dated August 2021.

1.10 Agency Consideration

In line with Condition B42, Goulburn Mulwarre Council have been consulted and involved in the approval for the haul road intersection on Marulan south Road. This plan has also been issued for review.

The plan has also been provided to TfNSW for review, however Marulan South Road remains under the control of Council.

No traffic signals or works are proposed which will require TfNSW approval.

2. STATUTORY AND POLICY FRAMEWORK

This section details the statutory requirements relevant to the project, and summarises compliance with the relevant conditions of approval stipulated throughout the Project Approval (specifically for Modification 5).

2.1 Environmental Planning and Assessment Act 1979 (EP&A Act)

The project was originally approved under Part 3A of the EP&A Act. The project is a transitional Part 3A project under Schedule 2 of the EP&A (*Savings, Transitional and Other Provisions*) Regulation 2017. As the modification request was made prior to the 'cut-off date' of 1 March 2018, the provisions of clause 3 of Schedule 2 continue to apply. Consequently, the project modification was assessed in accordance with the requirements of Part 3A and associated Regulations, and the Minister (or delegate) approved the carrying out of the project under section 75W of the EP&A Act.

Since Project Approval was granted in 2007, there have been seven approved modifications (with conditions), as detailed below:

- Modification 1 (2009) approved for exploratory blasting and test pitting in order to verify the design of the processing plant.
- Modification 2 (2011) approved for the construction of a new rail line rather than use the existing rail facilities to the Limestone Mine.
- Modification 3 (2012) approved the construction of a high voltage power line from an existing substation to the processing plant and to provide a rail siding near the junction with the Main Southern Railway Line.
- Modification 4 (2016) approved for the extension of daily in-pit operating hours and establishment of a new overburden emplacement area.
- Modification 5 (2019) approved for development of a new overburden emplacement (Southwestern Overburden Emplacement – SWOE) among other minor amendments to the site.
- Modification 6 (2020) approved for the installation and operation of dust collectors within the existing operating plant footprint,
- Modification 7 (2021) approved for the relocation of a sediment pond P2 for safety reasons.

The proposed construction and ongoing operation will continue to be subject to the provisions of the EP&A Act for any subsequent changes or modifications to the operations. Additionally, Peppertree Quarry will need to be able to demonstrate compliance against the current conditions of approval (CoA) relevant to construction traffic under the provisions of the EP&A Act (refer to **Table 2.1** below).

Table 2.1 Construction Traffic Conditions of Approval (06_0074 – MOD 5)

CoA	Condition of Project Approval	Addressed in Section
B42	Construction Traffic Management Plan The Proponent must prepare and implement a Construction Traffic Management Plan for the project to the satisfaction of the RMS and Council.	This CTMP
B43	Transport Operating Conditions The Proponent may transport overburden to the SWOE using the Option 2 transport route described in EA (MOD 5) until 31 December 2020, or as otherwise agreed by the Secretary.	Section 3.5
B44	While there is public access to the site from the intersection of the new Haul Road and Marulan South Road, the Proponent must: (a) make suitable arrangements to ensure the safety of public road users (including traffic signals, signage or other traffic control measures), to the satisfaction of Council, prior to commencing the transportation of overburden to the SWOE; and	Section 5.3
	(b) ensure that any traffic signals at this intersection are designed, installed and operated to the satisfaction of the RMS.	Section 5.3
D4	Management Plan Requirements Management plans required under this approval must be prepared in accordance with relevant guidelines, and include:	Section 3
	(a) a summary of relevant background or baseline data;	
	(b) details of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures and criteria; and (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;	Section 2.1, Section 2.3 Section 2.2
	(c) any relevant commitments or recommendations identified in the document/s listed in condition A2(c);	Table 2.2
	(d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 5
	(e) a program to monitor and report on the: (i) impacts and environmental performance of the project; and	Section 5

Construction Traffic Management Plan

	(ii) effectiveness of the management measures set out pursuant to condition D4(d);	
	(f) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 5
	(g) a program to investigate and implement ways to improve the environmental performance of the project over time;	Section 6.3.5
	(h) a protocol for managing and reporting any: <ul style="list-style-type: none"> (i) incident, non-compliance or exceedance of the impact assessment criteria or performance criteria; (ii) complaint; or (iii) failure to comply with statutory requirements; 	Section 6.2 Section 6.2.3
	(i) public sources of information and data to assist stakeholders in understanding environmental impacts of the development;	Section 6.2.2
	(j) a protocol for periodic review of the plan; and	Section 6.3.5
	(k) a document control table that includes version numbers, dates when the management plan was prepared and reviewed, names and positions of people who prepared and reviewed the management plan, a description of any revisions made and the date of the Secretary's approval. <i>Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</i>	Document Control Page
D8	The Proponent must continue to apply existing management plans, strategies or monitoring programs approved prior to the determination of Modification 5, until the approval of a similar plan, strategy or program following the determination of Modification 5.	Section 1.9

2.2 Integrated Management System

The Quarry operates under a Boral integrated Health, Safety, Environment and Quality Management System (HSEQMS). The HSEQMS has commitments to the Boral Environmental Policy through established standards and procedures, which require internal conformance to high levels of environmental performance with continual improvement objectives.

Boral have an established corporate and divisional risk-based audit program that periodically assess operational sites for conformance with HSEQMS requirements. In addition, the Quarry must be the subject of an Independent Audit every three years. An Independent Audit of the Quarry was most recently conducted in 2018 and the next Audit is due in 2021.

2.3 Statement of Commitments

The EA, 2006 for Peppertree Quarry recommended a range of measures to avoid, manage, mitigate, offset and/or monitor the environmental impacts of the project, as set out in the Statement of Commitments. These commitments remain applicable to the Modification 5 works, and those applicable to traffic and transport are reproduced in **Table 2.2**.

Table 2.2 Statement of Commitments

Commitment	Relevant section in CTMP
Safeguards will be implemented to minimise the extent of impacts associated with these traffic and access requirements including preparation of a traffic management plan for the construction period.	This CTMP.
Restriction of vehicle movements to the minimum necessary to complete the works.	Section 5.4
Delivery of materials and equipment during standard working hours.	Section 5.5
Confinement of construction vehicles on formed roads and designated laydown areas.	Section 5.4
Confinement of vehicle and plant movements to areas previously cleared of vegetation.	Section 5.4
Secure storage of materials and equipment on-site to minimise the required vehicle movements.	Section 5.4

2.4 Relevant Guidelines and Standards

This management plan has been prepared in accordance with the requirements of Roads and Traffic Authority's (now Roads & Maritime Services - RMS) *Guide to Traffic Generating Developments* October 2002.

Other technical standards/publications referenced in this assessment include:

- RMS Traffic control at work sites (2018);
- Austroads Guide to Road Design and RMS supplements;
- Austroads Guide to Traffic Management and RMS supplements;
- Austroads Guide to Traffic Management Part 12. Traffic Impacts of Developments;
- Goulburn Mulwaree Council Development Control Plan (DCP) 2009; and
- Goulburn Mulwaree Council Section 94 Development Contributions Plan 2009 Amendments No.2.

3. EXISTING ENVIRONMENT

This section describes the local road network and existing (and anticipated) traffic conditions within areas surrounding the project with reference to the amended project approval.

3.1 The Local Area

The Peppertree Quarry site is located at Marulan South, 10km southeast of Marulan, 30km north of Goulburn, and approximately 175km southwest of Sydney. The Quarry is located adjacent and to the north of the existing Boral Cement (formerly Blue Circle Southern Cement) limestone mine.

Marulan South Road terminates at Cooper Crescent, which services the Quarry and Mine sites. A small number of residential farmhouses and local industries are located to the west off Marulan South Road, but at some distance from the carriageway and generally unaffected by road transport.

3.2 The Local and Regional Road Network

From the grade-separated interchange with the Hume Highway southwest of Marulan, Marulan South Road extends east for approximately 8.5km to the Peppertree Quarry site. Marulan South Road acts as a collector road for the local road network between the Highway and the Quarry. The Marulan South Road interchange also includes Jerrara Road, which links the township of Bungonia to the south.

Marulan South Road services local rural land uses and trucks accessing the Boral Cement mine site. The road surface is sealed and the condition of this road is considered good, with an 80km/h speed limit for all vehicles. Marulan South Road carries a daily flow of up to 2,000 vehicles per day and is an approved Restricted Access Vehicle (RAV) route that was gazetted by the RTA in 1998. The gazettal included the following requirements:

- minimum lane widths of 3.0m;
- minimum additional shoulder widths of 1.0m; and
- gradients and sight distances suitable for these vehicle flows and types (i.e. up to and including restricted access vehicles such as B-Doubles).

RAVs (i.e. B-Doubles) are not permitted to use the route during the school peak periods (i.e. between 7:30am and 9:00am, and between 3:30pm and 5:00pm Monday to Friday).

The Boral Cement private rail spur crosses Marulan South Road, and east of this juncture, Marulan South Road turns into Cooper Crescent. Access to Peppertree Quarry is via a left hand turn off Marulan South Road onto an internal sealed road. The geometry of this intersection is acceptable for the existing level of traffic and vehicle type that this road services.

Jerrara Road provides access to the township of Bungonia, Bungonia National Park and State Conservation Area, various farmhouses, and minor local developments. The intersection of Marulan South Road and Jerrara Road was upgraded with the construction of an overpass and roundabout associated with a neighbouring quarry development. This intersection remains functional for various heavy vehicles movements required at the Quarry, and other nearby industrial activities.

The Hume Highway is the major north-south transport corridor between Sydney and Melbourne. The speed limit in this section of the Hume highway is 110km/hour and it provides four lanes of carriageway.

3.3 Background Traffic

The Traffic Impact Assessment (Transport & Urban Planning, 2018) prepared to support the Modification 5 application did not include recent traffic data. As a result, this CTMP has adopted classified counter and direction surveys of the local traffic environment provided in the Environmental Assessment Report (EA, 2006).

Marulan South Road (east of Jerrara Road) had an average weekday two-way flow of 443vpd, comprising 297 light vehicles (67%), 49 small trucks (11%), four medium trucks (1%) and 93 large trucks (21%), including B-Doubles, and truck and trailer vehicles.

The peak hourly flow of 53 vehicles occurred in Marulan South Road east of Jerrara Road between 6:00am and 7:00am.

Jerrara Road (south of Marulan South Road) has an average weekday two-way flow of 468vpd, comprising 395 light vehicles (84%), 28 small trucks (6%), seven medium trucks (2%), and 37 large trucks (8%), including B-Doubles, and truck and trailer vehicles. The peak hourly flow of 37 vehicles was recorded in Jerrara Road south of South of Marulan South Road between 3:00pm and 4:00pm.

With an existing RTA classification for up to 2000vpd, Marulan South Road has considerable spare capacity over the existing average 443vpd, without comprising the operational capacity of Marulan south road.

Subsequent to EA, 2006 and the original Project Approval, the Hume Highway/Marulan South Road/Jerrara Road Intersection was upgraded as a major grade-separated interchange including a roundabout and slip lanes to the north and southbound highway carriageways to service trucks associated with the movement of materials from adjoining quarries.

This was constructed as part of a neighbouring Quarries approval for development and operation.

Boral Peppertree Quarry uses the network of roads for access to the quarry. This includes employee and visitor traffic as well as deliveries of equipment and where necessary larger HME floated to site.

Accordingly, the EA, 2006 did not present vehicle flows and mixes for the intersection. This intersection remains functional for various heavy vehicles movements required at the Quarry, and other nearby industrial activities.

3.4 Rail

Boral Cement operates a private rail spur, which extends from the Main Southern Line (east of Marulan) into the heart of the existing limestone mine site and borders the Peppertree Quarry site. Material produced from Peppertree Quarry is transported via a purpose-built loading facility to trains on a loop branch to the west of the rail spur. The arrangement allows trains to service both the Boral Cement and Peppertree Quarry operations simultaneously, thereby reducing demand on the spur line.

3.5 Traffic Conditions - Modification 5

Potential impacts on traffic and road safety along Marulan South Road from the Project were assessed throughout the Traffic Impact Assessment (TIA) (Transport & Urban Planning, 2018) prepared for the Modification 5 approval application. The TIA was undertaken in accordance with NSW Roads and Maritime Service's (2002) *Guide to Traffic Generating Developments*.

The TIA included an assessment of the following:

- current traffic generation from both the quarry and the mine;
- traffic impacts of the proposed haul road intersection on Marulan South Road and
- the future intersection treatment options.

Overall, there will be no changes to the usage of Marulan South Road during the construction of the SWOE as part of the Modification 5 approval and therefore no impact on the regular users of the road.

However, Boral proposes to construct an intersection, including road widening, where required, on Marulan South Road approximately 350 m west of the truck access road to the Mine. This intersection will allow trucks hauling overburden material from the Quarry to enter/cross Marulan South Road and enter/exit the SWOE area.

4. POTENTIAL CONSTRUCTION TRAFFIC IMPACTS

This section describes the potential impacts to traffic as a result of the construction and operation of the recently amended project.

Construction works associated with the amended project are generally limited to the construction of the new haul road from the pit to the SWOE, including a new intersection at Marulan South Road. There is no expected increase in traffic generation into the quarry, but rather only the movement of heavy vehicles between the quarry pit and the SWOE.

4.1 Estimated Traffic Generation

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

Under existing conditions, all quarry products must be transported from the site by rail. A condition of consent also allows Boral Peppertree Quarry to

“

dispatch up to two laden trucks containing quarry products per calendar day. Any additional truck dispatches of quarry products will require the written approval of the Secretary. “

This allows Boral to provide donated quarry material) to neighbouring residents along Marulan South Road, local community projects and to staff for personal use.

The proposed modification does not seek to change traffic volumes generated by the quarry. Consequently, changes to existing traffic management conditions are limited to the new haulage route and intersection only.

4.2 Marulan South Road Intersection

Peppertree Quarry's development approval allows for topsoil/overburden removal and emplacement, 7 days a week between 7am-7pm (i.e. 12 hours a day). Up to 28 truckloads of overburden would be transported to the SWOE per hour, using the proposed intersection (i.e. a total of up to 56 movements per hour).

Modelling showed that with the overburden trucks using the new haul road and crossing over Marulan South Road to the SWOE access road, the intersection will operate well, with low vehicle delays for all movements at the intersection. Vehicle delays for minor access roads controlled by the Stop signs would be around 13.1 seconds per vehicle.

4.3 Access to Peppertree Quarry

All vehicle access will be provided via the existing intersection of the Hume Highway and Marulan South Road. Marulan South Road has sufficient width to allow B-Doubles to pass, and the volume of additional construction traffic will not result in vehicle conflicts on this road.

Where required, wide load or special vehicles will be accompanied by a dedicated escort (or pilot) vehicle in accordance with RMS Guidelines and regulations. All loads for bulk materials will be covered in accordance with RMS Guidelines and regulations.

A number of residential driveways access Marulan South Road. There will be no impact on these residents as trucks used during the construction of the SWOE will remain on the Quarry site during the construction campaign.

4.4 Construction Traffic

As mentioned above, construction works are generally limited to the construction of the new haul road from the pit to the SWOE, a new intersection at Marulan South Road and the construction of the SWOE itself.

It is expected that minor traffic increases may result, generally through the following actions:

- movement of construction personnel and equipment to and from the site; and
- earthmoving plant being delivered to and from the site;

Drivers of vehicles associated with the construction works are responsible for safe driving and are inducted on safe driver behaviour.

4.4.1 Construction Vehicle Type

The vehicles likely to be associated with the construction activities include equipment such as:

- utilities and four wheel drive (4WD) vehicles; and
- floats carrying larger equipment and plant (e.g. graders, loaders, tip trucks), The larger vehicles have the potential to become a hazard due to their slow acceleration and deceleration, so caution must be exercised in planning these heavy vehicles movements. Heavy vehicles are only to travel on roads appropriate to accommodate their mass and dimensions.
- Haul trucks for the movement of the overburden materials will be conditionally registered to access and use the Haul road crossing at Marulan South Road but will not be driven nor access Marulan south road itself.

4.4.2 Parking Arrangements

At the Peppertree Quarry site, an increase in parking demand will be generated by the construction workers, management and visitors. Staff parking (and heavy vehicle parking) will be provided on-site within designated areas for all vehicles.

4.4.3 Public Transport Services

A school bus continues to operate along Marulan South Road. The bus turns around 3 km west of the entrance to the quarry site in a cleared area. The bus route consists of a single service, which operates at 8 am in the morning and at 4.20 pm in the afternoon. Additional information can be accessed via this link <http://www.pbcgoulburn.com.au>.

School bus stops along Marulan South Road are informal and passengers are collected from driveways along the road.

Boral will continue to observe the existing vehicle restrictions on Marulan South Road, and B-Doubles will not use Marulan South Road between 7:30am and 9:00am, and between 3:30pm and 5:00pm. Boral will also coordinate heavy vehicle deliveries to strict schedules and will control the heavy vehicle traffic to avoid large numbers of heavy vehicles arriving at and departing from the site during school bus times.

4.4.4 *Pedestrians and Cyclists*

Pedestrian and cyclist volumes are low along the Marulan South Road. The proposed construction traffic will not impede on existing arrangements for these road users, and additional traffic management measures are considered unnecessary.

4.5 **Impact Assessment**

There will be minimal disruption to the use and flow of traffic on Marulan South Road and the associated road network from the construction traffic associated with Modification 5.

Operation of the intersection will slow traffic flows closer to the Quarry along Marulan South Road. The location of the intersection could potentially impact vehicle safety due to its location following a sweeping right hand bend.

As a result, a number of mitigation and management measures presented in **Section 5** will be implemented during construction and ongoing operation of the project.

5. TRAFFIC MANAGEMENT MEASURES

This section describes the traffic mitigation and management actions currently in place, and to be implemented during construction and ongoing operation of the project.

5.1 Road Upgrades, Quarry Access and Onsite Parking

The existing access road to the Peppertree Quarry site is located off Marulan South Road, east of the private rail spur level crossing. The road is sufficient for the proposed levels of traffic anticipated during construction and will continue to serve as an access point to site offices and to accommodate staff parking.

Sufficient parking is provided on-site to accommodate the number of staff employed during construction and operations. The Overburden campaign contractors will utilise the area adjacent to the “farmhouse” located on site at Peppertree. This area has been used for previous campaigns.

5.2 Traffic Control Plans

To ensure the safety of public road users, suitable arrangements (including traffic signals, signage or other traffic control measures) will be implemented while there is public access to the site from the intersection of the new Haul Road and Marulan South Road, in accordance with Condition B44(a) of the amended project approval (MOD 5).

Specific Traffic Control Plans (TCPs) will be prepared for works that involves any form of traffic control or restriction (i.e. the intersection of the new Haul Road and Marulan South Road). TCPs generally include (but are not limited) to the following items:

- temporary signage;
- directional traffic barriers;
- traffic control (i.e. temporary traffic signals);
- delineation devices; and
- temporary speed zones etc.

TCPs would remain in place for the duration of the activity, and would be prepared in accordance with the requirements of the RMS (2018) *Traffic Control at Work Sites*. All necessary approvals will be obtained from Council and TfNSW, as required prior to implementation.

5.2.1 Signage

Signage will be installed for the duration of construction at the heavy vehicle entrance to the quarry site, and at the staff vehicle access point to the quarry. The proposed signage to be implemented will be discussed and approved by Goulburn Mulwaree Council as part of the design of the Haul Road intersection. This will include Stop signs erected inside the project boundary (prior to entry onto the new intersection), to ensure heavy vehicles stop, giving way to Marulan South Road traffic, before travelling between the quarry sites.

Signs shall be manufactured and designed in accordance with AS 1743 *Road signs – Specifications* document.

5.2.2 Modification 5 Targeted Construction Vehicle Controls

Construction traffic will be managed in accordance with the measures provided below:

- Construction vehicles required for the hauling of overburden and the development of the SWOE will be procured on a long term contract basis such that the equipment will be brought and remain on site. This will restrict the amount of float movements required on Marulan South road.
- Construction vehicles will be confined to formed roads and designated laydown areas to reduce impacts to existing traffic.

- Construction vehicle and plant movements will be confined to areas previously cleared of vegetation.
- A road sweeper and / or water cart will be available as required to clean the road crossing on Marulan south road. Additionally, wheel checks will be conducted on all construction vehicles and plant prior to egress off the site, to ensure no fugitive dirt and/or rocks are transported to public roads.
- Materials and equipment on-site will be stored securely to minimise vehicle movements (where practical).

5.3 Operational Hours

Boral will comply with the approved construction hours outlined in the Project Approval, reproduced in **Table 5.1** below.

Table 5.1 Hours of Operations

Activity	Day	Time
Construction Works	Monday-Friday	7:00 AM to 6:00 PM
	Saturday	8:00 AM to 1:00 PM
	Sunday and public holidays	None
Topsoil/overburden removal/emplacement and transportation of Quarry products by road	Any day	7:00 AM to 7:00 PM

The following activities may be carried out outside the hours specified above:

- delivery or dispatch of materials as requested by Police or other public authorities;
- emergency work to avoid the loss of lives, property or to prevent environmental harm; and
- In such circumstances, the Proponent must notify the Department and affected residents prior to undertaking the activities, or as soon as is practical thereafter.

All deliveries of construction materials will occur during standard construction working hours presented in **Table 5.1** above.

5.4 Management of Emergencies and Incidents

Due to the low volume of construction vehicles required to carry out the proposed construction as part of the Modification 5 approval, there will be no anticipated restrictions for emergency vehicles (e.g. ambulance, fire brigade or police) to access properties along Marulan South Road or the surrounding area.

5.4.1 Emergency Incident Management

The following general procedures will be adopted in the event of an emergency or incident:

- staff to stop work and activate all flashing lights;
- immediately begin warning other road users in the safest means possible;
- use an appropriate TCP (including traffic controllers and signage) where necessary; and
- if a queue will be generated by the emergency or incident, provide warning signs to inform road users, to minimise the potential for end of queue collisions.

6. MANAGEMENT PLAN IMPLEMENTATION AND IMPROVEMENT

This section outlines the actions needed to ensure the effective implementation of this management plan (including reporting and review requirements).

6.1 Training and Awareness

6.1.1 Induction

Every employee and contractors working onsite must be inducted. The Peppertree Quarry induction covers the controls associated with managing potential impacts to the environment and the surrounding community, including traffic.

6.1.2 Site Specific Training

Where identified by management representatives, additional site specific training may be developed and implemented and delivered to relevant personnel and contractors. Toolbox talks will be presented to all Boral sites affected by the traffic management changes.

6.1.2.1 Vehicle Operator Code of Conduct

Personnel employed by Boral required to operate vehicles must comply with the Vehicle Operator Code of Conduct, which has been developed to set driver behaviour controls to minimise impacts on road users and the condition of the haulage route infrastructure. The code of conduct states that vehicle operators must:

- obey all the statutory laws and regulations;
- ensure their vehicle complies with relevant State legislation in relation to roadworthiness and modifications;
- undergo regular vehicle checks and maintenance;
- ensure their vehicles have correctly fitted and maintained mufflers to minimise noise disturbance;
- not drive whilst under the influence of alcohol, drugs, nor any medication which may affect their ability to drive;
- be medically fit to drive at all times and must inform site co-ordinators if they have any medical condition which may affect their ability to drive;
- drive in a considerate manner at all times and respect the rights of others to use and share the road space;
- follow the haulage route and main roads near the project area to minimise impact to local roadways;
- report all vehicle defects to their employer. Serious defects must be corrected immediately or an alternative vehicle supplied;
- report any vehicle accident resulting in injury/or damage to property to the police;
- report any near misses to the quarry supervisor;
- only drive in the construction operational hours when conducting project works (unless permission to conduct project works has been provided);
- securely fasten and cover loads, as appropriate;
- keep their vehicle clean and in good mechanical condition to reduce the environmental impact;

6.2 Reporting and Review

6.2.1 Regulatory Compliance

The site will be aware of regulatory construction traffic conditions to ensure the necessary controls and monitoring is carried out for the purpose of verifying compliance.

Regulatory documents such as the following should be periodically reviewed for site compliance with noise management obligations:

- environmental licences; and
- planning consents.

6.2.2 Community Communication

Boral will ensure that the local community is kept informed by way of periodic newsletters, leaflets, local newspaper advertisements and the Quarry web page of the progress of the Quarry, including details of the blasting hotline. Community Consultative Committee meetings are used to inform the committee of the general progress of noise monitoring and to advise of any variation to the monitoring programs.

6.2.3 Complaints

If a member of the public has observed any project related traffic in breach of this plan or behaving in an unacceptable manner, they will be able to report this via Boral's 24-hour telephone number. The public will also be advised of this contact number by signage located at the site access point on Marulan South Road.

Boral will record details of all complaints received in the organisation's Safety and Environment System and ensure that a response is provided to the complainant within 24 hours or as soon as practicable.

Boral will make available a report on complaints received to the Community Consultative Committee (CCC) and to relevant government agencies and the Councils upon request and include a summary in the Annual Review. The report shall include the number of complaints that have been resolved with or without mediation. A complaints register is also available on the Peppertree Quarry website.

6.3 Reporting

6.3.1 Annual Review (AR)

The activities and performance outcomes of the CTMP will be presented in the Annual Review (AR).

This will include an assessment of traffic data collected, in relation to the use of the intersection over the course of construction, an evaluation of any trends occurring across the site, any community/stakeholder complaints or non-conformances with licences/criteria and recommendations for management actions.

By the end of March in each year after the commencement of project, or other timeframe agreed by the Secretary, a report must be submitted to the Department reviewing the environmental performance of the project, to the satisfaction of the Secretary, in accordance with Condition D11 of the amended project approval.

Copies of the Annual Review are submitted to DPIE, Council and made available to the CCC and any interested person upon request. A copy of the Annual Review will also be submitted to the EPA.

6.3.2 Internal Reporting

In accordance with the HSEQMS and corporate divisional requirements a regular report on environmental compliance and performance is prepared by the site environmental officer which is

distributed to senior divisional managers for review for provision of additional resources that may be required to mitigate a significant environmental issue. The Boral Group Environmental Advisor is also provided with an overview of any significant matters, which may be escalated to Board level.

6.3.3 Incident Reporting

Incident notification and reporting will be conducted in accordance with Condition D9, Schedule 2, where by "*The Proponent must immediately notify the Secretary and any other relevant agencies of any incident*".

An incident as defined in the Project Approval, Schedule 1 is deemed to be "An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance"

Incident reporting will also be undertaken in accordance with Condition R2 of the EPA Environment Protection Licence which states "*The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.*"

In accordance with Appendix 8 of the Approval and Condition R3 of the EPA EPL, written incident notification and reporting must be undertaken once Boral becomes aware that an incident has taken place, within 7 days of becoming aware of the incident.

The following requirements will be included as part of the incident notification:

- Identify the project and application number.
- Provide details of the incident (date, time, location, a brief description of what occurred any why it is classified as incident).
- Identify how the incident was detected.
- Identify when the Proponent became aware of the incident.
- Identify any actual or potential non-compliance with conditions of approval.
- Describe what immediate steps were taken in relation to the incident.
- Identify further action(s) that will be taken in relation to the incident.
- Identify a project contact for further communication regarding the incident.

Within 30 days of the date on which the incident occurred (or as otherwise agreed to by the Secretary), Boral will provide the Secretary and any relevant public authorities with a detailed report on the incident, which will include the following requirement:

- Summary of the incident.
- Outcomes of an incident investigation, including identification of the cause of the incident.
- Details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence.
- Details of any communication with other stakeholders regarding the incident.

6.3.4 Auditing

Boral has an established corporate and divisional risk-based audit program that periodically assess operational sites for conformance with HSEQMS requirements.

In accordance with the requirements of Condition D13 of Schedule 2 (Part D), within 3 years of the date of the commencement of construction and every 3 years thereafter, unless the Secretary directs otherwise, Boral will commission and pay the full cost of an Independent Environmental Audit of the project. The adequacy of this CTMP will be included in the Independent Environmental Audit. An Independent Audit of the Quarry was conducted in 2018 and the next Audit is due in 2021.

Within three months of commencing the Independent Environmental Audit, Boral will submit a copy of the audit report to the Secretary (and any other NSW agency that requests it), together with its response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations. The recommendations must be implemented to the satisfaction of the Secretary.

6.3.5 *Review of this Management Plan*

Condition D6 of the Project Approval outlines the review requirements associated with this CTMP. The suitability of the CTMP under the project approval requires a review within three months of:

- Submission of an incident report under Condition D9.
- Submission of an Annual Review under Condition D11.
- Submission of an Independent Environmental Audit under Condition D13.
- Approval of any modification of the conditions of this approval, unless the conditions require otherwise.
- Notification of a change in project stage under Condition A15.
- Issue of a direction of the Secretary under Condition A2(b) which requires a review.

If any of the above reviews result in any revisions, a revised CTMP must be provided to the Secretary within three months for approval.

6.3.6 *Review Objectives*

This CTMP will be reviewed periodically by suitably qualified persons to determine the efficacy of the Plan, to ensure it continues to fulfil its intended purpose. This will allow for and promote adaptive management through progressive stages of future quarry operations.

Traffic management will be measured through regular environmental performance reviews. These will be based on the measurable outcomes identified in this management plan and key performance criteria outlined in **Section 5** of this CTMP. The reviews will be used to assess progress in meeting CTMP objectives and performance criteria and will be undertaken by the site environmental officer.

7. REFERENCES

Department of Planning, Industry and Environment – **Peppertree Quarry – New Overburden Emplacement Modification Assessment Report**. October 2019

Marulan South Quarry – Environmental Assessment Report prepared by ERM, dated October 2006 (EA, 2006)

Element Environment - **Peppertree Quarry Modification Environmental Assessment**. October 2018
The **Project Approval (06_0074)** and subsequent modifications, and other relevant project information provided by Boral, importantly the Project Approval modified for the fifth time under Section 75W of the EP&A Act

Other relevant project information provided by Boral

Austrroads - **Guide to Road Design**.

Austrroads - **Guide to Road Safety** – Version 1. December 2010

Austrroads - **Guide to Traffic Management** - Part 12. Traffic Impacts of Development

Roads and Maritime Services (RMS) Austrroads Guide Supplements – **Guide to Traffic Management** – January 2011

Roads and Maritime Services (RMS) - **Supplement to Austrroads Guide to Road Design** Parts 1-5, 6 and 8

Roads and Maritime Services (RMS) - **Supplements to Austrroads Guide to Road Safety**

Roads and Maritime Services (RMS) - **Guide to Traffic Generating Developments**. October 2002

Roads and Maritime Services (RMS) - **Traffic Control at Work Sites**. Technical Manual. July 2018.

Goulburn Mulwaree Council **Development Control Plan**, 2009

Goulburn Mulwaree Council **Section 94 Development Contributions Plan**, 2009. Amendments No. 2

ERM has over 160 offices across the following countries and territories worldwide

Argentina	New Zealand
Australia	Panama
Belgium	Peru
Brazil	Poland
Canada	Portugal
China	Puerto Rico
Colombia	Romania
France	Russia
Germany	Singapore
Hong Kong	South Africa
Hungary	South Korea
India	Spain
Indonesia	Sweden
Ireland	Taiwan
Italy	Thailand
Japan	UAE
Kazakhstan	UK
Kenya	US
Malaysia	Vietnam
Mexico	
The Netherlands	

ERM's Sydney Office
Level 15, 309 Kent Street
Sydney NSW 2000 Australia

Telephone +61 2 8584 8888
Facsimile +61 2 9299 7502

www.erm.com