



Holcim (Australia) Pty Ltd
Dunloe Sands Quarry - Modification to Project Approval 06/-
0030
Submissions Report

November 2017

This report: has been prepared by GHD for Holcim (Australia) Pty Ltd and may only be used and relied on by Holcim (Australia) Pty Ltd for the purpose agreed between GHD and Holcim (Australia) Pty Ltd as set out in this report.

GHD otherwise disclaims responsibility to any person other than Holcim (Australia) Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

Table of contents

1.	Introduction	1
1.1	Background	1
1.2	Purpose of this report	1
1.3	Project summary	1
2.	Consideration of submissions	4
2.1	Exhibition period and location	4
2.2	Responses received	4
2.3	Proponent's response to submissions	4
3.	Conclusion	13

Table index

Table 2.1	Summary of responses received	4
Table 2.2	Summary of community submissions and responses	5
Table 2.3	Summary of agency submissions and responses	7

Figure index

Figure 1-1	Site location and layout	3
------------	--------------------------------	---

Appendices

- Appendix A – Submissions
- Appendix B – Independent road safety audit
- Appendix C – Traffic impact assessment addendum

1. Introduction

1.1 Background

On 11 July 2017, an Environmental Assessment (EA) report was submitted to the Department of Planning and Environment (DP&E) as part of a section 75W modification application for the existing Dunloe Sands Quarry. Holcim (Australia) Pty Ltd (Holcim) is seeking approval to modify an existing Project Approval condition relating to vehicular movements at the site, in accordance with section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The EA proposes an increase in heavy vehicle movements at the site (the modified proposal).

As part of the assessment process, the EA was placed on public display from 27 July 2017 to 10 August 2017 and four (4) submissions were received. Issues raised in these submissions are addressed in section 2 of this report.

1.2 Purpose of this report

This submissions report addresses matters raised in submissions received by DP&E in response to the public exhibition of the Dunloe Sands Quarry Modification EA.

The purpose of this submissions report is to:

- Consider and respond to the issues raised in the submissions
- Describe any changes to the proposal and revised mitigation measures, if required.

1.3 Project summary

An overview of the proposal is provided in section 1.3.1 and full details are provided in chapter 3 of the publicly exhibited EA dated July 2017. No substantial changes are proposed to the proposal as described in the EA.

1.3.1 Key components of the proposal

The EA has been prepared to support a section 75W application to modify Schedule 2, Condition 8 of Project Approval 06/-0030 to allow up to 120 inbound and 120 outbound heavy vehicle movements from the site per weekday and up to 60 inbound and 60 outbound heavy vehicle movements on Saturdays. These movements average to approximately 100 heavy vehicle movements per working day over the course of a calendar month.

Schedule 2, Condition 8 of the Project Approval requires that 'the proponent shall ensure that heavy vehicle movements (in and out) associated within the project do not exceed 8 per hour'.

In practice and based on Holcim's experience, the current Project Approval condition has the effect of reducing the potential to achieve the maximum approved annual output of the quarry significantly, well below that permitted under the terms of the Project Approval. This is due to the demand for quarry product fluctuating significantly according to contracts for supply of material, with demand for quarry material (and trucks) typically 'spiking' during morning periods. The current hourly limit has the effect of limiting the ability of the quarry to supply the required quantity of quarry product at the volumes demanded during peak periods, an unintended consequence of the limit on hourly truck numbers.

The application does not seek to modify the existing limit on annual quarry production. Rather, it seeks to enable flexibility in truck numbers during peak periods of demand for quarry products. Hence, the increase in daily quarry truck traffic sought in this application is to allow for up to 120

inbound and 120 outbound heavy vehicle movements from the site per weekday and up to 60 inbound and 60 outbound heavy vehicle movements on Saturdays.

1.3.2 Site location and layout

The site is located at Pottsville Road, approximately three kilometres (km) south of Pottsville. The site comprises the following lots:

- Lots 1 and 2 in DP 780199
- Lot 2 DP 785895
- Lot 1 DP 780200
- Lots 44, 81, 162, 182 and 183 DP 755721
- Lot 1 DP 208249.

Access to the site is currently via Pottsville Road. The access road consists of a two-way sealed road, with a single travel lane in each direction and a carriageway width of approximately seven metres.

The quarry layout comprises two main extraction ponds consisting of 25 hectares and 31.7 hectares respectively. Extraction area one is located approximately 1,100 metres north of the southern boundary, whilst extraction area two is located in the south-east corner approximately 100 metres from the southern boundary. Both areas are located adjacent to the eastern boundary.

Large agricultural sheds are also used for the purpose of storage and ancillary maintenance of machinery and plant equipment associated with the approved quarry. A site office and wash plant is located within each extraction area.

The location of the proposal site is shown on Figure 1-1.

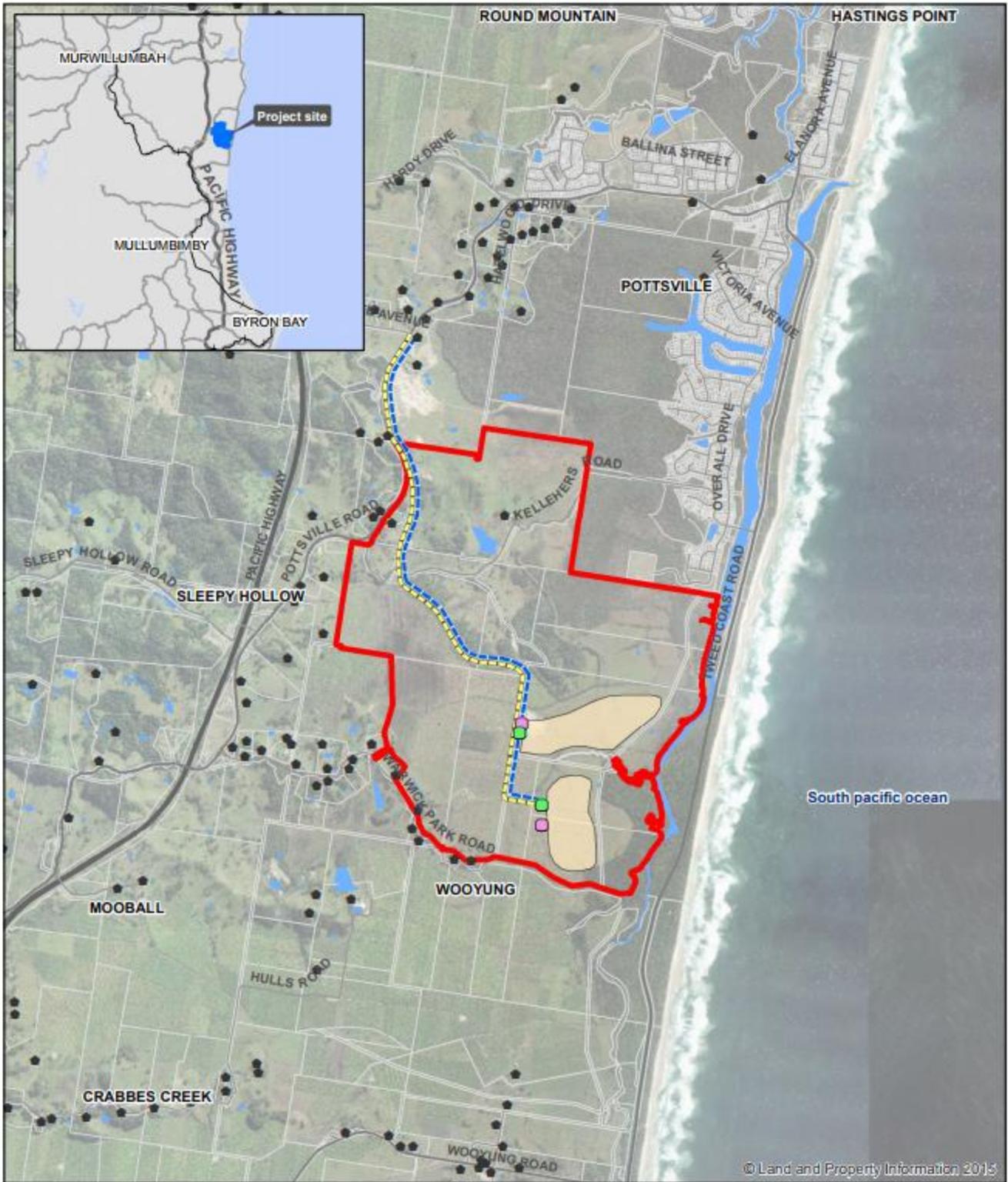


Figure 1-1 Site location and layout

2. Consideration of submissions

2.1 Exhibition period and location

The Dunloe Sand Quarry Modification EA was placed on public display from 27 July 2017 to 10 August 2017 on DP&E's Major Projects website. Local residents were notified of the exhibition period through newspaper advertisements placed in local papers and letters sent to adjacent properties by DP&E.

Holcim also distributed a newsletter in April 2017 to surrounding residents, detailing the proposed modification and options for community members to provide feedback, including formal submissions during the exhibition period.

2.2 Responses received

A total of four (4) submissions were received by DP&E during the exhibition period as detailed in Table 2.1. One (1) submission was received from a member of the community while the remaining three (3) were received from government agencies.

Table 2.1 Summary of responses received

Submission number	Type of submission	Details of submission
1	Community	Alfred John Edwards
2	Government agency	Roads and Maritime Services
3	Government agency	Tweed Shire Council
4	Government agency	Department of Planning and Environment, Division of Resources & Geoscience, Geological Survey of New South Wales

Submissions included feedback on a range of issues relating to the proposal. The submissions are provided in full in Appendix A.

2.3 Proponent's response to submissions

2.3.1 Community submissions

A summary of all issues raised by members of the community and associated responses are provided in Table 2.2.

2.3.2 Government agency submissions

A summary of all issues raised by government agencies or organisations are provided in Table 2.3.

Table 2.2 Summary of community submissions and responses

Aspect	Issue raised	Holcim's response
Impacts on nearby residential properties	Objects to the project due to the likely impact on two nearby dwellings located at 765 Pottsville Road, Sleepy Hollow.	Submission acknowledged. A range of measures to reduce amenity impacts (i.e. noise and dust) on nearby residential dwellings have been recommended and are discussed further below.
Changes in truck movements	Objects to the increase of truck movements.	<p>This application seeks to enable flexibility in truck numbers during peak periods of demand for quarry products. The proposal includes an increase from 8 heavy vehicle trips per hour (4 inbound, 4 outbound) up to 24 heavy vehicle trips per hour (12 inbound and 12 outbound). This is an increase of 16 heavy vehicle movements per hour (8 inbound and 8 outbound).</p> <p>Whilst the assumption of 240 movements per weekday and 120 movements on Saturdays would be a worst case scenario, these movements average to approximately 100 heavy vehicle movements per working day over the course of a calendar month.</p>
Traffic and access control	Concerns regarding haul trucks failing to stop when entering Pottsville Road. In addition, there are stakeholder concerns regarding congestion caused by haul trucks along Pottsville Road.	<p>GHD commissioned an independent RSA (Appendix B), which identified a number of treatments to enhance the safe movement of vehicles from the access road onto Pottsville Road, including:</p> <ul style="list-style-type: none"> • Removal of vegetation along Pottsville Road in proximity to the access road to maximise the available sight distances • Relocating the existing stop line further to the east of its current location in order to improve sight distances • Providing W2-9(R) (see below) signage on Pottsville Road on approach to the access road to provide additional warning to drivers. <p>In addition, a Traffic Management Plan will be prepared as a condition of the Project Approval, which will incorporate:</p> <ul style="list-style-type: none"> • A map of the primary haulage routes highlighting critical locations • Safety initiatives for haulage through residential areas and along school bus routes • An induction process for vehicle operators and regular toolbox meetings • A complaint resolution and disciplinary procedures • Any community consultation measures for peak haulage periods • Consideration for seasonal traffic and events.
Site distances	Vegetation located on the eastern side of Pottsville Road restricts the view for motorists of trucks exiting the site and represents a risk to the safety of road users.	<p>A review of available Roads and Maritime crash data indicates that for the five year period between 2012 and 2016, no crashes were recorded on Pottsville Road in proximity to the quarry access road. This indicates that there were no crash trends in the vicinity of the site during that five year period.</p> <p>GHD, on behalf of Holcim, also commissioned an independent Road Safety Audit (RSA) to be undertaken by Bitzios Consulting (Appendix B). This RSA identified a number of treatments to enhance the safe movement of vehicles from the access road onto Pottsville Road, including the removal of vegetation along Pottsville Road in close proximity to the access road to maximise the available sight distances.</p>

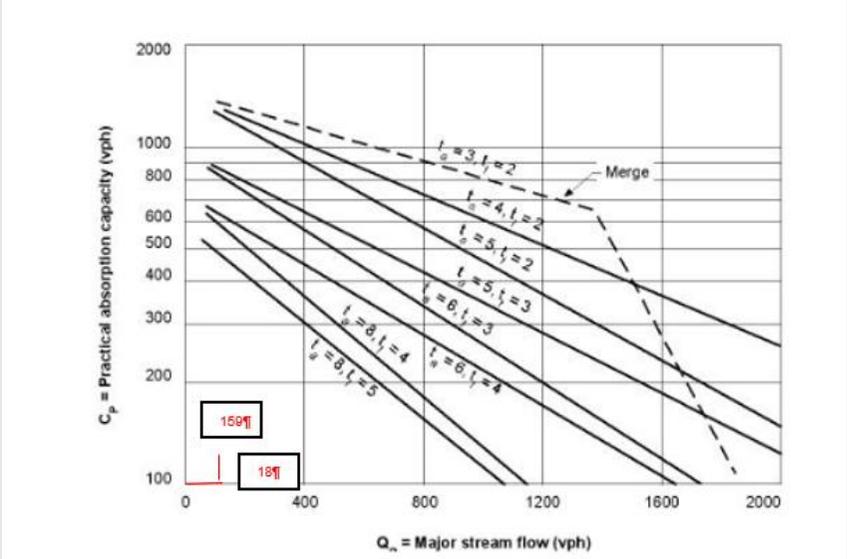
Aspect	Issue raised	Holcim's response
Noise impacts	Concerns that the increase in truck movements will increase the level of noise on Pottsville Road.	<p>GHD has undertaken an assessment of the noise impacts from additional truck movements at the site. The assessment found that increasing the number of trucks at the quarry from 8 trucks per hour to 24 trucks per hour would result in compliance with relevant noise criteria.</p> <p>The results from noise modelling outlined in section 4 of the Noise Impact Assessment (provided as Appendix C in the EA report) demonstrate that the modified proposal is expected to comply with both Project Approval 06/-0030 criteria and RNP criteria at all nearby sensitive receivers.</p> <p>General noise mitigation measures have been recommended in order to manage noise at the site. The modified proposal is therefore acceptable from an acoustic perspective based on the assumptions in this report.</p>
Air quality impacts	Concerns that increased truck movements will result in an increased level of dust generated by trucks exiting the site.	<p>GHD has prepared a level 1 dust impact assessment of proposed additional truck volumes at the site. Results of the worst-case assessment show that increases in dust from twelve trucks inbound and twelve trucks outbound per hour operating at the quarry are minimal and no significant additional impacts are expected. The modified proposal would be suitable from an air quality perspective.</p> <p>It is recommended that existing dust management measures and monitoring at the site be continued once the proposed changes come into effect.</p>
Impact on road network (i.e. road damage)	Concerns that the increased truck movements will adversely impact the existing condition of Pottsville Road.	<p>The independent RSA (refer to Appendix B) identified a range of treatments to improve and maintain the condition of Pottsville Road. These include:</p> <ul style="list-style-type: none"> • Resurfacing damaged sections of road • Providing minimum 1 m wide shoulders in accordance with Austroads requirements for rural roads with an annual average daily traffic (AADT) of between 1,000 – 3,000 vehicles/day • Install guardrails along sections of road to protect against hazards • Replace all damaged and broken guideposts.

Table 2.3 Summary of agency submissions and responses

Agency	Aspect	Issue/s raised	Proponent's response
Roads and Maritime Services (Submission 2)	Traffic Impact Assessment	<p>The TIA provides limited detail of existing geometry and available sight distances at intersections along the identified transport route. Further consideration should be given to the impact of additional heavy vehicle movements on the safety of affected intersections.</p>	<p>GHD commissioned an independent RSA (Appendix B), which identified a number of treatments to enhance the safe movement of vehicles from the access road onto Pottsville Road, including:</p> <ul style="list-style-type: none"> • Removal of vegetation along Pottsville Road in proximity to the access road to maximise the available sight distances • Relocating the existing stop line further to the east of its current location in order to improve sight distances • Providing W2-9(R) (see below) signage on Pottsville Road on approach to the access road to provide additional warning to drivers. <p>W2-9R signage</p>  <p>It is anticipated that the introduction of the treatments identified in the RSA will address the deficiencies in the SISD identified above and enhance the safe operation of the quarry access intersection.</p>
		<p>Roads and Maritime does not support the desktop analysis under Section 4.4 of the TIA. The Pottsville Road and Site Access Road intersection is located in the vicinity of horizontal and vertical curves which appear to constrain sight distances in both directions. The proposed increase in slow-moving heavy vehicles turning at the intersection has the potential to impact on the safety of vehicles travelling along the public road.</p> <p>It is recommended that the Consent Authority require an independent Road</p>	<p>GHD commissioned an independent RSA (Appendix B), which identified a number of proposed mitigation measures to improve safety at the site access intersection, including:</p> <ul style="list-style-type: none"> • Providing new line markings on Pottsville Road in proximity to the access road • Resurfacing damaged sections of road • Providing minimum one metre wide shoulders in accordance with Austroads requirements for rural roads with an (AADT of between 1,000 – 3,000 vehicles/day) • Installing raised reflective pavement markers through the intersection and on approach • Installing guardrails along sections of road to protect against hazards • Replacing all damaged and broken guideposts. <p>The RSA provides a ranking for each recommendation to prioritise importance with respect to the safety of road users.</p>

Agency	Aspect	Issue/s raised	Proponent's response
		<p>Safety Audit (RSA) of the existing intersection prepared in accordance with Part 6 of the Austroads Guide to Road Safety. An addendum to the TIA should be prepared to address the findings of the RSA and where appropriate propose mitigation measures to address any road safety impacts arising from the proposed modification.</p>	<p>It is recommended that these mitigation measures form a condition within the modified Project Approval.</p>
		<p>The TIA does not consider the proposed increase in truck movements in the context of future traffic conditions over a 10 year horizon. The TIA should have considered background traffic growth along the identified transport route and the cumulative impact of planned developments in the subject area.</p>	<p>As part of the Traffic Assessment study (provided as Appendix B in the EA report), a seven day tube count was undertaken on Pottsville Road, located to the south of Cudgera Creek Road, in March 2017. The survey data indicated that Pottsville Road experiences approximately:</p> <ul style="list-style-type: none"> • 1,400 – 1,800 (two-way) vehicles per day • 150 – 160 (two-way) vehicles per peak hour (morning and evening). <p>The impacts of the proposed modifications to the operation of the quarry was undertaken utilising absorption capacity analysis (Cp). Absorption capacity analysis determines the maximum rate traffic streams can absorb additional vehicles.</p> <p>As shown in the figure below, there is adequate capacity to absorb the additional vehicle movements without additional traffic control. This is based on the current peak hour traffic volumes on Pottsville Road of 159 vehicles with up to 18 vehicles exiting the site (assuming 12 trucks and six employees in light vehicles).</p>

Agency	Aspect	Issue/s raised	Proponent's response
--------	--------	----------------	----------------------



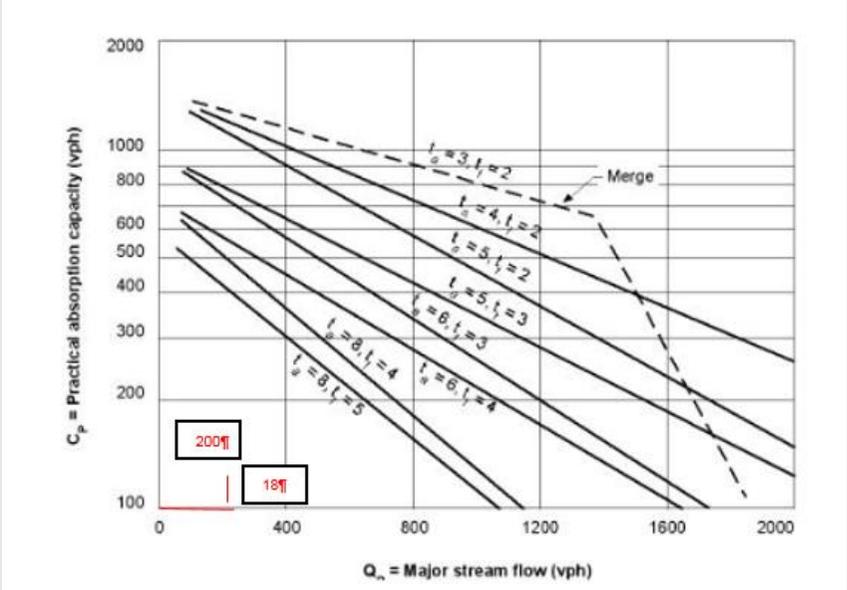
Absorption capacity 2017

Based on discussion with Tweed Shire Council, a two percent linear annual growth rate has been applied to the current traffic volumes in order to identify forecast background traffic volumes in the 2027 future horizon year. This is considered to be a conservative estimate of background traffic growth, as traffic data provided by Council indicates that there has been no increase in traffic volumes along Pottsville Road between 2010 and 2013.

Based upon the application of a two percent annual growth rate, by 2027 Pottsville Road is expected to accommodate approximately 200 (two-way) vehicle trips per hour.

The updated absorption capacity analysis accounting for these traffic volumes is displayed in the figure below.

Agency	Aspect	Issue/s raised	Proponent's response
--------	--------	----------------	----------------------



Absorption capacity 2027

The figure above indicates that in 2027, it is expected that Pottsville Road will continue to have sufficient capacity to absorb the expected increase in traffic associated with the Dunloe Sands Quarry, without additional traffic control.

The TIA has not considered the impact of the proposed modification on pedestrians, cyclists and public transport (school buses). Further consideration should be given to the impact of the proposed increase in heavy vehicles movements along the identified transport route.

The site is located in a relatively remote location, with no formal pedestrian or cycling facilities / infrastructure provided along Pottsville Road in the vicinity of the site. With the exception of school buses, there is no public transport service operating on Pottsville Road.

- The school bus services that operate along Pottsville Road include:
- Service 1206 – Pottsville Road, Round Mountain, Cudgera and Tanglewood (pm only)
 - Service 1239 – Round Mountain, Cudgera, Seabreeze and Pottsville Road (am only).

The proposed modification to the Dunloe Sands Quarry will generate up to an additional 16 heavy vehicle trips per hour, or approximately a trip every 4 minutes. This low increase in traffic associated with the proposal is expected to have a minimal impact on the movement of pedestrians, cyclists and bus movements in proximity to the site.

Agency	Aspect	Issue/s raised	Proponent's response
		<p>It is recommended that the Consent Authority require the preparation of a Transport Management Plan (TMP) detailing procedures for the management and monitoring of heavy vehicle movements generated by the proposed development. It is further recommended that the TMP include a Driver's Code of Conduct for employees and contractors, which includes but should not be limited to the following:</p> <ul style="list-style-type: none"> • A map of the primary haulage routes highlighting critical locations. • Safety initiatives for haulage through residential areas and along school bus routes. • An induction process for vehicle operators and regular toolbox meetings. • A complaint resolution and disciplinary procedures. • Any community consultation measures for peak haulage periods. • Consideration for seasonal traffic and events. 	<p>This recommendation is noted and the preparation of a TMP will be undertaken. It is understood this will form a condition of the modified Project Approval.</p>
		<p>It is unclear whether the proposed modification is related to the existing Sand Quarry operation on Lot 6 DP 840977. Where the proposed modification will result in an increase in vehicles accessing the site and then consideration should be given to any subsequent impacts on Pottsville Road.</p>	<p>It is intended that the additional heavy vehicle activity will only occur at the Dunloe Sands Quarry and will be operationally separate from the quarry operation on Lot 6 DP 840977 as it is not owned by Holcim.</p>
<p>Tweed Shire Council (Submission 3)</p>	<p>Sight distances</p>	<p>The Austroads prescribed requirement is 228 m safe intersection sight distance (SISD) (based on 80 km/h posted speed and 6% downgrade). The existing intersection formation has provision of approximately</p>	<p>As required by Roads and Maritime, an independent RSA has been undertaken at the site access intersection at Pottsville Road. The RSA indicates that the following sight distances are currently provided at this intersection:</p>

Agency	Aspect	Issue/s raised	Proponent's response
		<p>130 m driver sight distance to / from the south and 160 m to / from the north approach. The deficiency in sight distance needs to be addressed further by the applicant and any remedial works to address the deficiency should be identified.</p>	<ul style="list-style-type: none"> • A SISD of 205 m is currently achieved on Pottsville Road to the north of the quarry access road • A SISD of 135 m is currently achieved on Pottsville Road to the south of the quarry access road. <p>While it is noted that these distances are not fully compliant with Austroads Guidelines, the RSA also identifies a number of mitigation measures to provide sufficient site distance at the intersection, including the removal of vegetation along Pottsville Road and the provision of additional signage to provide warning to drivers.</p> <p>It is anticipated that the introduction of the treatments identified in the RSA will address the deficiencies in the SISD and enhance the safe operation of the quarry access intersection.</p>
<p>Department of Planning and Environment - Division of Resource and Geoscience (Submission 4)</p>	<p>Generally no issues or concerns with the modification request</p>	<p>Noted that the GSNSW has no resource concerns with the modification request.</p> <p>In order to assist in the collection of construction material production data, the proponent should be required to provide (or continue to provide) annual production data for the subject site to the NSW Division of Resources and Geoscience as a condition of any new or amended development consent.</p>	<p>Submission acknowledged. Holcim will provide annual product data for the site to the NSW Division of Resources and Geoscience.</p>

3. Conclusion

This submissions report responds to the issues raised in submissions from the community and government agencies, following the public exhibition of the Dunloe Sands Quarry Modification EA.

In order to address the submissions received, the following was undertaken:

- An Independent RSA to establish a range of measures to address road safety impacts from the proposed modification. These include measures to repair existing issues and improve the current condition of the road to allow for the increase in traffic from the proposal.
- An assessment of the road's capacity to accommodate the increase in traffic from the proposal along-side projected growth was undertaken. Based on a conservative analysis of projected traffic to 2027, Pottsville Road is expected to have sufficient capacity to absorb the increase in traffic associated with the proposal.
- Consideration of the proposal's impact on the movement of pedestrians, cyclists and bus movements.

It is recommended that the following additional mitigation measures are implemented in order to address the findings of the Independent RSA:

- Treatments to enhance the safe movement of vehicles from the access road onto Pottsville Road based on identified deficiencies in SISD with the original proposal, including:
 - Removal of vegetation along Pottsville Road to maximise sight distances
 - Relocating the existing stop line further to the east of its current location in order to improve sight distances
 - Providing W2-9(R) signage on Pottsville Road on approach to the access road to provide additional warning to drivers.

These mitigation measures should form a condition within the modified Project Approval.

This Submissions Report fulfils the requirements of Section 85A of the *Environmental Planning and Assessment Regulations 2000*. It meets the requirement to prepare a response to submissions received on the EA.

In consideration of the assessment of the impacts from the proposal contained in the EA and the additional mitigation measures proposed to address the submissions, it is believed that all relevant issues and concerns have been addressed and that the project should now proceed for approval by the Minister.

Appendices

Appendix A – Submissions

765 Pottsville Road
Sleepy Hollow
NSW 2483
30 July 2017

Planning & Environment Department NSW
76 Victoria Street
Grafton NSW 2460

Dear Sir/Madam

I Alfred John Edwards, of 765 Pottsville Road, Sleepy Hollow, NSW, 2483, do hereby lodge formal objection to Holcim (Australia) Pty Ltd, seeking approval to modify existing conditions of the project approval of Dunloe Sands Quarry.

Attached is a copy of Dunloe Sands Quarry Community Update.

The following issues are raised for serious consideration.

DWELLINGS

There are two dwellings at 765 Pottsville Road, Sleepy Hollow, one in very close proximity to this road, the other a short distance away, both are at present being considerably effected by Dunloe Park Sand Quarry operations.

TRUCK MOVEMENTS IN AND OUT

Present in and out 8 per hour
 80 per week day
 40 per Saturday
 440 per week

ONE EVERY SEVEN AND A HALF (7½) MINUTES.

Intended in and out 24 per hour
 240 per week day
 120 per Saturday
 1320 per week

ONE EVERY TWO AND A HALF (2½) MINUTES.

ANY INCREASE ON THE PRESENT APPROVAL IS UNREASONABLE.

TRAFFIC AND ACCESS CONTROL

A number of trucks exiting the Haul Road and entering Pottsville Road, fail to stop, while some do stop, they then proceed in a northerly direction at a slow speed up an incline for a considerable distance, holding up traffic travelling in the same direction, due no overtaking restrictions.

VEGETATION

Vegetation growing on the eastern side of Pottsville Road, from the crest of the hill to the Haul Road, greatly restricts the view for motorists of trucks exiting the Haul Road. On three(3) occasions I have observed near serious accidents which could have easily resulted in injury or death. I am sure this situation arises on many more occasions when I am not in the vicinity to observe.

NOISE

A large number of trucks create more noise coming down the hill, prior to entering the Haul Road than those exiting the Haul Road and proceeding up the hill.

The increased number of trucks at the quarry would rise from four (4) to twelve (12) per hour, which would allow twenty four (24) trucks per hour, either leaving or entering Pottsville Road. The present duration of the noise created by these additional truck movements would be increased by 200 % and be almost continuous, this would be most unacceptable.

DUST

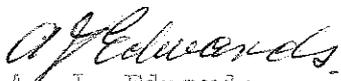
There is a large amount of dust created by present truck movements, some of which is caused by trucks not staying on the bitumen completely and allowing their nearside wheels onto the dirt shoulders. Should truck movements be increased, dust level would be for longer periods and with a truck every two and a half ($2\frac{1}{2}$) minutes, almost continuous.

ROAD DAMAGE

There is at present considerable damage being caused to the bitumen surface and road shoulders of Pottsville Road by the sand trucks and other occasional heavy vehicle traffic, this damage will only become more frequent with increased truck movements. A number of road side white post indicators have been flattened by sand trucks, and not replaced.

I have no doubt that Holcim were fully aware of the original conditions of approval when they took over the Sand Quarry, it now appears that they are only interested in the increased financial aspects of the project and not fully taking into account the welfare and way of life of residents and road users affected by the Dunloe Sands Quarry Project.

Yours Faithfully


A. J. Edwards



Dunloe Sands Quarry Community Update

About the project

Holcim (Australia) Pty Ltd (Holcim) has been delivering construction materials since 1901, originally serving the industry under the Ready-Mix and Humes brands. Today, Holcim operates across Australia supplying concrete, concrete products, aggregate and sand from a network of over 200 concrete batching plants.

Holcim operates the Dunloe Sands Quarry (the site) which produces a very high quality, fine concrete sand as well as a variety of other sand products including plasterer sand, bunker sand and fill sand.

The construction and operation of the Dunloe Sands Quarry is in accordance with Project Approval originally obtained in 2008. Holcim is seeking approval from the Department of Planning and Environment (DP&E) to modify an existing condition of the Project Approval to allow for an increase in heavy vehicle movements and improved flexibility in vehicle movements at the site.

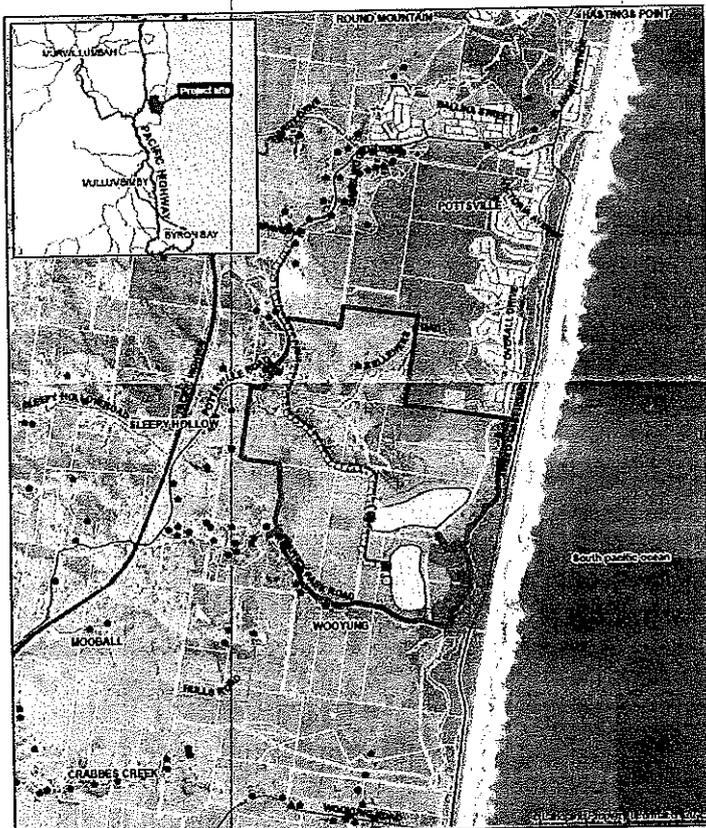
Holcim have engaged GHD to prepare an Environmental Assessment (EA), which will be submitted to DP&E as part of the approval process for the proposed modification.

Proposed modification

Currently a condition of the Project Approval requires that heavy vehicle movements (in and out of the site) do not exceed eight per hour (80 per weekday). The EA has been prepared to support an allowance of up to 120 inbound and 120 outbound heavy vehicle movements from the site per weekday and up to 60 inbound and 60 outbound heavy vehicle movements on Saturdays.

This results in a maximum of 12 heavy vehicle movements per hour (one way) each day compared to the current limit of eight. These movements average approximately 100 heavy vehicle movements per working day over the course of a calendar month.

There will be no change to operation hours; works will continue to be conducted Monday to Friday 7:00am to 5:00pm and Saturday 7:00am to 12:00pm. No operations are allowed on Sunday or public holidays unless it is maintenance that is inaudible to neighbouring residents.



- Legend**
- Project boundary
 - Sand extraction areas
 - Incoming haul road
 - Outgoing haul road
 - Site office
 - Washplant
 - Existing dwelling house

Dunloe Sands Quarry Community Update



Why is the modification needed?

In practice and based on our experience, the current Project Approval condition reduces our ability to service peaks and troughs in market demand. As such, the site cannot meet demand requirements during peak periods (eg - mornings). The modification will allow for more flexibility in daily quarry heavy vehicle movements to supply to the internal and external market, which service construction material industries and major infrastructure projects being undertaken for the community's benefit.

The proposed modification is considered to be substantially the same development as that approved under the Project Approval, as it would not alter the operation or intensify activities beyond the current approved development - the annual output of the site will not change.



What is an Environmental Assessment (EA)?

An Environmental Assessment is a document detailing a proposed development and its potential impacts.

We engaged an external consultant, GHD, to prepare an EA for submission to DP&E as part of a section 75W modification application under the *Environmental Planning and Assessment Act 1979* for the existing Dunloe Sands Quarry.

The EA provides a description of the modification and its need and considers the social and environmental impacts of the modification, recommending mitigation and management measures as appropriate.

Will the modification affect me?

Issues identified as having the potential for environmental impact as a result of the modified proposal includes traffic, noise and air quality impacts due to increased daily heavy vehicle traffic in and out of the site.

The EA has determined that:

- Based upon the current peak hour traffic volumes on Pottsville Road, there is adequate capacity to absorb the additional heavy vehicle movements without additional traffic control.
- The current road access arrangement is considered appropriate to accommodate additional heavy vehicle activity.
- Increasing the number of trucks at the quarry from four trucks per hour to a maximum of twelve trucks per hour would result in compliance with relevant noise criteria.

The results from noise modelling demonstrate that the modified proposal is expected to comply with both the Project Approval criteria and Road Noise Policy criteria at all nearby sensitive receivers (such as houses).

- Increases in dust from twelve trucks inbound and twelve trucks outbound per hour are minimal and no significant additional impacts are expected.

Dunloe Sands Quarry Community Update



Management actions required

We currently, and will continue, to implement a number of management actions to address environmental impacts. These include:

- Implementing an ongoing Noise Monitoring Program for the project
- Implementing an ongoing Dust Monitoring Program for the project
- A Traffic Assessment, which has been undertaken by GHD for the proposed modification

How can I view the Environmental Assessment?

The EA will be made available on DP&E's website at www.planning.nsw.gov.au. All community members will have the opportunity to provide formal comment on the proposal during this period. Informal comment can be provided to Holcim through the details below.

How can I find out more?

If you would like to find out more about the project, or have any feedback, you can contact Holcim directly, as follows:

Mail:

Holcim (Australia) Pty Ltd

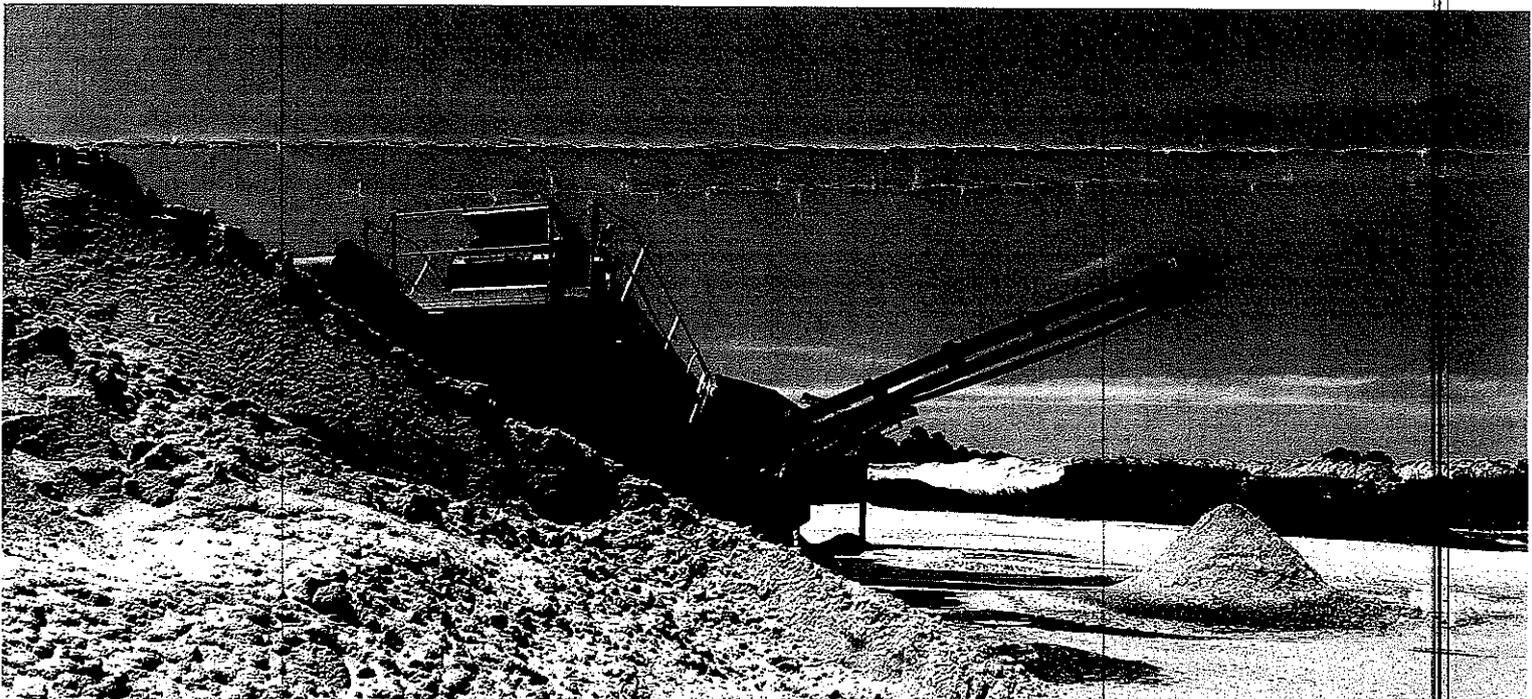
Level 8, 799 Pacific Highway
Chatswood NSW 2067 Australia

Direct:

Ian Shenton

NSW Planning & Environment Manager
ian.shenton@lafargeholcim.com

0429 790 772





File No: NTH07/000949/02
Your Ref: MP 06_0031 MOD 2

The Director
Resource Assessments
NSW Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Attention: Anthony Barnes – Senior Planning Officer

Dear Sir / Madam,

Proposed Modification to Dunloe Park Sand Quarry (MP 06_0031 MOD 2) Pottsville Road Pottsville

I refer to your email of 20 July 2017 requesting comment from Roads and Maritime Services in relation to the above mentioned proposed major project modification.

Roles and Responsibilities

The key interests for Roads and Maritime are the safety and efficiency of the road network, traffic management, the integrity of infrastructure and the integration of land use and transport.

Pottsville Road is a local road. Tweed Shire Council is the roads authority for all public roads (other than freeways or Crown roads) in the local government area pursuant to Section 7 of the *Roads Act 1993* (Roads Act). Council is responsible for setting standards, determining priorities and carrying out works on Local and Regional roads however Roads and Maritime's concurrence is required prior to Council's approval of works on classified (Regional) roads under Section 138 of the *Roads Act 1993*.

In accordance with Clause 16 of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*, Roads and Maritime is given the opportunity to review and provide comment on the subject development application.

Roads and Maritime Response

Roads and Maritime has reviewed the referred information and provides the following comments to assist the Consent Authority in making a determination;

1. It is understood that total truck movements generated by the approved development are proposed to increase from 8 movements per hour to 24 movements (12 laden) in any hour, with no more than 240 movements per weekday and 120 movements on any Saturday. All vehicles are proposed to access the development from Pottsville Road by turning left-in and right-out.
2. The TIA provides limited detail of existing geometry and available sight distances at intersections along the identified transport route. Further consideration should be given to the impact of additional heavy vehicle movements on the safety of affected intersections.

3. Roads and Maritime does not support the desktop analysis under Section 4.4 of the TIA. The Pottsville Road and Site Access Road intersection is located in the vicinity of horizontal and vertical curves which appear to constrain sight distances in both directions. The proposed increase in slow-moving heavy vehicles turning at the intersection has the potential to impact on the safety of vehicles travelling along the public road.

It is recommended that the Consent Authority require an independent Road Safety Audit (RSA) of the existing intersection prepared in accordance with Part 6 of the Austroads Guide to Road Safety. An addendum to the TIA should be prepared to address the findings of the RSA and where appropriate proposed mitigation measures to address any road safety impacts arising from the proposed modification.

4. The TIA does not consider the proposed increase in truck movements in the context of future traffic conditions over a 10 year horizon. The TIA should have considered background traffic growth along the identified transport route and the cumulative impact of planned developments in the subject area.
5. The TIA has not considered the impact of the proposed modification on pedestrians, cyclists and public transport (school buses). Further consideration should be given to the impact of the proposed increase in heavy vehicles movements along the identified transport route.
6. It is recommended that the Consent Authority require the preparation of a Transport Management Plan (TMP) detailing procedures for the management and monitoring of heavy vehicle movements generated by the proposed development. It is further recommended that the TMP include a Driver's Code of Conduct for employees and contractors, which includes but should not limited to the following;
 - A map of the primary haulage routes highlighting critical locations.
 - Safety initiatives for haulage through residential areas and along school bus routes.
 - An induction process for vehicle operators and regular toolbox meetings.
 - A complaint resolution and disciplinary procedures.
 - Any community consultation measures for peak haulage periods.
 - Consideration for seasonal traffic and events.
7. It is unclear whether the proposed modification is related to the existing Sand Quarry operation on Lot 6 DP 840977. Where the proposed modification will result in an increase in vehicles accessing the site and then consideration should be given to any subsequent impacts on Pottsville Road.

Upon determination of the application it would be appreciated if Planning and Environment could forward a copy of the approval for our records. If you have any further enquiries regarding the above comments please do not hesitate to contact Matt Adams, A/Manager Land Use Assessment on (02) 6640 1362 or via email at: development.northern@rms.nsw.gov.au

Yours faithfully



15 August 2017

for Liz Smith
A /Network & Safety Manager, Northern Region

Memo

Wednesday 9 August 2017

To: Anthony Barnes
Planning NSW

From: Ray Clark

Subject: Dunloe Park Sand Quarry

Reference: MP 06_0030 MOD 2

Anthony

The Dunloe Sands Quarry currently has provision of private access in the form of a priority controlled T-intersection with Pottsville Road. This intersection is located on the elevated section of Pottsville Road with a posted speed of 80km/h and provides a sealed and concrete surface.

The GHD Report for Holcim section 6.2.1 Traffic Impact assessment states at page 23 that:-
“A desktop review indicates that these (213m) sight distances are currently achieved.”

The Austroads prescribed requirement is 228m SISD (based on 80km/h posted speed and 6% downgrade). The existing intersection formation has provision of approximately 130m driver sight distance to / from the south and 160m to / from the north approach. The deficiency in sight distance needs to be addressed further by the applicant and any remedial works to address the deficiency should be identified.



View from the access to the south

Memo
Subject:



View from the access to the north

Regards
Ray Clark
Engineer –Traffic
Tweed Shire Council
Ph: 0266702578
E: rayc@tweed.nsw.gov.au

4th August 2017

Anthony Barnes
Senior Planning Officer
Department of Planning & Environment
PO Box 39
Sydney NSW 2001

Your Reference: MP 06_0031 MOD 2
Our Reference: OUT17/30742

Emailed: Anthony.Barnes@planning.nsw.gov.au

Dear Mr Barnes

Re: Dunloe Park Sand Quarry (MP 06_0031 MOD 2).

Thank you for the opportunity to provide advice on the above matter. This is a response from the NSW Department of Planning & Environment – Division of Resources & Geoscience, Geological Survey of New South Wales (GSNSW).

General Information

Thank you for the opportunity to provide advice on the above matter. I refer to your email of 20 July regarding the above Dunloe Park Sand Quarry Modification to allow an increased number of truck movements to and from the site.

GSNSW has no resource concerns with the modification request; however provide the following comments relating to conditions of consent.

DRG collects data on the quantity of construction materials produced annually throughout the State. Forms are sent to all operating quarries at the end of each financial year for this purpose. The statistical data collected is of great value to Government and industry in planning and resource management, particularly as a basis for analysing trends in production and for estimating future demand for particular commodities or in particular regions. Production data may be published in aggregated form, however production data for individual operations is kept strictly confidential.

In order to assist in the collection of construction material production data, the proponent should be required to provide (or continue to provide) annual production data for the subject site to the NSW Division of Resources and Geoscience as a condition of any new or amended development consent.

Geoscience Information Services

The GSNSW has a range of online data related to mineral exploration, land use and general geoscience topics:

<http://www.resources.nsw.gov.au/geological/online-services>

The location of current exploration and mining titles in NSW, explanations of mining and production titles and the roles of community and government in the decision making process for mining/resource projects may be accessed by the general public using the following online utilities:

<http://www.commonground.nsw.gov.au/#/>

Queries regarding the above information, and future requests for advice in relation to this matter, should be directed to the GSNSW Land Use team at landuse.minerals@industry.nsw.gov.au.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Cressida Gilmore', written in a cursive style.

Cressida Gilmore
Manager - Land Use

Appendix B – Independent road safety audit



DUNLOE SANDS QUARRY POTTSVILLE ROAD SAFETY AUDIT

FOR

GHD



BITZIOS
consulting

Gold Coast
Suite 26, 58 Riverwalk Avenue
Robina QLD 4226
P: (07) 5562 5377
W: www.bitziosconsulting.com.au

Brisbane
Level 2, 428 Upper Edward Street
Spring Hill QLD 4000
P: (07) 3831 4442
E: admin@bitziosconsulting.com.au

Sydney
Studio 203, 3 Gladstone Street
Newtown NSW 2042
P: (02) 9557 6202

DOCUMENT CONTROL SHEET

Issue History

Report File Name	Prepared by	Reviewed by	Issued by	Date	Issued to
P3352.001R Dunloe Sands Quarry Pottsville RSA	J. Walden-Goodlet	P. Bollavaram	J. Walden-Goodlet	16/10/2017	Mark Lucas Mark.Lucas@ghd.com

Copyright in the information and data in this document is the property of Bitzios Consulting. This document and its information and data is for the use of the authorised recipient and this document may not be used, copied or reproduced in whole or in part for any purpose other than for which it was supplied by Bitzios Consulting. Bitzios Consulting makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or its information and data.

CONTENTS

	Page
1. INTRODUCTION	1
1.1 BACKGROUND	1
1.2 CONTEXTUAL INFORMATION	1
1.3 SCOPE	1
1.4 LIMITATION AND INTERPRETATION OF AUDIT RESULTS	2
1.5 OBJECTIVES	2
1.6 METHODOLOGY	2
1.7 AUDIT TEAM	2
1.8 INFORMATION SOURCES	2
1.9 SITE INSPECTIONS	3
2. ROAD CONDITIONS AND DATA REVIEW.....	4
2.1 POTTSVILLE ROAD	4
2.2 TRAFFIC VOLUMES	4
2.3 CRASH HISTORY	4
2.3.1 Reported Crashes	4
3. AUDIT FINDINGS	6
4. CONCLUDING STATEMENT	24

Tables

Table 2.1:	Pottsville Road AADT
Table 3.1:	Existing Conditions Road Safety Audit – Findings and Suggested Treatments

Figures

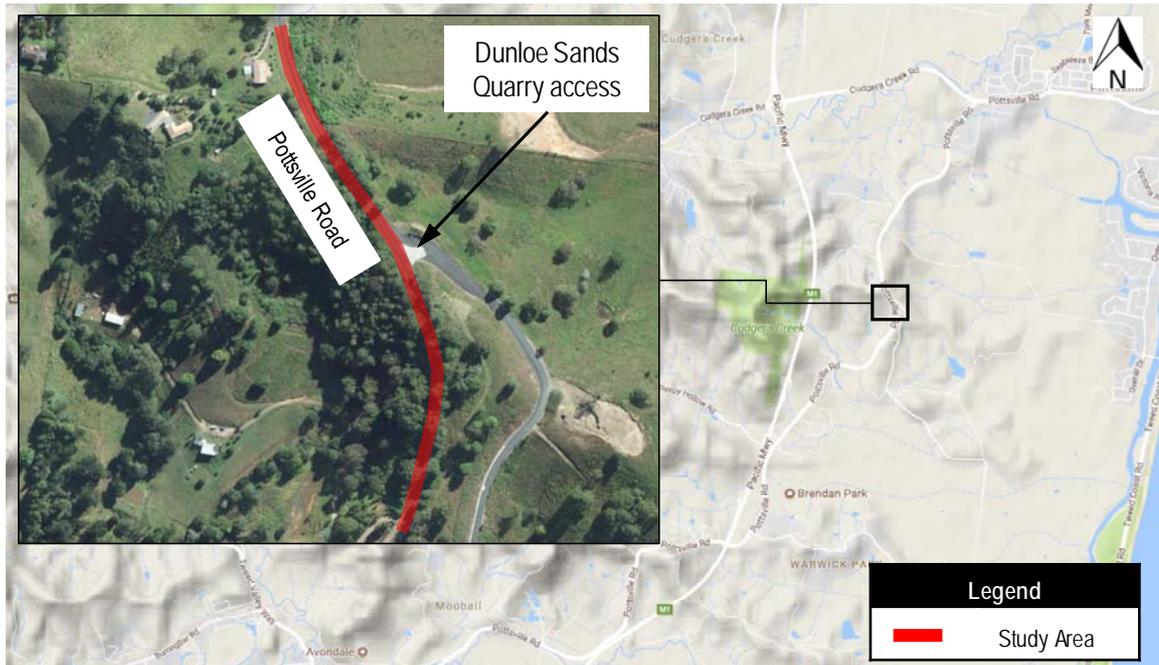
Figure 1.1:	Extent of Study Area on Pottsville Road
Figure 2.1:	Traffic Count Location with Respect to Study Area
Figure 2.2:	Pottsville Road Crash History
Figure 3.1:	Indicative Item Locations

1. INTRODUCTION

1.1 BACKGROUND

Bitzios Consulting has been engaged by GHD to undertake an existing conditions road safety audit of the Dunloe Sands Quarry access to Pottsville Road in Sleepy Hollow, NSW. Given the access form and size, the quarry access is considered to form an intersection with Pottsville Road and is not a typical driveway crossover.

The study area extends approximately 250m to the north and 250m to the south of the Dunloe Sands Quarry access. The study area is presented in Figure 1.1.



Source: Google Maps & SIX Maps

Figure 1.1: Extent of Study Area on Pottsville Road

1.2 CONTEXTUAL INFORMATION

GHD recently completed a traffic assessment for a modification to the Dunloe Sands Quarry. The Roads and Maritime Services (RMS) have subsequently requested the following:

- *“It is recommended that the Consent Authority require an independent Road Safety Audit (RSA) of the existing intersection prepared in accordance with Part 6 of the Austroads Guide to Road Safety. An addendum to the TIA should be prepared to address the findings of the RSA and where appropriate, proposed mitigation measures to address any road safety impacts arising from the proposed modification.”*

1.3 SCOPE

The scope of works for the road safety audit includes the following:

- review of crash data for the corridor to identify existing safety issues;
- review of available existing information (e.g. count data) relevant to the road corridor;
- undertake an existing conditions road safety audit consistent with the procedures outlined within the Austroads Guide to Road Safety;
- identify and prioritise recommendations for treatments / improvements to address the road safety issues and historical crashes identified within the study corridor; and
- prepare an inventory of issues and treatments.

1.4 LIMITATION AND INTERPRETATION OF AUDIT RESULTS

Actions have been suggested for each of the issues primarily as a guide for the personnel responsible for selecting and implementing remedial measures. It is not intended to imply that the suggested actions are the only possible actions.

Furthermore, while the scope items listed above presents a range of items that were reviewed as part of the audit process, only the issues identified as presenting a safety risk have been raised and commented upon within this report.

The road safety audit is limited to the section of Pottsville Road located within the study area, as detailed in Section 1.1.

1.5 OBJECTIVES

The objectives of the road safety audit are:

- to identify potential safety problems for road users and others affected by the existing conditions of the road; and
- to ensure that measures to eliminate or reduce the problems are considered fully.

The benefits of conducting road safety audits are that the:

- likelihood of crashes on the road network can be reduced; and
- severity of crashes can be reduced.

The aim of the road safety audit is:

"to identify any existing safety deficiencies of design, layout and road furniture which are not consistent with the road's function or use. There should be consistency of standards such that the road users' perception of local conditions assists safe behaviour."

1.6 METHODOLOGY

The road safety audit was carried out consistent with the procedures set out in the Austroads Guide to Road Safety. Items reviewed as part of the road safety audit included (but were not limited to) the following:

- road alignment (horizontal and vertical) and cross-section;
- intersection geometry;
- intersection sight distances (including sight distance to any intersection control signs);
- sign and pavement markings;
- roadside objects and hazards;
- driver sight distances along the corridor; and
- available crash details along the study corridor.

1.7 AUDIT TEAM

The road safety audit was carried out by an audit team comprising of:

- Praveen Bollavaram – Accredited Lead Road Safety Auditor; and
- Julius Walden-Goodlet – Traffic Engineer.

1.8 INFORMATION SOURCES

Information sources for the road safety audit included:

- site inspections;
- available crash history data obtained from Transport for NSW (NSW Centre for Road Safety);
- available traffic volume data obtained from Tweed Shire Council;
- AS1742 MUTCD;

- *Austroads Guide to Road Design*, and
- *Austroads Guide to Road Safety*.

1.9 SITE INSPECTIONS

Both day time and night time site inspections were carried out on Wednesday 4th September 2017 from 3:00PM to 5:00PM and 6:00Pm to 6:30PM to gain an appreciation of the existing road conditions and terrain for the purpose of identifying deficiencies along the existing corridor that need to be addressed.

2. ROAD CONDITIONS AND DATA REVIEW

2.1 POTTSVILLE ROAD

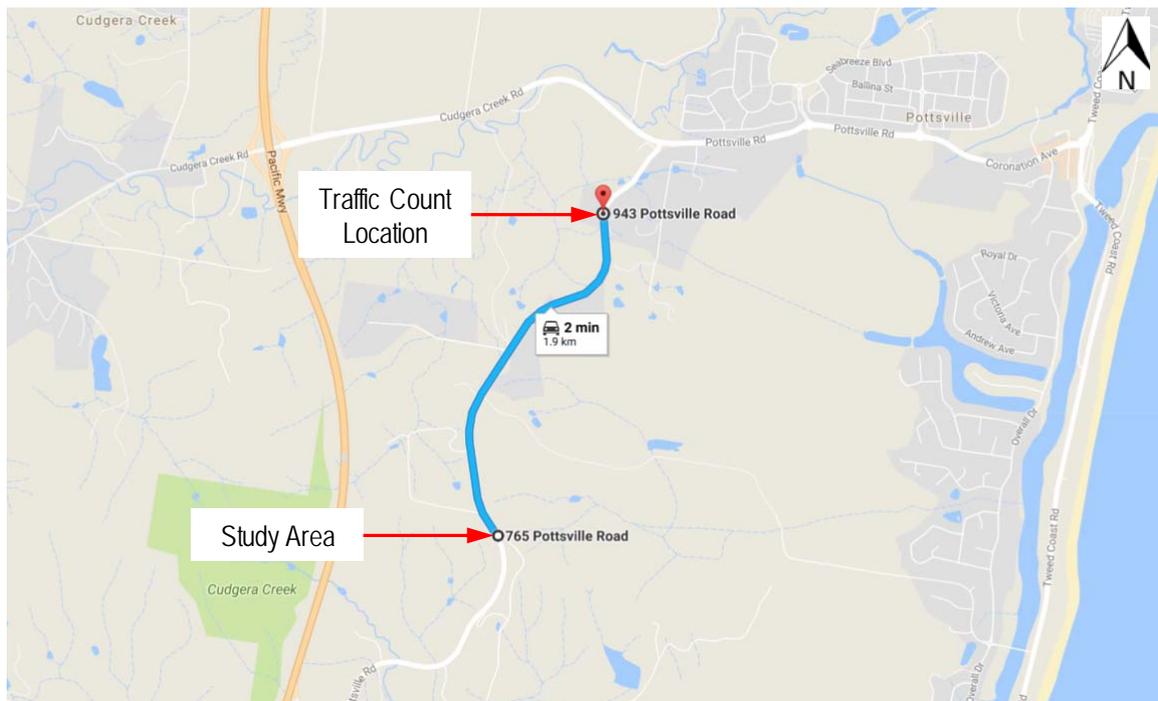
Pottsville Road is a rural road located between Cudgera Creek Road and Tweed Valley Way. Pottsville Road provides residential access, is a connecting road between two key rural roads and services a number of agricultural and industrial facilities. The section of Pottsville Road within the study area is a two-lane, two-way carriageway. The subject site / study area is the intersection of the Dunloe Sands Quarry access road and Pottsville Road, which is located on a curve and has a posted speed of 80km/h.

2.2 TRAFFIC VOLUMES

Traffic data was obtained from Tweed Shire Council for Pottsville Road. The traffic count location is at No. 943 Pottsville Road, which is approximately 1.9km north of the Dunloe Sands Quarry access. The traffic data is presented in Table 2.1. The traffic count location with respect, to the study area is shown in Figure 2.1.

Table 2.1: Pottsville Road AADT

Location	Date	AADT (Bi-Directional)
Pottsville Road – at No 943	17/05/2017	1517 veh/day



Source: Google Maps

Figure 2.1: Traffic Count Location with Respect to Study Area

2.3 CRASH HISTORY

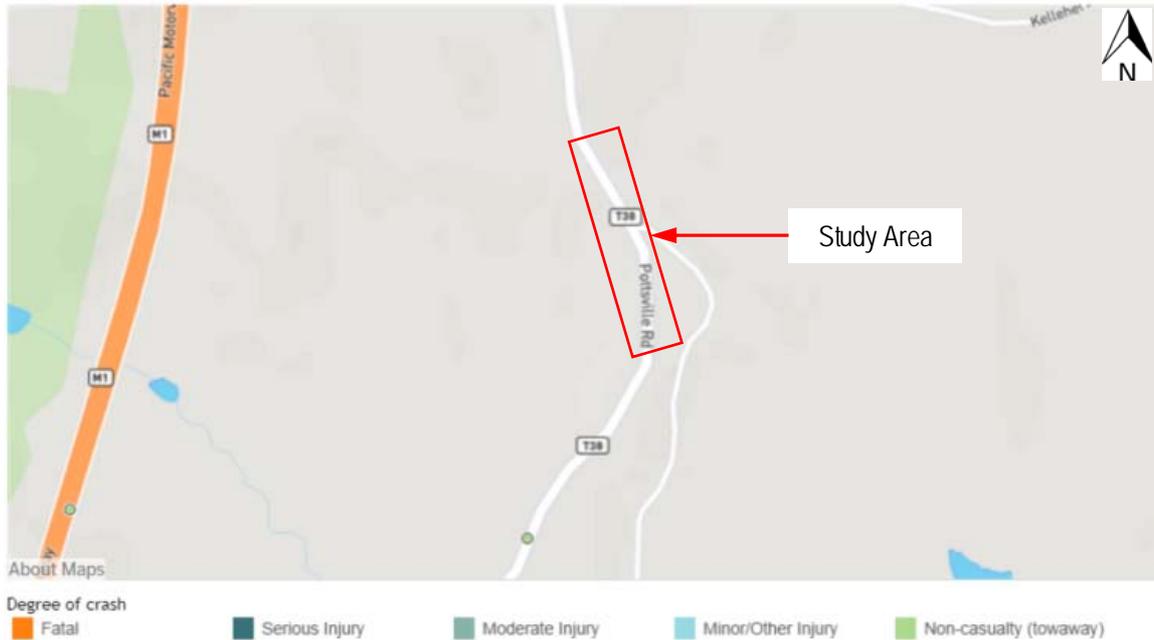
2.3.1 Reported Crashes

Crash data was obtained from Transport for NSW (NSW Centre for Road Safety). Available crash data includes a record of the following crash types:

- Fatal;
- Serious Injury;
- Moderate Injury;

- Minor/Other Injury; and
- Non-casualty (towaway) Crashes.

The available data is available for the 5-year period from 2012 to 2016. Figure 2.2 shows a map of crashes in the study area and immediate surrounds. As demonstrated, during the period that crash data is available for, no crashes were recorded in proximity to the study area. The nearest crash was approximately 800m to the south of the Dunloe Sands Quarry access. The single crash occurred in 2012 and was a non-casualty (towaway) crash. The crash was an off bend into object crash (RUM Code 85).



Source: Transport for NSW (NSW Centre for Road Safety)

Figure 2.2: Pottsville Road Crash History

As demonstrated in Figure 2.2, there is no significant crash history or trend of crashes recorded within the study area.

3. **AUDIT FINDINGS**

The safety issues, suggested treatments and prioritisation for the study area are detailed in Table 3.2. The location of each issue is summarised in Figure 3.1.

A ranking for each recommendation has been included to prioritise the issues in order of importance in relation to vehicular, cyclist and pedestrian safety using the following range:

- **Priority A:** Indicates highest priority for action from a safety view point. These are recommendations that will have the highest impact on reducing the probability or severity of a possible incident;
- **Priority B:** Indicates that action is needed from a safety point of view;
- **Priority C:** Indicates that the action is desirable from a safety point of view; and
- **Priority D:** For all other actions.

Table 3.1: Existing Conditions Road Safety Audit – Findings and Suggested Treatments

Item	Priority	Issue	Illustration	Suggested Treatment(s)
1.1	C	Line marking on westbound approach to the intersection is faded		Provide new line marking on the approach to the intersection
1.2	B	Unprotected drop / steep fall on edge of access road. Absence of delineation to assist drivers under night conditions.		Approach provides access to an internal roadway and is a low speed environment. As a minimum the edge of road should be delineated (provision of guide posts, line marking, RRPMS etc.). Ultimately it is recommended to protect the drop-off with guardrail.

Item	Priority	Issue	Illustration	Suggested Treatment(s)
1.3	C	<p>Stop sign does not comply with the standard requirements of a stop sign as stipulated in AS1742. The stop sign is also not retroreflective and therefore is not clearly visible at night.</p>		<p>Replace existing sign with Stop Sign (R1-1) compliant with AS1742. The new sign should be installed in accordance with the orientation and height requirements of AS1742.2</p>
1.4	A	<p>The Safe Intersection Sight Distance (SISD) to the north was measured to be approximately 205m. The available sight distance to the north does not comply with the Safe Intersection Sight Distance (SISD) of 236m stipulated in Austroads Guide to Road Design Part 4A.</p> <p>Sight distance to the north is obscured by vegetation on the inside of the curve on Pottsville Road (eastern side).</p> <p>The SISD requirement was based on a 2.0 second reaction time and design speed of 90km/h (posted speed 80km/h) which warrants an SISD of 214m. On site the average grade of Pottsville Road was measured to be approximately 7% through the intersection (downgrade for vehicles approaching from the north). On this basis an additional 22m SISD is required for grade correction (interpolated based on correction factors for 6% and 8%).</p> <p>The total SISD requirement is therefore 236m.</p>		<p>Vegetation removal / vegetation trimming along Pottsville Road to the north of the subject intersection, along the eastern extent of the road to maximise the available sight distances.</p> <p>Provision of signage on the major road (Pottsville Road) on approach to the intersection to provide additional warning to drivers. Signage may include Side Road Intersection on a Curve (W2-9(R)) and xx m sign (W8-5). Example signage is shown below.</p> 

Item	Priority	Issue	Illustration	Suggested Treatment(s)
1.5	A	<p>The Safe Intersection Sight Distance (SISD) to the south was measured to be approximately 135m. The available sight distance to the south does not comply with SISD requirement of 203m.</p> <p>The Stopping Sight Distance (SSD) to the south was measured to be approximately 115m. The available sight distance to the north does not comply with SISD requirement of 138m.</p> <p>Sight distance is obscured by vegetation on the inside of the curve on Pottsville Road (western side).</p> <p>The SISD requirement was based on a 2.0 second reaction time and design speed of 90km/h (posted speed 80km/h) which warrants an SISD of 214m. On site the average grade of Pottsville Road was measured to be approximately 7% through the intersection (upgrade for vehicles approaching from the south). On this basis a reduction of 11m SISD is permitted for grade correction (interpolated based on correction factors for 6% and 8%). The total SISD requirement is therefore 203m.</p> <p>The SSD requirement was based on the requirement for trucks with a reaction time of 2.0 seconds and design speed of 90km/h which warrants an SSD of 160m. A reduction of 22m was applied for grade correction.</p>		<p>Vegetation removal / vegetation trimming along Pottsville Road to the south of the subject intersection, along the western extent of the road to maximise sight distances.</p> <p>Consider relocating the existing stop bar (to the east of its current location) to improve sight distance.</p> <p>Minor relocation of the stop bar (to the east) may result in some sight distance improvements.</p> <p>Provision of signage on the major road (Pottsville Road) on approach to the intersection to provide additional warning to drivers. Signage may include Side Road Intersection on a Curve (W2-9(L)) and xx m sign (W8-5). Example signage is shown below.</p> <div style="text-align: center;">  </div>

Item	Priority	Issue	Illustration	Suggested Treatment(s)
1.6	C	Westbound approach to intersection includes differing pavement surfaces (both bitumen and concrete) and is confusing for motorists navigating the intersection and trying to identify the intersection configuration (especially for vehicles approaching from the south and turning right into the access road). The concrete sections also make line marking difficult for motorists to see	 <p>04/10/2017</p>	Provide a consistent pavement finish for the approach to the intersection (i.e. all bitumen seal or all concrete)
1.7	C	Absence of Unidirectional hazard marker (D4-2-3)	 <p>04/10/2017</p>	Install Unidirectional hazard marker (D4-2-3) on Pottsville Road the opposite westbound approach to the intersection

Item	Priority	Issue	Illustration	Suggested Treatment(s)
1.8	B	<p>Uneven road surface / damaged road / poor pavement conditions / minor pavement failure / pavement bleeding through intersection and on both approaches resulting in reduced skid resistance and unpredictable surface conditions</p>		<p>Re-surface damaged sections of road through the intersection and on approaches to the intersection</p>

Item	Priority	Issue	Illustration	Suggested Treatment(s)
				

Item	Priority	Issue	Illustration	Suggested Treatment(s)
				
1.9	A	Absence of sealed shoulder on inside of curve (western side of Pottsville Road).		Provide a minimum 1m sealed shoulder in accordance with Austroads requirements for rural roads with an AADT between 1000-3000 veh/day
1.10	A	The unsealed shoulder on the western side of the intersection is slightly raised above traffic lane and may result in surface water drainage issues / water pooling		Grade shoulder. Shoulder crossfall should be marginally greater than the crossfall of the adjacent traffic lane (i.e. increase of 1%). Consideration to be given to Item 1.9.

Item	Priority	Issue	Illustration	Suggested Treatment(s)
				
1.11	C	<p>No edgeline provided on western side of Pottsville Road and is inconsistent with adjacent sections of where edgelines have been provided on both sides</p>		<p>Provide edgeline. Consideration to be given to Item 1.9 (i.e. shoulder widening) prior to edgeline provision</p>

Item	Priority	Issue	Illustration	Suggested Treatment(s)
1.12	C	Informal AUL provided		Formalise AUL including provision of lane marking and pavement arrows in accordance with AS1742
1.13	B	No RRPMS installed - poor delineation at night		Install RRPMS through intersection and on approaches
1.14	A	Poor delineation / no delineation - absence of guide posts particularly on the left-hand side when travelling north		Improve delineation by providing guideposts at a spacing consistent with minimum standard requirements (AS1742)

Item	Priority	Issue	Illustration	Suggested Treatment(s)
				
1.15	A	Damaged / broken guideposts throughout study area		Replace all damaged / broken guideposts

Item	Priority	Issue	Illustration	Suggested Treatment(s)
			 <p>The illustration column contains three photographs, each with a red circle highlighting a specific issue. The top photo shows a white marker with a red stripe on a concrete curb on the shoulder of a road, with a date stamp of 04/10/2017. The middle photo shows a white marker lying on the grass next to the road, also with a date stamp of 04/10/2017. The bottom photo shows a red marker on a small concrete pad on the ground, with a date stamp of 04/10/2017.</p>	

Item	Priority	Issue	Illustration	Suggested Treatment(s)
1.16	A	Unprotected hazards in clearzone (embankment, trees) on inside of curve (western side of Pottsville Road)	 <p>The illustration consists of three vertically stacked photographs, each with a date stamp '04/10/2017' in the bottom right corner. The top photo shows a road curving to the right with a grassy embankment on the inside of the curve. The middle photo shows a road with a white and red striped marker on the shoulder, with trees and brush on the inside of the curve. The bottom photo shows a road with a large tree on the shoulder and trees on the inside of the curve.</p>	Protect hazards with guardrail

Item	Priority	Issue	Illustration	Suggested Treatment(s)
			 <p>The top photograph shows a road curving to the right with a red box highlighting a hazard on the right shoulder. The bottom photograph shows a similar road curve with a red box highlighting a hazard on the right shoulder. A date stamp '04/10/2017' is visible in the bottom right corner of the second photo.</p>	
1.17	A	<p>Unprotected hazards in clearzone (large rocks, tree) on western side of Pottsville Road</p>	 <p>The photograph shows a large tree and two large rocks in a clearzone on the western side of Pottsville Road. Red circles highlight the tree and the rocks. A date stamp '04/10/2017' is visible in the bottom right corner.</p>	<p>Remove rocks and tree (or retain tree and protect with guardrail).</p>

Item	Priority	Issue	Illustration	Suggested Treatment(s)
1.18	A	Unprotected hazards in clearzone (embankment, trees) on eastern side of Pottsville Road		Install guardrail along this section of road to protect hazards
1.19	A	Unprotected hazards in clearzone (embankment, trees) on eastern side of Pottsville Road		Protect hazards with guardrail

Item	Priority	Issue	Illustration	Suggested Treatment(s)
				
1.20	A	Possible surface water drainage issues / water pooling on eastern side on Pottsville Road due to kerb design and crossfall		Drainage to be investigated further. Treatment will depend on findings however may include upgrades to kerb / provision of culverts (or other design feature to remove excess water from road edge)

Item	Priority	Issue	Illustration	Suggested Treatment(s)
1.21	A	Loose gravel on road from adjacent driveway		Remove any loose gravel
1.22	A	Unprotected hazards in clearzone (embankment, trees) on western side of Pottsville Road		Protect hazards with guardrail (extend existing guardrail)
1.23	D	Non-compliant Koala warning sign		Replace with Koala (Symbolic) (W5-47)



Source: SIX Maps

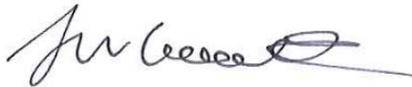
Figure 3.1: Indicative Item Locations

4. CONCLUDING STATEMENT

Bitzios Consulting Pty Ltd makes every endeavour to fully exercise its duty of care to its clients and all road users in any recommendations from being engaged to conduct a road safety audit report. Bitzios Consulting Pty Ltd, in making recommendations, is fully aware and wishes you to be fully aware that there can be a number of different factors that cause road crashes. Whilst Bitzios Consulting Pty Ltd makes every endeavour to make recommendations to enhance road safety by addressing foreseeable risks, those recommendations cannot completely eliminate the risk of crashes.



Praveen Bollavaram, Bitzios Consulting, Lead Road Safety Auditor



Julius Walden-Goodlet, Bitzios Consulting, Audit Team Member / Traffic Engineer

Appendix C – Traffic impact assessment addendum



Holcim (Australia) Pty Ltd
Dunloe Sands Quarry - Modification to Project Approval 06/-
0030
Traffic Assessment Addendum

November 2017

Table of contents

1.	Introduction	1
1.1	Overview	1
1.2	Purpose of this report	1
1.3	Limitations	1
2.	Response to comments	2
2.1	Roads and Maritime responses	2
2.2	Tweed Shire Council	7
3.	Summary	9

Figure index

Figure 1 –(W2 – 9R)) Signage.....	3
Figure 2 – Absorption Capacity (2017)	5
Figure 3 – Absorption Capacity (2027)	5
Figure 4 – Pottsville Road in proximity to the site.....	6

1. Introduction

1.1 Overview

Holcim (Australia) Pty Ltd (Holcim) is seeking approval to modify an existing Project Approval condition relating to proposed vehicular movements accessing the Dunloe Sands Quarry (the site), in accordance with Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Holcim proposes an increase in hourly heavy vehicle movements at the site.

GHD prepared a Traffic Assessment in July 2017 to assess the potential traffic impacts of the proposed additional truck movements. The Traffic Assessment indicated that the traffic impacts associated with the proposed modification would be minimal and can be accommodated within the surrounding network.

In addition, a review of available Roads and Maritime crash data indicates that for the five year period between 2012 and 2016, no crashes were recorded on Pottsville Road in proximity to the quarry access road. This indicates that there were no crash trends in the vicinity of the site during that five year period.

1.2 Purpose of this report

This report provides a response to the comments provided by Tweed Shire Council (9th August 2017) and Roads and Maritime (15th August 2017) with respect to the Traffic Assessment for the proposed increase in traffic accessing the site. Both sets of comments are included in Appendix A of the Submissions Report.

1.3 Limitations

This report: has been prepared by GHD for Holcim (Australia) Pty Ltd and may only be used and relied on by Holcim (Australia) Pty Ltd for the purpose agreed between GHD and the Holcim (Australia) Pty Ltd.

GHD otherwise disclaims responsibility to any person other than Holcim (Australia) Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

GHD has prepared this report on the basis of information provided by Holcim (Australia) Pty Ltd and others who provided information to GHD (including government authorities and Bitzios Consulting), which GHD has not independently verified or checked beyond the agreed scope of work.

2. Response to comments

This section of the report provides responses to each of comments, provided by both Roads and Maritime and Council, on the previous Traffic Assessment report.

2.1 Roads and Maritime responses

Roads and Maritime comment:

It is understood that total truck movements generated by the approved development are proposed to increase from 8 movements per hour to 24 movements (12 laden) in any hour, with no more than 240 movements per weekday and 120 movements on any Saturday. All vehicles are proposed to access the development from Pottsville Road by turning left-in and right-out.

GHD response:

The Project Approval specified that heavy vehicle movements associated with the operation of the quarry should not exceed eight per hour. Holcim subsequently received advice from the Department of Planning and Environment that the interpretation of this condition allows for a maximum of four inbound and four outbound heavy vehicle movements in any one hour period.

This application seeks to enable flexibility in truck numbers during peak periods of demand for quarry products. The proposal includes an increase from 8 heavy vehicle trips per hour (4 inbound, 4 outbound) up to 24 heavy vehicle trips per hour (12 inbound and 12 outbound). This is an increase of 16 heavy vehicle movements per hour (8 inbound and 8 outbound).

Whilst the assumption of 240 movements per weekday and 120 movements on Saturdays would be a worst case scenario, these movements average to approximately 100 heavy vehicle movements per working day over the course of a calendar month.

All heavy vehicles will access / egress the site to / from Cudgera Creek Road and the Pacific Highway. Heavy vehicles entering the site will undertake a left turn into the access road from Pottsville Road and heavy vehicles exiting the site would make a right turn from the access road onto Pottsville Road.

Roads and Maritime comment:

The TIA provides limited detail of existing geometry and available sight distances at intersections along the identified transport route. Further consideration should be given to the impact of additional heavy vehicle movements on the safety of affected intersections.

GHD response:

In order to address this comment, GHD commissioned an independent Road Safety Audit (RSA) from Bitzios Consulting (Appendix B of the Submissions Report). This RSA was undertaken on the 4 September 2017 and included a site audit during day time (3:00 pm – 5:00 pm) and night time (6:00 pm – 6:30 pm) periods.

With respect to sight distance analysis, the RSA specifies that:

- The Safe Intersection Sight Distance (SISD) to the north is 205 m which does not comply with the requirements specified in Austroads Guide to Road Design of 236 m.

- The Safe Intersection Sight Distance (SISD) to the south is 135 m which does not comply with the requirements specified in Austroads Guide to Road Design of 203 m.

The treatments identified in the RSA to enhance the safe movement of vehicles from the access road onto Pottsville Road include:

- Removal of vegetation along Pottsville Road in proximity to the access road to maximise the available sight distances.
- Relocating the existing stop line further to the east of its current location in order to improve sight distances.
- Providing W2-9(R) signage on Pottsville Road (as shown in Figure 1) on approach to the access road to provide additional warning to drivers.



Figure 1 –(W2 – 9R)) Signage

It is anticipated that the introduction of the treatments identified in the RSA will address the deficiencies in the SISD identified above and enhance the safe operation of the quarry access intersection.

Roads and Maritime comment:

Roads and Maritime does not support the desktop analysis under Section 4.4 of the TIA. The Pottsville Road and Site Access Road intersection is located in the vicinity of horizontal and vertical curves which appear to constrain sight distances in both directions. The proposed increase in slow-moving heavy vehicles turning at the intersection has the potential to impact on the safety of vehicles travelling along the public road.

It is recommended that the Consent Authority require an independent Road Safety Audit (RSA) of the existing intersection prepared in accordance with Part 6 of the Austroads Guide to Road Safety. An addendum to the TIA should be prepared to address the findings of the RSA and where appropriate proposed mitigation measures to address any road safety impacts arising from the proposed modification.

GHD response:

As required by Roads and Maritime, an independent RSA has been undertaken at the site access intersection. The mitigation measures identified in the RSA to for treatments / improvements to address potential road safety issues include the following:

- Provide new line markings on Pottsville Road in proximity to access road.
- Resurface damaged sections of road.

- Provide minimum one metre wide shoulders in accordance with Austroads requirements for rural roads with an (AADT of between 1,000 – 3,000 veh/day).
- Install raised reflective pavement markers through the intersection and on approach.
- Install guardrails along sections of road to protect against hazards.
- Replace all damaged and broken guideposts.

The RSA provides a ranking for each recommendation to prioritise importance with respect to the safety of road users.

It is recommended that these mitigation measures form a condition within the modified Project Approval.

Roads and Maritime comment:

The TIA does not consider the proposed increase in truck movements in the context of future traffic conditions over a 10 year horizon. The TIA should have considered background traffic growth along the identified transport route and the cumulative impact of planned developments in the subject area.

GHD response:

As part of the Traffic Assessment study, a seven day tube count was undertaken on Pottsville Road, located to the south of Cudgera Creek Road, in March 2017. The survey data indicated that Pottsville Road experiences approximately:

- 1,400 – 1,800 (two-way) vehicles per day
- 150 – 160 (two-way) vehicles per peak hour (morning and evening).

The impacts of the proposed modifications to the operation of the quarry was undertaken utilising absorption capacity analysis (Cp). Absorption capacity analysis determines the maximum rate traffic streams can absorb additional vehicles.

As shown in Figure 2, based on the current peak hour traffic volumes on Pottsville Road of 159 vehicles with up to 18 vehicles exiting the site (assuming 12 trucks and six employees in light vehicles), there is adequate capacity to absorb the additional vehicle movements without additional traffic control.

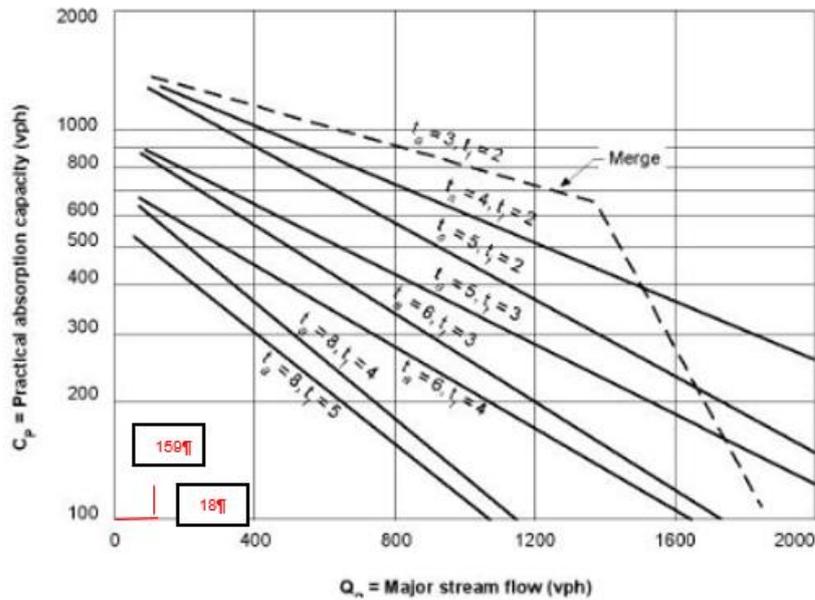


Figure 2 – Absorption Capacity (2017)

Based on discussion with Tweed Shire Council, a two percent linear annual growth rate has been applied to the current traffic volumes in order to identify forecast background traffic volumes in the 2027 future horizon year. This is considered to be conservative estimate of background traffic growth, as traffic data provided by Council indicates that there has been no increase in traffic volumes along Pottsville Road between 2010 and 2013.

Based upon the application of a two percent annual growth rate, by 2027 Pottsville Road is expected to accommodate approximately 200 (two-way) vehicle trips per hour.

The updated absorption capacity analysis accounting for these traffic volumes is displayed in Figure 3.

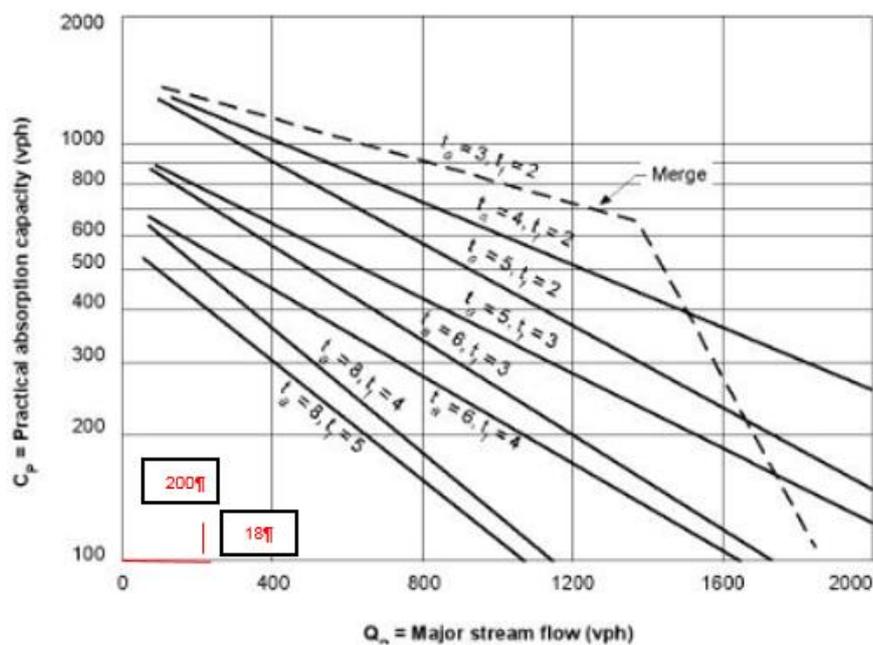


Figure 3 – Absorption Capacity (2027)

Figure 3 indicates that in 2027, there is expected that Pottsville Road will continue to have sufficient capacity to absorb the expected increase in traffic associated with the Dunloe Quarry, without additional traffic control.

Roads and Maritime comment:

The TIA has not considered the impact of the proposed modification on pedestrians, cyclists and public transport (school buses). Further consideration should be given to the impact of the proposed increase in heavy vehicles movements along the identified transport route.

GHD response:

The site is located in a relatively remote location, with no formal pedestrian or cycling facilities / infrastructure provided along Pottsville Road in the vicinity of the site.



Figure 4 – Pottsville Road in proximity to the site

With the exception of school buses, there are no public transport service operating on Pottsville Road.

The school bus services that operate along Pottsville Road include:

- Service 1206 – Pottsville Road, Round Mountain, Cudgera and Tanglewood (pm only)
- Service 1239 – Round Mountain, Cudgera, Seabreeze and Pottsville Road (am only).

The proposed modification to the Dunloe Sands Quarry will generate up to an additional 16 heavy vehicle trips per hour, or approximately on average a trip every (approximately) 4 minutes.

This low increase in traffic associated with the proposal is expected to have a minimal impact on the movement of pedestrians, cyclists and bus movements in proximity to the site.

Roads and Maritime comment:

It is recommended that the Consent Authority require the preparation of a Transport Management Plan (TMP) detailing procedures for the management and monitoring of heavy vehicle movements generated by the proposed development. It is further recommended that the TMP include a Driver's Code of Conduct for employees and contractors, which includes but should not be limited to the following:

- A map of the primary haulage routes highlighting critical locations.*
- Safety initiatives for haulage through residential areas and along school bus routes.*
- An induction process for vehicle operators and regular toolbox meetings.*
- A complaint resolution and disciplinary procedures.*
- Any community consultation measures for peak haulage periods.*
- Consideration for seasonal traffic and events.*

GHD response:

This recommendation is noted and the preparation of a TMP will be undertaken. It is understood this will form a condition of the modified Project Approval.

Roads and Maritime comment:

It is unclear whether the proposed modification is related to the existing Sand Quarry operation on Lot 6 DP 840977. Where the proposed modification will result in an increase in vehicles accessing the site and then consideration should be given to any subsequent impacts on Pottsville Road.

GHD response:

It is intended that the additional vehicle activity will only occur at the Dunloe Sands Quarry and will be operationally separate from quarry operation on Lot 6 DP 840977 as it is not owned by Holcim.

2.2 Tweed Shire Council

Tweed Shire Council comment:

The Dunloe Sands Quarry currently has provision of private access in the form of a priority controlled T-intersection with Pottsville Road. This intersection is located on the elevated section of Pottsville Road with a posted speed of 80km/h and provides a sealed and concrete surface.

The GHD Report for Holcim section 6.2.1 Traffic Impact assessment states at page 23 that:-

“A desktop review indicates that these (213m) sight distances are currently achieved.”

The Austroads prescribed requirement is 228m SISD (based on 80km/h posted speed and 6% downgrade). The existing intersection formation has provision of approximately 130m driver sight distance to / from the south and 160m to / from the north approach. The deficiency in sight distance needs to be addressed further by the applicant and any remedial works to address the deficiency should be identified.

GHD response:

As required by Roads and Maritime, an independent RSA has been undertaken at the site access intersection at Pottsville Road. The RSA indicates that the following sight distances are currently provided at this intersection:

- A SISD of 205 m is currently achieved on Pottsville Road to the north of the quarry access road*

- A SISD of 135 m is currently achieved on Pottsville Road to the south of the quarry access road.

While it is noted that these distances are not fully compliant with Austroads Guidelines, the RSA also identifies a number of mitigation measures to provide sufficient site distance at the intersection, including the removal of vegetation along Pottsville Road and the provision of additional signage to provide warning to drivers.

It is anticipated that the introduction of the treatments identified in the RSA will address the deficiencies in the SISD and enhance the safe operation of the quarry access intersection.

3. Summary

GHD prepared a Traffic Assessment in July 2017 to assess the potential traffic impacts associated with the modification to the operation of Dunloe Sands Quarry.

The proposal includes an increase from 8 heavy vehicle trips per hour (4 inbound, 4 outbound) up to 24 heavy vehicle trips per hour (12 inbound and 12 outbound). This is an increase of 16 heavy vehicle movements per hour (8 inbound and 8 outbound).

This report provides responses to comments on the Traffic Assessment report provided by Tweed Shire Council (9th August 2017) and Roads and Maritime (15th August 2017).

Both Roads and Maritime and Council identified sight distances requirements for the existing access road intersection with Pottsville Road. In order to address these comments, GHD commissioned Bitzios Consulting to undertake a RSA at the Pottsville Road / quarry access road intersection. The RSA identified a number of mitigation measures to improve site distance at the intersection in order to meet Austroads sight distance requirements.

It is anticipated that the introduction of the treatments identified in the RSA will address the deficiencies in the SISD and enhance the safe operation of the quarry access intersection.

Further to the above, additional analysis has been undertaken as part of this addendum report, which indicates:

- Practical absorption capacity analysis of the Pottsville Road / quarry access road intersection indicates that in 2027, there will continue to be available capacity to absorb the additional traffic volumes associated with the Dunloe Quarry without any requirement for additional traffic control.
- The low increase in traffic associated with the proposed modification is expected to have a minimal impact to pedestrians, cyclists and bus movements in the vicinity of the site.

In consideration of the assessment of the impacts from the proposal and the proposed mitigation measures outlined in this report, it is believed that all relevant issues and concerns have been addressed and that the project should now proceed for approval by the Minister.

GHD

Level 15, 133 Castlereagh Street

Sydney, NSW, 2000

T: 61 2 9239 7100 F: 61 2 9239 7199 E: sydmail@ghd.com

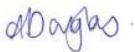
© GHD 2017

This document is and shall remain the property of GHD. The document may only be used for the purpose for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

2218823-

27301/https://projects.ghd.com/oc/Sydney/holcimdunloesandmodi/Delivery/Documents/2218823_R EP_Traffic Assessment Addendum.docx

Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
A	M Lucas	O Peel A Douglas	AD	S Lawer	SL	07.11.17
1	M Lucas	O Peel A Douglas		S Lawer		14.11.17

www.ghd.com



GHD

Level 15, 133 Castlereagh Street, Sydney NSW 2000

T: 61 2 9239 7100 F: 61 2 9239 7199 E: sydmail@ghd.com

© GHD 2017

This document is and shall remain the property of GHD. The document may only be used for the purpose for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

2218823-

52241/https://projects.ghd.com/oc/Sydney/holcimdunloesandmodi/Delivery/Documents/Holcim - Dunloe Sands Quarry Submissions Report_20171026.docx

Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
A	A Douglas	S Lawer	SL	S Lawer	SL	07.11.17
1	A Douglas	S Lawer		S Lawer		14.11.17

www.ghd.com

