30 April 2015

The General Manager
Richmond Valley Council
Locked Bag 10
CASINO NSW 2470

Our ref: 22/17200 16335
Your ref:

Attention: Dylan Johnstone

Dear Dylan

DA 2015.130 - Expansion of Existing Sand Quarry at Lot 2 DP 1040274, Woodburn Evans Head Road, Doonbah
Additional Information

Please find below and attached our response to the items raised in your letters dated 19 December 2014 and 19 February 2015.

In regards to the letter dated 19 December 2014, please find below our response to the items raised.

Planning

1. Please refer to the schedule of costs, provided by Rixa below:

Table 1 Schedule of costs

Item	Costs	Comments
Road	$32,000-$39,000	To be done by Rixa plant and staff
Noise Walls	$2,200	Constructed with remaining Hebel panels from a previous job and Rixa plant and staff. Assumed 214 piers and 10m^3 of concrete @ $220/m^3
Total	**$34,200-$41,200**	

2. The peak daily rate of trucks would be 140 movements per day.
3. The site contains an above ground diesel tank with a capacity of 4,000L. The only other dangerous goods to be stored at site are about 1,000L of hydraulic oil and motor oil. These would all be located within a bunded area and therefore any potential spills can be contained.
4. The Road Safety Audit will be provided as soon as possible
5. Clause 7(1) of SEPP55 states that '*a consent authority must not consent to the carrying out of any development on land unless:*

   it has considered whether the land is contaminated, and

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if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and

if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.'

The current and past land use of the site is unlikely to have created significant contamination issues. Potential contamination may have occurred via pesticide/insecticide use and oil/fuel spills, however it is considered unlikely that these would pose a significant risk to the environment or human health.

The quarry has not been identified to be contaminated and the proposal is not changing the current land use. It is therefore considered that the site is suitable for the proposed use in respect to contamination.

Road Traffic Noise

6. Following discussions with RVC, we understand this item refers to road traffic noise associated with truck movements through Woodburn. As reported in the Noise Impact Assessment (GHD, 2014) (NIA), the NSW Road Noise Policy (EPA, 2011) (RNP) noise target levels for sub-arterial roads is LAeq(15hour) 60 (external). Due to the influence of the Pacific Highway that travels through Woodburn, it is expected that the existing road traffic noise levels in Woodburn would be close to the RNP target. However, the predicted growth in traffic due to quarry operations would increase the existing traffic noise by approximately 1 dB(A). The RNP states that an increase of 2 dB(A) represents a level which is considered barely perceptible to the average person.

   Furthermore, the primary purpose of the proposed expansion is to provide sand to the Pacific Highway upgrade occurring in the area. The proposed route of the upgrade is between the quarry site and Woodburn. When this section is under construction and complete, very few trucks would enter Woodburn.

7. Provisions for predicting the impact of trucks accelerating and decelerating is not included in the model. However, the noise generated by a truck travelling at 80km/hr would exceed the noise generated by trucks accelerating and decelerating. The model therefore is presenting a worst case scenario.

Acid Sulfate Soil

An Acid Sulfate Soils Management Plan will be provided as soon as possible.

In regards to the letter dated 19 February 2015, please find below our response to the items raised.

1. The Road Safety Audit will be provided as soon as possible.
2. Please refer to item 6 above.

   In regards to traffic movements, as mentioned in the Traffic Impact Assessment, "*heavy vehicle access between the Pacific Highway and the quarry should be via Alfred Street. Haulage trucks*

should not use the route via Woodburn Street and Wagner Street, to avoid impacts on the Woodburn Primary School and the surrounding residential area".

Until the Pacific Highway upgrade commences, some trucks may pass the school along the Pacific Highway but this is subject to 40km/hr speed limits. All vehicles used in the operation would therefore need to abide by NSW traffic laws including travelling at 40km/hr through the school zone. The impact from traffic on the school would therefore be negligible when considered with the total volume of traffic that travels along the Pacific Highway.

3. We note Office of Environment and Heritage recommends using the BioBanking Assessment Methodology but because this has not been used during the ecological assessment, we would prefer to negotiate an appropriate offset. We have discussed this approach with OEH who accept not using the formal BioBanking approach but recommend using BioBanking to determine the offset required.

   Using the information we have, we estimate the vegetation to be removed would generate a requirement of about 25 credits per hectare or 32.5 credits in total for the 1.3 hectares to be removed.

   An offset area to the north of the proposed quarry has been nominated, as shown on the attached plan. We have estimated that the credits generated by the remaining vegetation in this area would be in the order of 9 credits per hectare and there is about 3.2 hectares of vegetation. Where the vegetation has been removed, the credits generated are estimated to be 2-3 per hectare and this area encompasses about 1.1 hectares. This would provide 32.1 credits in total. The area is ideally located adjacent to the heavily vegetated National Park to the north.

   If RVC accept this proposal, a Vegetation Management Plan would be prepared as part of the Environmental Management Plan for the quarry, which would outline the revegetation and maintenance requirements for the offset area.

Public Submissions

The public submissions all raise similar issues. Rather than addressing each submission individually, the following sections address the main issues raised under relevant headings. It should be noted that a lot of the issues raised by the submissions are related to the quarry operating at full capacity. In reality, this would rarely occur and it would only be likely during the construction of the Pacific Highway upgrade. Once the upgrade is complete, the quarry would return to operating on a sporadic basis as it has for the past 50 years.

Community Consultation

Some issues were raised regarding the community consultation undertaken as part of the EIS process. It is acknowledged that not many people attended the two community events held but both were advertised widely. The neighbouring residents were informed of the events and over 500 notices were delivered to residents of Evans Head and Woodburn. On both occasions there were also advertisements placed in the local paper, Northern Star and on the local radio station.

One week before the information days, notices were also placed at the following locations:

- Mid-Richmond Neighbourhood Centre
- Evans Head News Agent
- Ritchies Community Notice Board
- Evans Head Community Notice Board
- Evans Head Butcher
- Evans Head RSL Club
- Yates Takeaway
- Richmond Valley Council
- Evans Head Doctors Surgery
- Chill Café
- Bakery
- Spar
- Pot Belly Pies
- Beside ATM
- Video Store
- Chemist
- Bottlemart
- First National
- Doonbah River View Service Station
- Beach side bargains
- Several other community notice boards in the main streets of Woodburn and Evans Head.

The EIS was also exhibited for 28 days. While the timing of this may not have been ideal, most residents who were interested in the proposal would have been aware the application was on exhibition.

Land and Water Resources

It is acknowledged that acid sulfate soils are an issue for the quarry. To ensure this issue is appropriately managed, an acid sulfate management plan will be prepared in accordance with the relevant guidelines. Monitoring will also be undertaken during the life of the quarry to confirm the management practices are effective.

Sediment from the dredge and process water would be contained and managed within the excavation and settling ponds. It is considered unlikely that these would ever overflow, other than during flood events, but if they do, the water would be treated so that it complies with the Environmental Protection Licence (EPL) requirements. It is therefore unlikely the proposal would impact on the surrounding creeks or rivers.

It is unlikely that the volume of fuels and chemicals stored onsite would cause significant contamination. Regardless, the storage of fuels and chemicals would be done in accordance with the relevant standards. Any spills would also be cleaned-up and disposed of appropriately.

The soil subsidence issue has been considered by our Geotechnical Engineers. Based on the current site conditions, the sand appears to be relatively stable with minimal slumping evident. It is therefore considered that significant slumping/soil subsidence is unlikely. Worst case, the slumping would cause a horizontal extension of the excavation equal to its depth ie 15m. The proposed excavation has at least 20m buffer to the nearest property boundary and therefore any slumping would not impact adjacent neighbours.

Biodiversity

The Ecological Assessment (GHD, 2014) indicates there would be limited impact on fauna, especially once the Pacific Highway upgrade is complete and the quarry resumes operating sporadically as it has for the past 50 years. The proposed offset means a degraded 1.3 hectares of vegetation would be replaced by 3.6 hectares of maintained vegetation, resulting in a net increase in vegetation and fauna habitat.

As mentioned above, it is unlikely that the operation would discharge any water and as mentioned in the EIS, the ponds would not provide suitable habitat for the Oxleyan Pygmy Perch, it is therefore considered unlikely that the proposal would impact on this species.

Noise and Vibration

In regards to vibration, the EIS states that vibration from mobile machinery and haul trucks is typically negligible at distances of 30 – 50 metres. Given there are no sensitive receivers within this distance, and the majority of operations are on a soft surface (sand) or water, vibration generated from quarry operations are expected to be negligible.

The noise barrier is required to achieve the required noise criteria. The residents at R1 are objecting to the noise barrier due to its visual impact. As the eastern noise wall is only protecting this residence, we would gladly not install it, if that is preferred. The views between this residence and the proposed noise barrier are currently obstructed by vegetation (see below), so it is considered that the visual impact would be minimal. The noise barrier could be painted or landscaped to lessen their visual impact. Such a requirement could be conditioned as part of any development consent.

Photograph 1: View along the eastern side of the quarry access road

Dust

As outlined in the Air Quality Impact Assessment (GHD, 2014), dust is unlikely to be a problem due to the nature of the quarry material and mitigation measures. The EPA have requested the haul road be sealed which would provide a further reduction in dust impacts.

Traffic

Some concerns have been raised in regards to the increase in trucks on the Woodburn Evans Head Road in relation to safety, noise and road damage.

In regards to safety, the RSA will provide additional information but the Traffic Impact Assessment (GHD, 2014) did not identify any road safety concerns as a result of the proposal. The Traffic Impact Assessment (GHD, 2014) did however recommend a BAL-type treatment for left turns into the site which would improve safety at this location. In regards to the safety concerns raised with school buses, the Drivers Code of Conduct would restrict the use of Evans Head Woodburn Road while school buses are on the road.

We understand trucks have lined up at the quarry entrance prior to 7am. This was resolved at the time and would not be permitted in the future. This would be explained in the Drivers Code of Conduct which all drivers must adhere to.

A likely condition of consent for the quarry will be the payment of a road levy to RVC. This levy would be used to maintain and upgrade any damage to the road. Once the Pacific Highway upgrade construction commences, the majority of trucks would only use a few kilometres of Woodburn Evans Head Road.

Visual

The views to the quarry are restricted due to distance and vegetation from the nearest sensitive receivers. Also, the appearance of the site would not change significantly compared to the current operation, therefore the visual amenity of the Doonbah area would remain the same as it is currently.

Socio Economic

It is acknowledged that there may be some impact to local residents but with the implementation of appropriate mitigation measures, these impacts would be within acceptable limits. The majority of these impacts are related to the quarry operating at its capacity, as mentioned before, this would be rare and only for a relatively short timeframe.

The socio-economic benefits described in the EIS still apply.

Rous Water

Rous Water have provided a detail submission raising a number of concerns regarding the application which relate to:

1. compliance with the Director General's requirements
2. lack of a drinking water quality risk assessment
3. surface water
4. groundwater impacts
5. acid sulphate soils
6. other

Each of these is addressed below

Compliance with the Director General's requirements

Some concerns have been raised in regards to the level of detail provided in the EIS in response to the Director General's requirements. We believe the EIS provides adequate detail in response to the DGRs, albeit maybe not to the level of detail Rous Water would like. Regardless, further information is provided below and more details on mitigation measures will be included in the Environmental Management Plan to be prepared if the proposal is approved.

Refer above for comments in relation to consultation.

Lack of a drinking water quality risk assessment

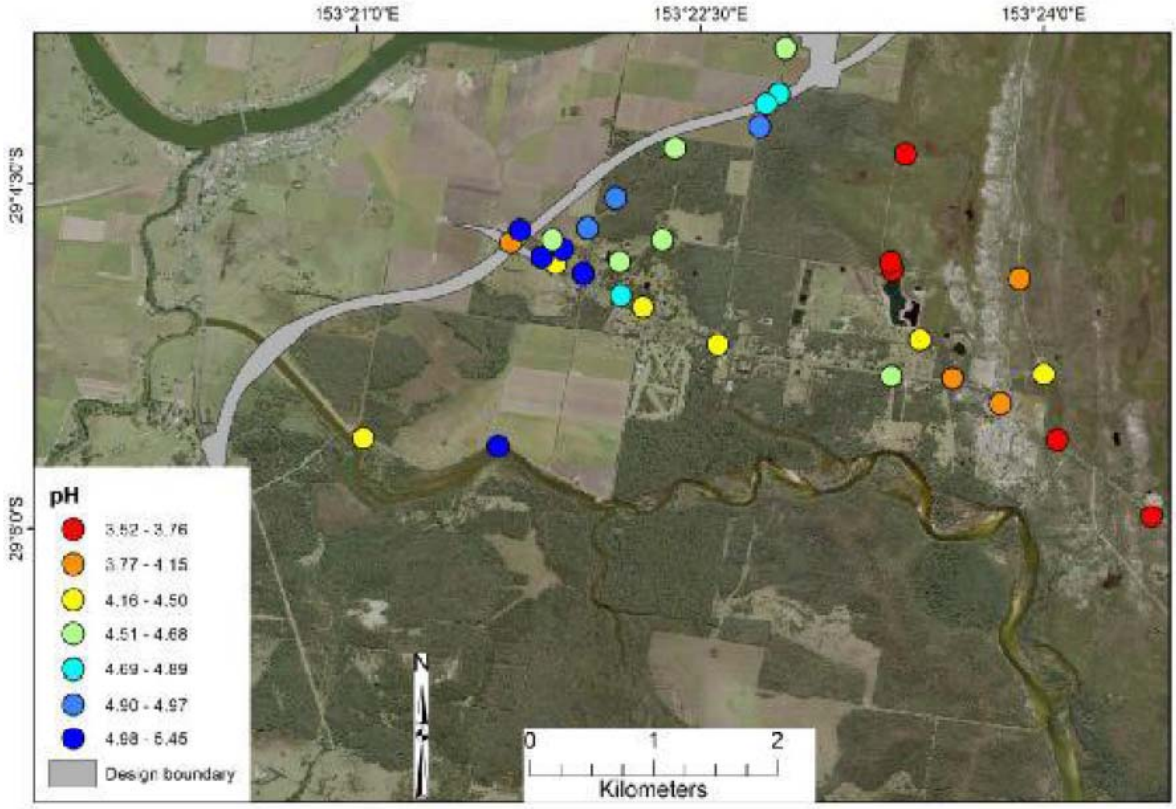
The risks to drinking water as a result of the proposal are limited to water quality and water quantity. The proposal is considered to present a low risk in relation to both of these aspects, as explained in the sections below.

Surface water

Concerns are raised regarding the elevated concentrations of Aluminium, Copper and Zinc from the single water quality sample collected from the existing pit. Rous Water explains that this is likely to be associated with the prevailing low pH levels and the mobilisation of naturally occurring metals under

these acidic conditions. The groundwater recharge and flow paths in the Woodburn Sand Aquifer using modelling and geochemical approaches (SCU, 2014) indicates the area is characterised by low pH, as shown below. The SCU (2014) report also explains that “these pH values are higher than often observed in shallow acid sulphate soil groundwater in other NSW floodplains (usually in the range of 3-4; de Weys et al., 2011; Johnston et al., 2004)”. The low pH and the associated elevated heavy metal concentrations are therefore likely to be naturally occurring.

Figure 30: The pH of shallow groundwater obtained from shallow boreholes dug during the infiltration experiments in July 2013. The pH could not be measured in boreholes with a deep groundwater table.



In addition, as explained above, the operation is unlikely to discharge offsite, other than during floods, and if it does, the water would need to comply with the EPL requirements. Likewise, we believe a MUSIC model is not warranted.

Groundwater impacts

In regards to the groundwater quality concerns raised, please refer to the above which explains that the area has a naturally low pH. The EIS agrees with the Rous Water suggestion that additional groundwater monitoring wells should be installed, with a reference well recommended to be located on the western boundary of the property.

We have run the model with a higher hydraulic conductivity of 30m/day (as requested by Rous Water). As Scenarios 11 and 12 in Table 2 show, increasing the horizontal conductivity had limited impact on groundwater inflows, drawdown or radius of influence. The conclusions of the assessment would therefore not change.

Table 2 Results of Groundwater Simulations

Simulation	Horizontal Hydraulic Conductivity Kh1 (m/d)	Initial Saturated Thickness ho (m)	Distributed Recharge Flux W (m/d)	Evaporation (m/d)	Horizontal Groundwater Inflow Q1 (m3/d)	Radius of Influence ro (m)	Saturated Thickness at pit wall hp (m)	Drawdown in Pit (m) (ho – hp)
1	5	12.5	7.50 x10-5	4.145 x10-3	154.8	842.2	12.14	0.36
2	5	12.5	7.50 x10-5	5.800 x10-3	198.5	946.0	11.98	0.52
3	5	12.5	7.50 x10-5	7.416 x10-3	238.3	1031.4	11.82	0.68
4	5	12.5	7.50 x10-5	2.324 x10-3	101.2	694.1	12.31	0.19
5	10	12.5	7.50 x10-5	4.145 x10-3	155.5	843.9	12.32	0.18
6	2.5	12.5	7.50 x10-5	4.145 x10-3	153.5	838.9	11.77	0.73
7	5	13	7.50 x10-5	4.145 x10-3	158.4	851.2	12.64	0.36
8	5	12	7.50 x10-5	4.145 x10-3	151.1	832.9	11.63	0.37
9	5	12.5	1.88 x10-4	4.145 x10-3	196.9	621.8	12.17	0.33
10	5	12.5	3.70 x10-4	4.145 x10-3	238.5	504.7	12.19	0.31
11	30	12.5	7.50 x10-5	4.145 x10-3	155.9	845.0	12.44	0.06
12	30	12.5	7.50 x10-5	7.146 x10-3	200.6	950.1	12.41	0.09

Acid sulfate soils

As identified by Rous Water and acknowledged in the Acid Sulfate Soils Assessment (GHD 2014), the sampling methodology was not strictly in accordance with the ASSMAC Guidelines, but due to the consistent nature of the lithology and results, we consider the methodology to be appropriate.

In regards to the requested Acid Sulfate Management Plan, this will be provided as soon as possible.

Other

In regards to the comment regarding shell, we accept that there is no shell within the material.

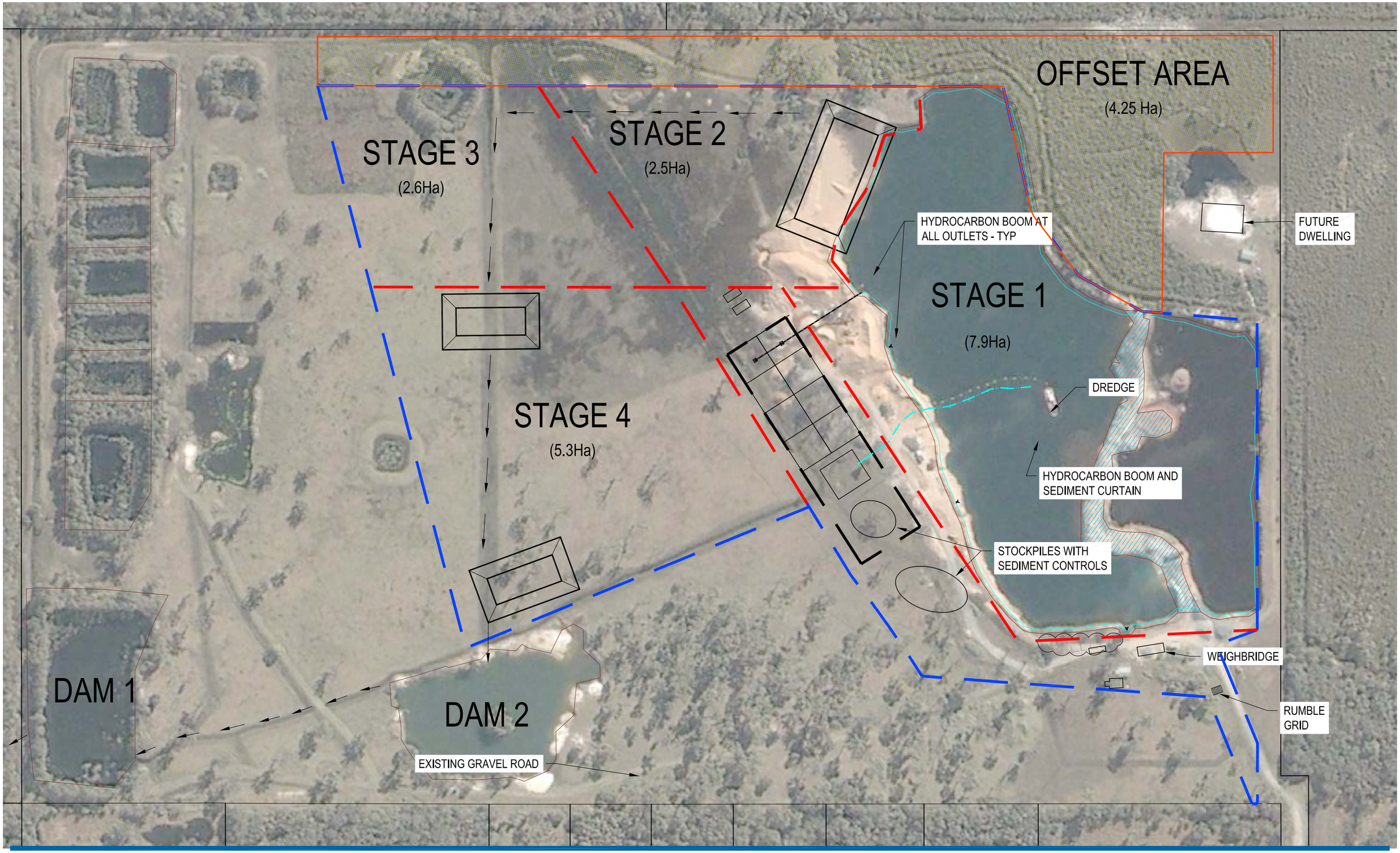
As explained in the EIS and above, we believe the proposal complies with the NSW Aquifer Interference Policy.

We trust the above adequately responds to the issues raised but if you would like any further information, please contact the undersigned.

Sincerely
GHD Pty Ltd

Ben Luffman
Senior Environmental Scientist/Planner
02 6650 5600

Attachments: Vegetation Offset Location



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PROFIT OF PRENDRE BOUNDARY

PROPOSED OFFSET AREA

RIXA QUARRIES
DOONBAH QUARRY
WOODBURN, EVANS HEAD ROAD

PROPOSED OFFSET AREA

Job Number 22-17200
Revision A
Date APRIL.2015

Figure 01

230 Harbour Drive Coffs Harbour NSW 2450 Australia **T** 61 2 6650 5600 **F** 61 2 6650 5601 **E** cfsmail@ghd.com **W** www.ghd.com

Plot Date: 30 April 2015 - 5:28 PM Plotted by: Ben Luffman Cad File No: G:\22\17200\CADD\Drawings\22-17200-FIG.dwg

From: Ben Luffman [Ben.Luffman@ghd.com]
Sent: Monday, 22 June 2015 12:49:47 PM
To: Dylan Johnstone
Subject: RE: DA2015/0130 Doonbah quarry - OEH comments re vegetation offsets

Hi Dylan,

In response to the Office of Environment and Heritage (OEH) comments regarding the proposed offset, we have revised the offset area as shown on the attached plan. This includes a revision to Stage 2 of the proposed quarry which would conserve the 0.29 hectares of EEC located within this Stage.

Based on the credit calculations done by OEH, by reducing the area of EEC impacted by the proposal the number of credits required would be approximately 32 (ie (41 credits/1.3 ha)*1.01 ha = 31.9 credits).

To achieve the required number of credits, 1.58 hectares to the north and 1.9 hectares to the south of the quarry have been proposed as the offset area. Both of these areas contain 'like for like' vegetation compared to that being removed. Again, based on the OEH credit calculations, the total offset area of 3.48 hectares would generate 38 credits (ie (41 credits/3.8 ha)*3.48ha = 38 credits) which is in excess of the 32 credits required.

If RVC accept this proposal, we would provide a revised quarry plan that shows each of the quarry stages and offset area. A Vegetation Management Plan would also be prepared as part of the Environmental Management Plan for the quarry, which would outline the revegetation and maintenance requirements for the offset area.

Let me know if you have any questions.

Regards

Ben Luffman
Senior Environmental Scientist / Planner

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WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

From: Dylan Johnstone [mailto:Dylan.Johnstone@richmondvalley.nsw.gov.au]
Sent: Tuesday, 26 May 2015 4:13 PM
To: Ben Luffman
Subject: DA2015/0130 Doonbah quarry - OEH comments re vegetation offsets

Hi Ben,

Please find attached correspondence from Council and OEH – original is in the post.

If you need any further info please give me a call.

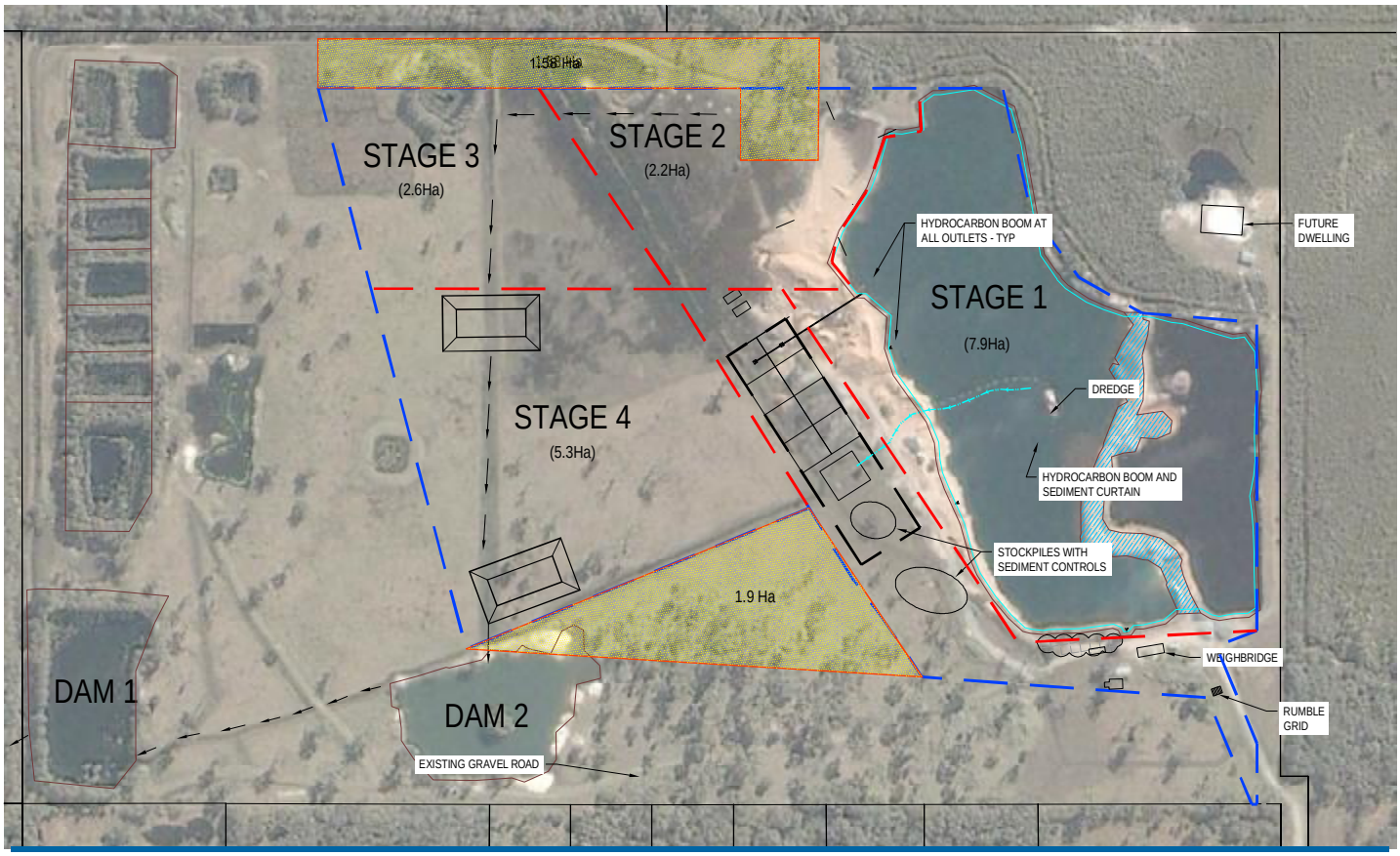
Also just a heads up regarding JRPP determination meetings.

Depending on how you go with submitting the additional information the next meetings are on 22 & 23 July, which means that my report will be due to the panel on 8 July.

Now I am also on leave from 31 July to 31 August so please bear this in mind with regard to timeframes for a determination.

Regards

Dylan Johnstone
Development Assessment Planner
Richmond Valley Council | Locked Bag 10, CASINO NSW 2470
T: 02 6660 0261 | F: 02 6660 1300
E: dylan.johnstone@richmondvalley.nsw.gov.au | www.richmondvalley.nsw.gov.au



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PROFIT OF PRENDRE BOUNDARY

PROPOSED OFFSET AREA

GHD

RIXA QUARRIES
DOONBAH QUARRY
WOODBURN, EVANS HEAD ROAD

PROPOSED OFFSET AREA

Job Number 22-17200
Revision A
Date APRIL.2015

Figure 01

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Plot Date: 19 June 2015 - 2:13 PM Plotted by: Ben Luffman Cad File No: G:\22\17200\CAD\Drawings\22-17200-OFFSET.dwg

23 June 2015

The General Manager
Richmond Valley Council
Locked Bag 10
CASINO NSW 2470

Our ref: 22/17200 16477
Your ref:

Attention: Dylan Johnstone

Dear Dylan

DA 2015.130 - Proposed Expansion of Doonbah Quarry
Additional Information

Further to our letter dated 30 April 2015, we provide the following additional information in response to your letter dated 19 May 2015.

1 Traffic Noise

I believe this has been resolved with Andrew Hanna, as per the email dated 23 June 2015.

2 Contamination

Please find attached a letter from Rixa Quarries regarding the site history which indicates the site is unlikely to be contaminated.

3 Stockpiling

As outlined in the Environmental Impact Statement, following the extraction of the raw material from the quarry and screening, additional material may be required for blending to satisfy client specifications. This material may need to be imported to the quarry from other local quarries and could include rock/basalt, gravel, coarse sand, topsoil or landscaping products. The quantity of this material would be dependent upon the material's end use and is difficult to predict. It is estimated that up to 10,000 tonnes of blending materials would be stockpiled on site at any one time.

This material would be brought to site via trucks returning from their delivery of quarried materials.

4 Road Safety Audit

I'll forward the Road Safety Audit and the Road Safety Audit response as soon as possible.

5 Acid Sulfate Soils

Please find attached the Acid Sulfate Soils Management Plan.

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6 Offset

A revised offset area and justification was provided via email dated 22 June 2015.

We trust the above addresses the outstanding issues but if you have any further comments, please contact the undersigned.

Sincerely
GHD Pty Ltd

Ben Luffman
Senior Environmental Scientist/Planner
02 6650 5600

Attachment: Rixa Quarries letter
Acid Sulfate Soils Management Plan

Rixa Quarries Pty Ltd

Proposed Expansion to Doonbah Quarry

Acid Sulfate Soil Management Plan

June 2015

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Appendices

1. Introduction

1.1 General

GHD has been engaged by Rixa Quarries Pty Ltd (Rixa) to prepare an Acid Sulfate Soil Management Plan (ASSMP) for the expansion of the Doonbah Quarry, Doonbah. The ASSMP will form a sub-plan of the primary Environmental Management Plan (EMP).

An ASSMP is required as part of the development assessment of the proposed expansion and has been a recommendation of the Environmental Impact Statement (EIS) (GHD, 2014a), following an Acid Sulfate Soil Assessment (GHD, 2014b).'

1.2 Objective

The objective of the ASSMP is to provide a concise and plain-English document which includes clear management directives for the effective management of any acid sulfate soils encountered during quarry operations.

1.3 Guiding documents

Relevant data from the following documents were used in the development of this ASSMP:

- *Acid Sulfate Soils Management Advisory Committee (ASSMAC) guidelines* (Ahern et al. 1998)
- *Acid Sulfate Soils Assessment* (GHD, 2014b)

2. Proposal

Rixa proposes to expand the existing Doonbah Sand Quarry. The quarry would be operated under a 'profit a prendre' (royalty) arrangement with the owner of the property.

The proposal is to expand the existing quarry to an extraction rate of up to 490,000 tonnes per annum. The primary purpose of the quarry would be to supply sand and topsoil to the current and proposed Pacific Highway upgrade works, and for supply to local Councils and contractors.

To provide the required material, the area of the quarry would need to be extended to cover an area of approximately 21.4 hectares, the extraction area would increase from its current 6.28 hectares to 18.3 hectares and to a depth of 15 metres below ground level (m bgl) or -12 metres Australian Height Datum (AHD). It is estimated that the quarry would have an available resource of 4,000,000 tonnes which would allow extraction for a period of between 20 and 30 years, depending on demand.

Extraction will be via an excavator to a depth of about 4 m and then a dredge will be used. Following extraction, the material would be screened, washed and where necessary blended with other materials from the quarry, or material imported to the quarry. The materials would be stockpiled within the confines of the quarry and analysed for compliance with client specifications before being transported off site.

The proposed extraction plans are provided in Appendix A, including extraction areas, cross sections, long sections, site layout and final levels.

3. Site characteristics

3.1 Location

The site is located at 405 Woodburn-Evans Head Road, Doonbah, NSW, about 5 kilometres north west of Evans Head (see Figure 3-1). The site is legally described as Lot 2 DP 1040274 and covers an area of about 50 hectares. Richmond Valley Council is the local government authority.

3.2 Climate

The region is best described as sub-tropical with warm, wet summers and dry, mild winters. Mean summer temperatures range from a maximum of about 28^{o}C and a minimum of about 19^{o}C. Mean winter temperatures range from a maximum of about 19 ^{o}C and a minimum of about 10^{o}C. The mean annual rainfall is 1,573mm. This falls relatively evenly for the first six months of the year, with June having the highest mean of 203mm. Rainfall then eases during July to September before slowly increasing again from October.

3.3 Topography

The site is low lying and relatively level with elevations ranging from about 2.5m AHD in the west to about 3.5m AHD in the east. The low point and site discharge is in the south-western corner of the site.

The previous quarry operations have created two excavations approximately 6.7 ha in total area and 1 m to 5 m deep. A series of smaller basins have been constructed, which include two larger dams along the southern boundary of the site (one along the southern boundary and one in the south western corner of the site) together with 8 to 9 smaller ponds along the western boundary. The ponds along the western boundary are reported to be fish ponds and not used for the quarry operation.

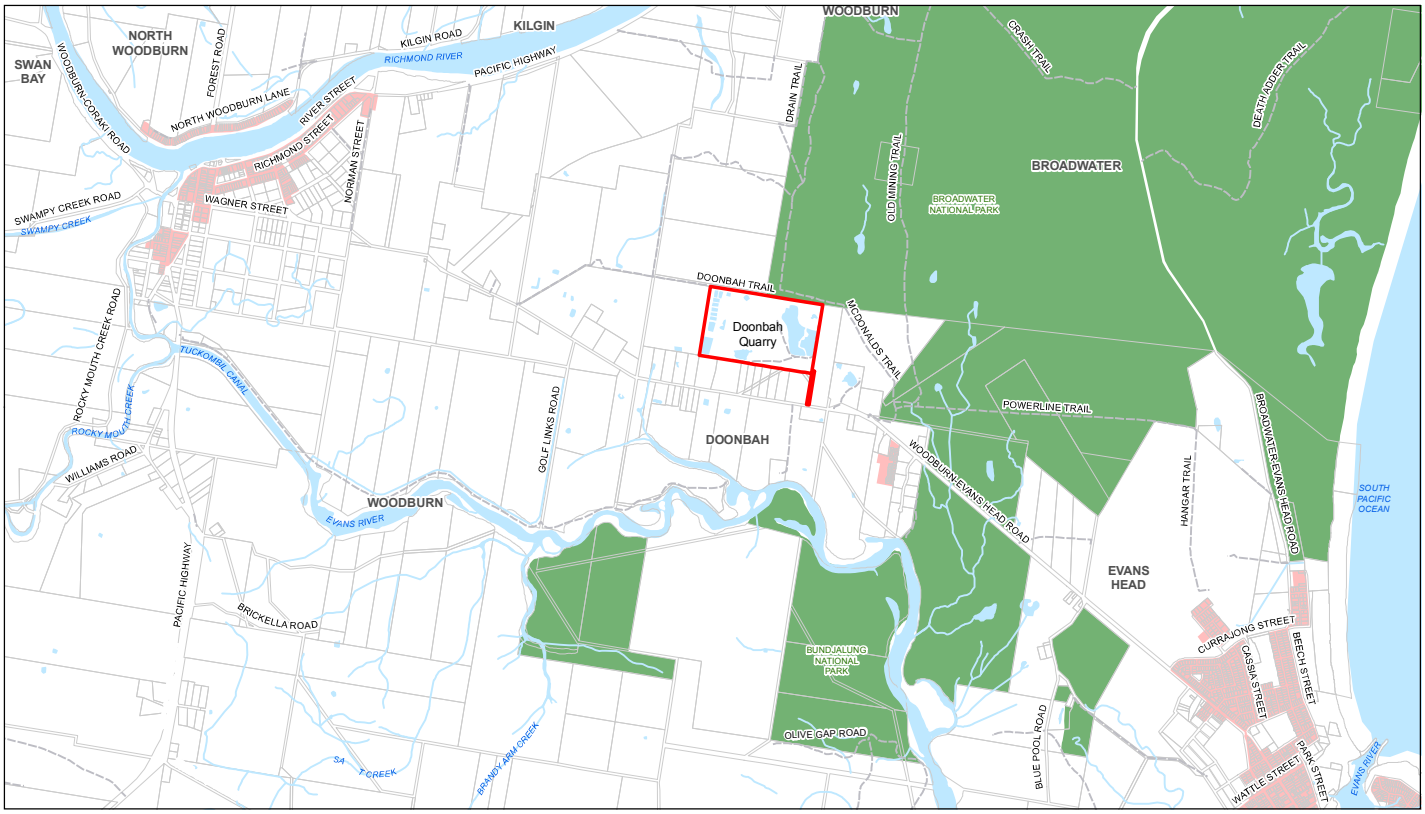
3.4 Geology and soils

According to the Lismore 1:100,000 and 1:25,000 Coastal Quaternary Geology Map Series (Hashimoto and Troedson, 2008) the site is defined as being an Estuarine Plain System where the Quaternary layer of the site is a layer of Pleistocene tidal-delta flat which consists of marine sand, silt, minor clay, indurated sand and shell. The North East corner of the site is defined as being Coastal Barrier System with Pleistocene beach-ridge swale and dune-deflation hollow which consists of marine sand, indurated sand, organic mud and peat.

Between 24 February 2014 and 28 February 2014, a total of seven boreholes (BH1 – BH7) were drilled within or on the edge of the proposed area to be excavated, as shown in Appendix A. Boreholes were drilled to depths ranging from 15.95m to 16.45m bgl.

The boreholes encountered a number of sandy layers extending to over 15m bgl. These layers were described as generally dark grey sandy topsoil to a depth of 0.2m bgl, a layer of yellow to brown sand that increases in depth across the site from west to east. The layer of yellow to brown sand has varying thickness that reaches a maximum of approximately 13m in the east. Below this layer there is a layer of pale grey sand. The pale grey sand extends from 0.2 to over 16 m bgl in the east while in the most western borehole it extends from 14 m bgl to 15.2 m bgl. One borehole encountered sandstone bedrock.

The site has been mapped as Class 3 acid sulfate soils (ASS) and the Acid Sulfate Soils Assessment (GHD, 2014b) confirms the soils are ASS (refer to Section 4.1 for more details).



Paper Size A4

0 250 500 750 1,000

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

LEGEND

- Doonbah Quarry
- Track
- Watercourse
- Waterbody
- Cadastre
- Built Up Area
- National Park

Rixa Quarries Pty Ltd
Doonbah Quarry

Job Number 22-17200
Revision A
Date 07 Apr 2014

Site Location

Figure 3-1

G:\22\17200\GIS\Maps\Deliverables\Traffic Impact Assessment\2217200_TIA001_StudyArea_A.mxd

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 T 61 2 4979 9999 F 61 2 4979 9988 E nlmail@ghd.com W www.ghd.com.au

Data source: LPI: DCDB & DTDB 2012. Created by: fmackay

3.5 Hydrology and water quality

Surface water runoff generally collects within the extraction areas (which have become lakes), dams, ponds and drainage lines. Should the excavation lake overflow, this would discharge to an overflow channel which discharges to the dam in the south-western corner of the site. The excavation lakes currently act as sediment control structures for the quarry operation.

Once offsite, the stormwater is reported to discharge to a dish drain and flow west through the adjacent wetland, ultimately draining to the Richmond River. Water quality of excavation lake appears relatively clear. Limited water quality data exists, but results from a sample (SW1) collected from the main lake indicate the water is moderately acidic, is sodium chloride/sulfate dominant and has elevated aluminium, copper and zinc concentrations compared to the ANZECC (2000) guidelines.

3.6 Hydrogeology

The primary groundwater source in the vicinity of the Project Application Area is the coastal sand aquifer, which is considered to be a highly productive coastal sands water source due to its high yield and low salinity.

The coastal sand groundwater source throughout the site forms an unconfined aquifer of thickness of 15 m or greater. The regional aquifer is recharged by rainfall and discharges to surface waterbodies including the Richmond River, Evans River and Pacific Ocean.

Groundwater levels measured in March 2014 ranged from -0.8 to -0.99 m AHD. These levels were used to plot local groundwater elevation contours and based on the contours, the local groundwater flow direction at this time was to the west. A coastal unconfined sand aquifer is likely to have natural variation in groundwater levels in the order of 2m based on review of NSW Office of Water bores adjacent to the site.

Groundwater samples collected from the site (see GW1, GW2 and GW3 in Appendix A) in March 2014 indicate that the coastal sand groundwater source is fresh and slightly acidic to neutral. The groundwater is sodium chloride/sulfate dominant at GW1 and sodium bicarbonate/sulfate dominant at GW2 and GW3. The groundwater quality at GW1 is similar to the main lake and appears to be influenced by rainfall and some acidification of ASS. Groundwater quality at GW2 and GW3 is influenced by rainfall and possibly by carbonate minerals within the sand layers. Based on this monitoring data, it appears that the existing impact of ASS on groundwater quality due to sand mining extends less than 100m from the excavation area.

Dissolved metal concentrations, pH and electrical conductivity (EC) at GW1, GW2 and GW3 have been assessed against ANZECC (2000) default freshwater trigger values. Aluminium, chromium, copper and zinc concentrations are currently elevated when compared to default trigger values.

The *Woodburn Sand Aquifer using modelling and geochemical approaches* (SCU, 2014) indicates the area is characterised by low pH, as shown in Figure 3-2. The SCU (2014) report also explains that "*these pH values are higher than often observed in shallow acid sulphate soil groundwater in other NSW floodplains (usually in the range of 3-4; de Weys et al., 2011; Johnston et al., 2004)*". The low pH and the associated elevated heavy metal concentrations are therefore likely to be naturally occurring.

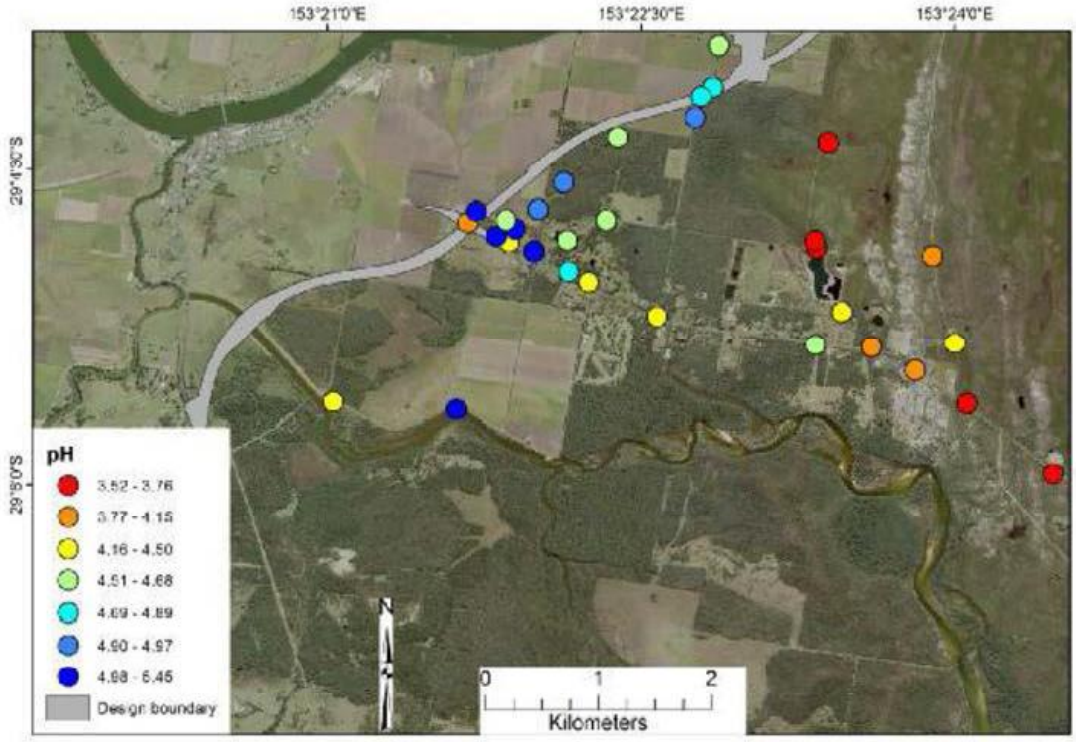


Figure 3-2 The pH of shallow groundwater (SCU, 2014)

3.7 Surrounding land use

To the north, east and west the site is surrounded by heavily vegetated wetland. A row of small rural residential properties are located along the southern boundary and separate the site from the Woodburn-Evans Head Road.

4. Acid sulfate soil characteristics and risks

Below is a summary of the ASS characteristics of the site and an assessment of the likely risks and management options for the operation. More details on the general characteristics of ASS are provided in Appendix B.

4.1 Acid sulfate soil characteristics

During the *Acid Sulfate Soil Assessment* (GHD, 2014b), a soil sampling program was undertaken to characterise the extent and severity of ASS at the Site. A total of seven boreholes were drilled and sampled within or on the edge of the area to be excavated, as shown in Appendix A. A summary of the boreholes is provided in Table 4-1.

Table 4-1 Borehole Summary

Testpit ID	Total Depth (m bgl)	No. Samples Collected
BH1	15.95	11
BH2	16.45	13
BH3	16.45	11
BH4	16.27	12
BH5	16.45	11
BH6	16.42	11
BH7	16.45	11

Sampling locations were selected with consideration of surface elevation and expected areas and depth of excavation. ASSMAC (1998) guidelines suggest two holes per hectare which equates to 32 holes for the investigation area. Due to part of the site being constrained by the previous excavation which is now under water, and the consistent topography and lithology of the investigation area, the number of sampling locations was reduced to seven.

The ASSMAC (1998) guidelines state that samples should be collected 1 m below the maximum extent of the proposed works. Since the maximum proposed depth of excavation is approximately 15 m bgl, it was attempted to drill all boreholes to 16 m bgl.

Following the field pH tests, nine samples were selected for Suspension Peroxide Oxidation Combined Acidity and Sulfur (sPOCAS) analysis. According to the sPOCAS analysis results:

- Eight of the nine soil samples (all except BH5 7.4M) had net acidities greater than the ASSMAC action criteria of 18 mol H^+ / tonne.
- All samples contain slightly to moderately elevated concentrations of Peroxide Oxidisable Sulfur (POS) and can be considered to contain potential acid sulfate soils (PASS).
- All soils have low concentrations of actual acidity, as indicated by the Titratable Actual Acidity (TAA) results.

A summary of the sPOCAS laboratory results have been presented in Table 4-2 and the laboratory certificates are provided in Appendix C.

Table 4-2 sPOCAS Analysis Results

Analysis	Unit	BH1 8.2M	BH2 13.4M	BH3 10.6M	BH4 2.9M	BH4 13.4M	BH5 7.4M	BH6 7.4M	BH7 2.9M	BH7 11.9M
pH KCl	pH	5.1	5.6	6.9	5.4	5.9	5.9	5.7	5.3	5.7
pH OX	pH	3.2	3.1	2.8	3.0	3.1	3.1	3.0	2.6	3.0
POS	%S	**0.07**	**0.06**	**0.04**	**0.06**	**0.04**	**0.03**	**0.06**	**0.22**	**0.06**
TAA	mole H+/t	9	<2	<2	3	<2	<2	<2	5	<2
TPA	mole H+/t	**62**	**34**	**28**	**37**	**20**	11	**31**	**126**	**33**
Net Acidity	mole H+/t	**54**	**40**	**27**	**41**	**28**	17	**37**	**146**	**40**
Liming Rate	Kg CaCO3/t	4	3	2	3	2	1	3	11	3

Bold indicates meeting the action criteria

All of the samples are considered to be PASS, except BH5 7.4M for which Titratable Peroxide Acidity (TPA) was less than the action criteria and Peroxide Oxidisable Sulfur (POS) was equal to the action criteria. Exposure of these soils to the atmosphere is likely to create acidic conditions that may have a detrimental impact on the local environment.

4.2 Potential risk from ASS

Potential risks to human health and the environment from oxidation of ASS during the quarry operations include:

- Exposure of onsite workers to low pH soil and surface water (via run-off). This risk is deemed to be low due to the personal protective equipment and management required for onsite staff during quarry operations.
- Decreased pH of the surface water and groundwater due to exposure to low pH leachate. This risk is deemed to be high as any runoff water is expected to flow into the lake which is connected to the aquifer. This risk requires addressing in this ASSMP.
- Exposure of groundwater dependant ecosystems to low pH groundwater leading to degradation of vegetation health. This risk is deemed to be moderate and requires addressing in this ASSMP.
- Mobilisation of dissolved metals in the groundwater through decreased pH. The pH of local groundwater is currently relatively low but this risk is still deemed to be moderate and requires addressing in this ASSMP.
- The decrease of offsite surface water pH and exposure of terrestrial flora and fauna to low pH water. This risk is deemed to be low considering it is only during floods that water is expected to flow offsite.
- Damage to soils or surface waters at the delivery location of the quarry material. This risk is considered moderate and requires addressing in this ASSMP.

4.3 ASS management options

Available management options are limited to:

- Not exposing the PASS through excavation. This option is not suitable as excavation will be required to obtain the sand. However, excavation timing will be scheduled to minimise the amount of time PASS is exposed to air.
- Keeping the ASS flooded to prevent exposure to oxygen.
- Adding a pH neutralising agent such as lime to PASS or acid-impacted material.
- Do nothing. This is not considered acceptable due to the potential environmental impacts from the acid runoff from the exposed PASS.

5. Management Plan

Due to the presence and proposed disturbance of PASS at the site, an ASSMP is required and must be followed to minimise possible environmental impacts ensuing from quarry operations.

The Quarry Operator will be required to follow the procedures outlined in this ASSMP for the management of exposed PASS and acidified water runoff. Management is required to address potential impacts considered to be moderate or higher (as discussed in Section 4.2) including:

- Decrease of pH in surface water and groundwater due to oxidation of excavated PASS
- Exposure of groundwater dependant ecosystems to low pH groundwater leading to degradation of vegetation health
- Mobilisation of dissolved metals due to decreased pH
- Damage to soils or surface waters at the delivery location of the quarry material

Details of the management requirements are provided below with a summary provided in Appendix D.

5.1 Overview

This ASSMP deals primarily with:

- PASS exposed when excavated
- Surface water run-off from the exposed excavated material
- Surface water run-off offsite

5.2 Site management

General site management procedures are to include:

- PASS management will need to be managed by appropriately qualified and trained personnel
- Clean surface water is to be directed around exposed PASS, where possible and run-off from stockpiles and exposed surfaces is to be contained, treated and assessed prior to discharge.
- Scheduling and managing excavation to minimise exposure of ASS/PASS.
- Maintaining a high level of water in the excavation pit to prevent exposure of PASS.
- Detailed records of any ASS treatment are to be kept on site.

5.3 Soil management

5.3.1 Soil Treatment

Depending on the practicability during operation the following methods of soil treatment are recommended:

- Mixing lime to the excavated sand as soon as possible after excavation (eg following processing via the cyclone)
- Applying lime to the exposed surfaces of the excavation (i.e. the exposed walls of the lake) following rain

Fine agricultural grade lime with a pH of approximately 8.2 is recommended for the treatment of excavated ASS, due to its high effective neutralising value, stability and lower potential risk to the environment and those handling the agent.

The sPOCAS results indicate a liming rate of between 1kg and 11kg per tonne of sand with an average of 3.5kg per tonne. It is recommended that 11kg per tonne is used initially and this is refined once operation commences based on the pH of the sand following treatment.

5.4 Water management

Surface water generated from the dredging process is separated via the cyclone and discharged via a drain to a settlement pond. Surface runoff from the stockpiling area is also directed into the settlement pond. Water from the settlement pond is discharged back into the lake/excavation pit.

5.4.1 Water testing

Prior to treatment and discharge, the water in the settlement pond is to be tested for pH using a hand-held probe.

5.4.2 Discharge limit

Consistent with the Environmental Protection Licence (EPL), a pH of 6.5-8.5 will be achieved prior to discharging the settlement pond.

5.4.3 Water treatment

Neutralising agent and treatment rates

Calcined limes (such as hydrated lime or calcined magnesia) are the preferred neutralising agents for the treatment of acidified water. Hydrated lime is highly soluble and very alkaline (pH 12), but poses potential risks to the surrounding environment and those individuals handling the agent due to its highly alkaline nature. Calcined magnesia poses less of an exposure risk to those handling the agent. However this compound can react to produce soluble magnesium sulfate during neutralisation reactions, which could impact on water quality if large quantities of this sulfate salt are discharged to freshwater ecosystems. Using calcined magnesia will reduce the risk of over neutralisation of the treated water due to the two-step neutralisation reaction sequence of this compound, which is faster under acidic conditions and slower under alkaline conditions. As a guide, typical quantities of neutralising agents required to raise the pH of water to a pH of 7 is presented in Table 5-1.

The quantities of neutralising agents required to treat the water will be refined once operation commences based on the pH testing results.

Table 5-1 Volume of hydrated lime required to neutralise one ML (1000 m^3) of water to pH 7

Current Water pH	(H+) (mol/L)	H+ in 1 ML (mol)	Aglime to neutralise 1 Megalitre (kg pure $CaCO_3$)	Hydrated lime to neutralise 1 Megalitre (kg pure $Ca(OH)_2$)	Sodium bicarbonate to neutralise 1 Megalitre (kg pure $NaHCO_3$)
0.5	0.316	316 228	15,824	11,716	26,563
1.0	0.1	100 000	5,004	3,705	8,390
1.5	0.032	32 000	1,600	1,185	2,686
2.0	0.01	10 000	500	370	839
2.5	0.0032	3200	160	118	269

Current Water pH	(H+) (mol/L)	H+ in 1 ML (mol)	Aglime to neutralise 1 Megalitre (kg pure $CaCO_3$)	Hydrated lime to neutralise 1 Megalitre (kg pure $Ca(OH)_2$)	Sodium bicarbonate to neutralise 1 Megalitre (kg pure $NaHCO_3$)
3.0	0.001	1000	50	37	84
3.5	0.00032	320	16	12	27
4.0	0.0001	100	5	4	8.4
4.5	0.000032	32	1.6	1.18	2.69
5.0	0.00001	10	0.5	0.37	0.84
5.5	0.0000032	3.2	0.16	0.12	0.27
6.0	0.000001	1	0.05	0.037	0.08
6.5	0.0000032	0.32	0.016	0.012	0.027

Notes on Table 3-2:

1. *1 m^3 = 1000 litre = 1 kilolitre = 0.001 Megalitre*
2. *Correlations between current water pH and $[H^+]$ (mol/L) do not account for titratable acidity. The tritratable acidity component should be included in any calculations of neutralising agent requirements.*
3. *Agricultural lime has a very low solubility and may take considerable time to even partially react. While aglime has a theoretical neutralising value of 2 mol of acidity (H^+), this tends to be only fully available when there is excess acid. This, together with its very low solubility, means that much more aglime beyond the theoretical calculation will generally be required.*
4. *Hydrated lime is more soluble than aglime and hence more suited to water treatment. However, as $Ca(OH)_2$ has a high water pH, incremental addition and through mixing is needed to prevent overshooting the desired pH. The water pH should be checked regularly after through mixing and allowing sufficient time for equilibration before further addition of neutralising product.*
5. *Weights of material given in the table above are based on theoretical pure material and hence use of such amounts of commercial product will generally result in under treatment.*
6. *To more accurately calculate the amount of commercial product, the weight of neutralising agent from the table should be multiplied by a purity factor (100/ Neutralising Value for aglime) or (148/ Neutralising Value for hydrated lime).*
7. *If neutralising substantial quantities of ASS leachate, full laboratory analysis of the water will be necessary to adequately estimate the amount of neutralising material required.*
8. *Neutralising agents such as hydrated lime $Ca(OH)_2$, quicklime CaO, and magnesium oxide MgO neutralise 2 mol of acidity (H^+), while sodium bicarbonate $NaHCO_3$ and sodium hydroxide NaOH neutralise only 1 mol of acidity.*

Treatment in drainage lines

The neutralising agent will be applied to leachate/run-off water via application in drainage lines prior to entering the settlement pond. This method could be used in conjunction with treatment in the settlement pond to reduce dosage requirements (in the settlement pond) and reduce potential mobilisation of metals or other potential environmental impacts. However caution should be used in application in drainage lines to avoid overshooting the pH range.

Methods of application in drainage lines may include incorporating the neutralising agent into sand bags or applying directly to the base of the drain, in a sand mixture.

Treatment of settlement pond

A suitable mixing technique adequate for the volumes and quality of water to be treated is to be implemented. The hydrated lime or other neutralising agent must be thoroughly mixed with the water to be treated, and preferably completely dissolved in a smaller aliquot of water prior to addition to the total volume. Further mixing may be encouraged by agitation of the water.

Caution should be used to avoid adding too much neutralising agent and “overshooting” the target pH range.

If the pH of stored watered “overshoots” the maximum allowable pH, an appropriate quantity of acid should be added to neutralise excess alkalinity. Suitable acidifying agents include citric acid (99.5% granular or 50% liquid) or sulfuric acid (35% liquid).

5.5 Monitoring

Monitoring is required to assess the effectiveness and reliability of the ASS treatment measures and any residual impacts after these measures are implemented. As the excavated soil is to be analysed to confirm it meets clients’ specifications, the most effective monitoring of the soil pH will be during this process. Water pH will be monitored prior to discharge from the settlement pond, as detailed in Section 5.4.1. The monitoring program is to verify that the proposed mitigation strategies are effective in minimising negative environmental impacts due to acid generation.

The Quarry Manager will be responsible for the management and co-ordination of the monitoring program. This will include the training of responsible staff in the undertaking of soil and water monitoring, audits and inspections of operational activities, calibration of monitoring equipment and recording all results of monitoring.

5.6 Reporting

All details regarding ASS testing and treatment are to be recorded and kept on site. Details include but are not limited to:

- Staff members conducting testing and treatment
- Treatment measures implemented including quantities of neutralising agents used and treatment methodology
- pH monitoring results

An example monitoring record sheet is provided in Appendix E.

5.7 Contingency plan

The following contingency plan is to be implemented, if the procedures outlined in this ASSMP fail to:

- Prevent acidification of surface and groundwater
- Prevent exposure of groundwater dependant ecosystems to low pH groundwater
- Prevent mobilisation of dissolved metals due to decreased pH
- Prevent damage to soils or surface waters at the delivery location of the quarry material

The contingency plan is split into two phases:

- Immediate remedial action
- Restoration action

5.7.1 Immediate remedial action

Immediate remedial action will be required if monitoring results indicate that the performance indicators or quality requirements as specified in this ASSMP are not being achieved, due to the ineffectiveness of the prescribed management strategies. The strategies for immediate remedial action (in order of preference) include:

- Re-flooding the exposed areas
- Changing the excavation methodology or mixing and treatment techniques
- Direct treatment of receiving waters (the lake)

Although the least preferred option, sufficient additional lime (both fine agricultural grade and hydrated lime/calcined magnesia) should be stored in a dry location on-site in order to treat unexpected declines in soil or water pH on-site. The frequency of monitoring should be increased to determine the effectiveness of this remedial treatment, and more lime added where and when necessary.

If pollution of creeks, groundwater or receiving environments is detected during monitoring, the NSW Environment Protection Authority and NSW Office of Water should be immediately notified.

5.7.2 Restoration actions

If the treatments identified in Section 5.7.1 fail to treat the generated acidity, other remedial actions should be implemented following an assessment to determine if the failure is:

- Related to the ineffective implementation of ASS management strategies:
  - In this case the implementation of the ASSMP should be reviewed by a qualified environmental scientist to ensure that it has been implemented effectively. Monitoring should be increased to ensure compliance with nominated criteria.
- Related to management strategies themselves being ineffective:
  - In this case, the ASSMP should be reviewed, including an assessment of remedial actions, by a qualified environmental scientist.
- Due to there being no suitable management strategies that can be implemented so that the project can meet the criteria as specified in this ASSMP.
  - In this case, rehabilitation actions should be undertaken and regular monitoring at agreed intervals should continue until the rehabilitation action has been completed and the situation is deemed to pose no significant risk to the environment.

5.8 Lime storage

Neutralising agents will need to be stored onsite for the treatment of the sand and water. It is recommended that the lime is stored in a bunded area and covered to prevent the lime dissolving and creating its own environmental impacts.

5.9 Occupational and environmental risk management

Soluble, strongly alkaline neutralising agents such as hydrated lime, acidifying agents and hydrogen peroxide may carry a significant risk to the environment and workers and should be stored and handled in accordance with procedures outline in the Safety Data Sheet (SDS). The risks associated with chemical use must be controlled and managed in accordance with the HSE plan.

5.10 Complaints

All complaints should be dealt with immediately by the Quarry Manager, as required.

6. References

Ahern, C.R., Stone, Y. and Blunden, B. (1998) *Acid Sulfate Soils Assessment Guidelines*, Acid Sulfate Soil Management Advisory Committee, Wollongbar, NSW, Australia.

ANZECC (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Environment and Conservation Council.

GHD (2014a) *Urunga Antimony Processing Plant Factual Geotechnical Investigation Report*.

GHD (2014b) *Former Antimony Processing Plant- Urunga NSW Remedial Action Plan Revision 1*.

SCU (2014). *Woodburn Sand Aquifer using modelling and geochemical approaches*. Southern Cross University, Lismore.

7. Limitations

This report: has been prepared by GHD for Rixa Quarries Pty Ltd and *may only be used and relied on by Rixa Quarries Pty Ltd for the purpose agreed between GHD and the Rixa Quarries Pty Ltd as set out in section 1.2 of this report.*

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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.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Site conditions (including the presence of hazardous substances and/or site contamination) may change after the date of this Report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change.

Appendices

Appendix A – Quarry Plans

0 25 50 75m
SCALE 1:2500 AT ORIGINAL SIZE

N

RIXA QUARRIES
DOONBAH QUARRY
WOODBURN, EVANS HEAD ROAD
EXISTING QUARRY

Job Number 22-17200
Revision A
Date MAR.2014

Figure 01

230 Harbour Drive Coffs Harbour NSW 2450 Australia T 61 2 6650 5600 F 61 2 6650 5601 E cfsmail@ghd.com W www.ghd.com

Plot Date: 14 March 2014 - 11:31 AM Plotted by: Mika Kama
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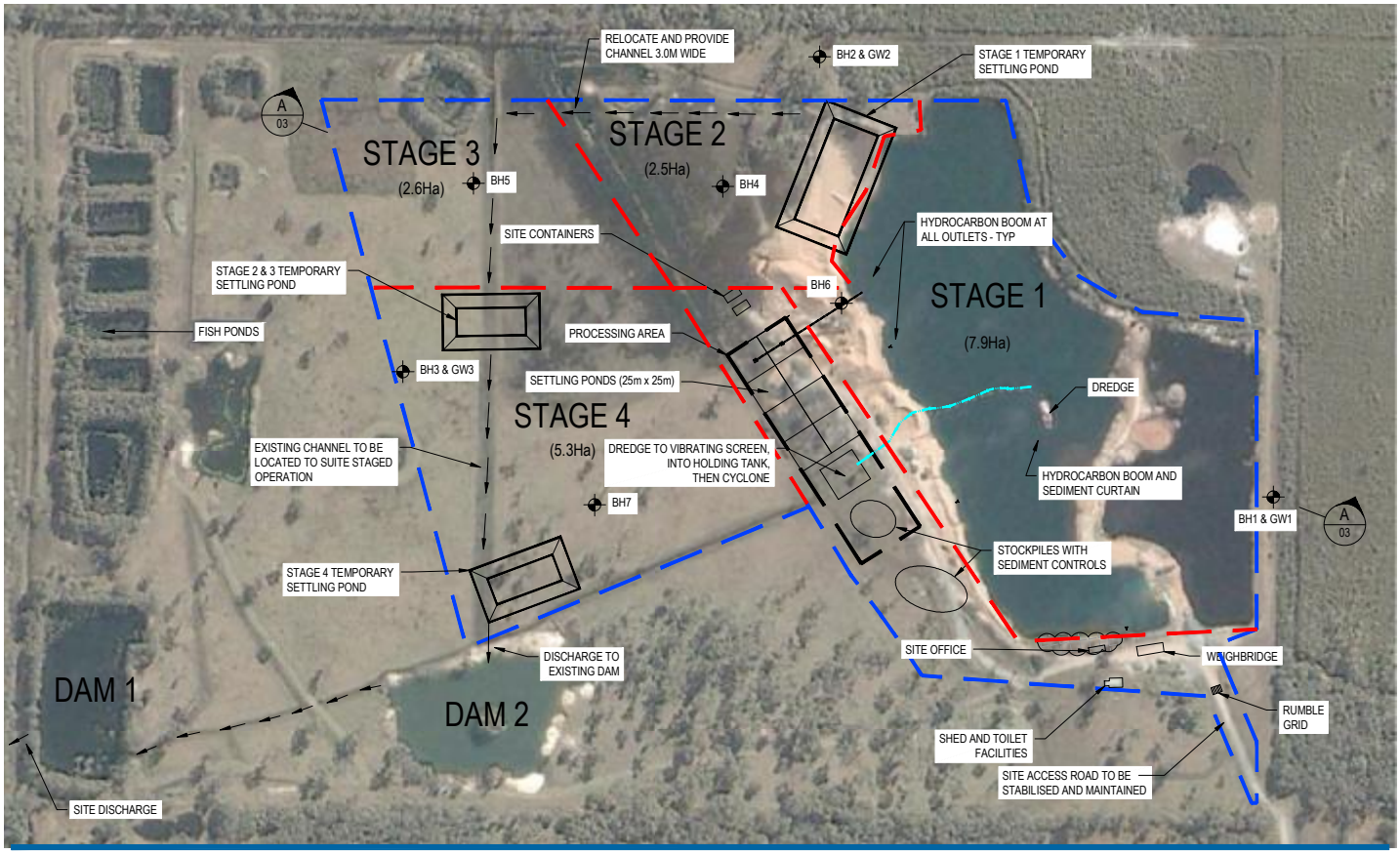


0 25 50 75m
SCALE 1:2500 AT ORIGINAL SIZE

N

PROFIT OF PRENDRE BOUNDARY

GHD

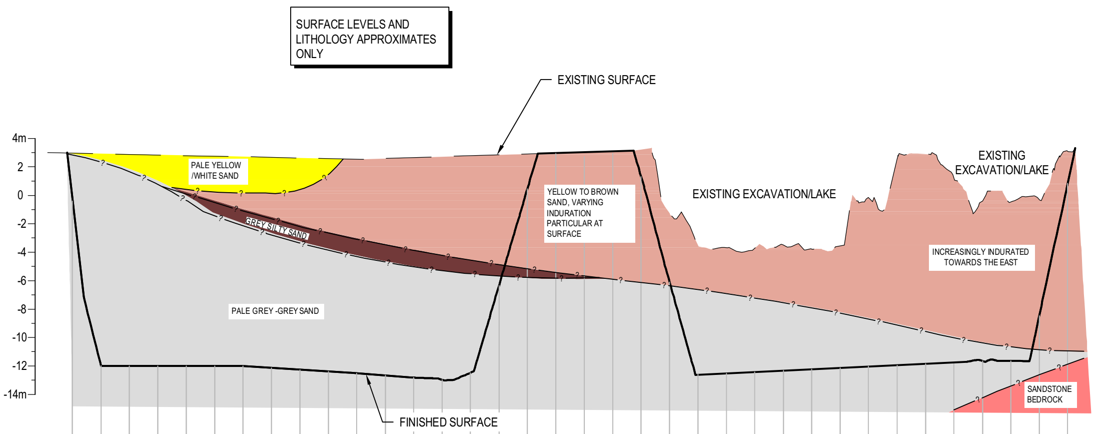
RIXA QUARRIES
DOONBAH QUARRY
WOODBURN, EVANS HEAD ROAD
PROPOSED QUARRY

Job Number 22-17200
Revision C
Date Sept.2014

Figure 02

230 Harbour Drive Coffs Harbour NSW 2450 Australia T 61 2 6650 5600 F 61 2 6650 5601 E cfsmail@ghd.com W www.ghd.com

Plot Date: 22 October 2014 - 11:08 AM Plotted by: Sam Douglas
Cad File No: G:\22\17200\CAD\Drawing\22-17200-FIG.dwg



DATUM RL. -17.00

DESIGN SURFACE LEVEL	-0.38	-11.99	-12.00	-12.00	-12.00	-12.00	-12.01	-12.13	-12.26	-12.38	-12.51	-12.67	-12.82	-12.97	-12.48	-6.33	0.47	4.61	4.12	3.58	1.30	-6.11	-12.54	-12.52	-12.42	-12.33	-12.23	-12.13	-12.03	-11.94	-11.85	-11.75	-11.66	-11.65	-8.48	0.83
EXISTING SURFACE LEVEL	2.89	2.76	2.63	2.51	2.39	2.27	2.18	2.17	2.20	2.07	2.00	1.96	1.56	1.59	2.17	3.94	4.39	4.18	2.70	2.95	3.22	-1.26	-3.54	-3.68	-3.71	-3.50	-3.79	-3.56	-0.19	2.55	2.90	1.19	-0.41	-0.48	-0.29	3.10

A SECTION
02
SCALE : V 1:250 H 1:2500

VERTICAL SCALE 1:250 AT ORIGINAL SIZE 0 2.5 5 7.5m
HORIZONTAL SCALE 1:2500 AT ORIGINAL SIZE 0 25 50 75m

N

——?——?——?—— APPROXIMATE LEVELS

GHD

RIXA QUARRIES
DOONBAH QUARRY
WOODBURN, EVANS HEAD ROAD
SECTION DETAILS

Job Number 22-17200
Revision A
Date MAR.2014

Figure 03

230 Harbour Drive Coffs Harbour NSW 2450 Australia T 61 2 6650 5600 F 61 2 6650 5601 E cfsmail@ghd.com W www.ghd.com

Plot Date: 14 March 2014 - 11:43 AM Plotted by: Mika Kama Cad File No: G:\22\17200\CADD\Drawings\22-17200-FIG.dwg

Appendix B – Characteristics of ASS

Characteristics of ASS

Soils rich in pyrite or the products of pyrite oxidation are commonly known as ASS. The natural oxidation of these soils can occur when pyrite is exposed to oxygen during declines in relative sea level, prolonged drought, resuspension of reduced sediments, and changes in tidal regimes. Human activities can, however, greatly accelerate pyrite oxidation through the lowering of coastal water tables, reduction of tidal flushing, alterations to surface drainage, dredging and excavation in coastal zones.

The generalised reaction for pyrite oxidation often documented in the literature shows that one mole of oxidised pyrite yields ferric hydroxide and two moles of dissolved sulfuric acid:

$$FeS_{2(s)} + \frac{15}{4} O_{2(g)} + \frac{7}{2} H_2O_{(aq)} \rightarrow Fe(OH)_{3(s)} + 2\ H_2SO_{4(aq)}$$

Several secondary reactions are also known to occur producing further acidity, which can significantly lower soil and water pH, often below pH 3. These low pH conditions readily mobilise toxic metals, such cadmium, arsenic, manganese and aluminium, held within the soil matrix, and can result in the formation of minerals, such as jarosite.

Pyrite typically forms under anaerobic conditions when there is a readily available supply of decomposable organic matter, reducing microbes, sulfate, usually from seawater, and a source of iron, usually derived from sediments. The majority of coastal pyrite was formed in estuarine lowlands and embayments, less than 5 m AHD, between 6000 to 10 000 years ago following the last major sea level rise. ASS are also known to occur in coastal plains where they are often overlain by alluvial deposits.

When left undisturbed, these soils are relatively benign and are indistinguishable from other reduced sedimentary deposits. In this state these soils are generally referred to as Potential Acid Sulfate Soils (PASS). The characteristics of PASS include:

- The presence of waterlogged soils - unripe muds (soft, buttery, blue grey or dark greenish grey) or estuarine silty sands or sands (mid to dark grey.
- Presence of reduced sulphur odours.
- Presence of shells.
- Soil pH usually neutral but may be acidic.

Once these reduced soils are disturbed and exposed pyrite oxidises to produce enough acidity to exceed the soil's neutralising capacity these soils are termed Actual Acid Sulfate Soils (AASS). The characteristics of AASS include:

- Soil pH less than or equal to 4.
- Presence of shells.
- Jarosite horizons (pale yellow mineral deposit, product of the incomplete oxidation of pyrite) and/or substantial iron oxide mottling (orange to red secondary mineral deposit, formed from the oxidation and precipitation of mobilised iron).

Major effects of poorly managed AASS include impacts on aquatic ecosystems, disruption of plant physiological processes and health risks for animals and humans. These soils can also negatively impact concrete and steel components of structures, pipelines, and other engineering works.

The characteristics of water that has been affected by acid generated from AASS include:

- A pH of less than 5.
- Low alkalinity concentrations.
- Unusually clear or milky blue-green colour.
- Possible white precipitates (aluminium hydroxides) floating on the surface.
- Extensive orange to red iron stains, flocculates or bacteria slicks.

Appendix C – Laboratory Certificates

CERTIFICATE OF ANALYSIS

Work Order	: **EB1406058**	Page	: 1 of 4
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MR BEN LUFFMAN	Contact	: Vanessa Turnbull
Address	: 230 HARBOUR DRIVE PO Box 1340 COFFS HARBOUR NSW, AUSTRALIA 2450	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: ben_luffman@ghd.com	E-mail	: vanessa.turnbull@alsenviro.com
Telephone	: +61 02 6650 5600	Telephone	: 61-7-3552 8660
Facsimile	: +61 02 6652 6021	Facsimile	: 61-7-3352 3662
Project	: 2217200	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 12-MAR-2014
Sampler	: ----	Issue Date	: 19-MAR-2014
Site	: ----		
		No. of samples received	: 9
Quote number	: EN/005/13	No. of samples analysed	: 9

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **ASS: EA029 (SPOCAS): Excess ANC not required because pH OX less than 6.5.**
- **ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.**
- **ASS: EA029 (SPOCAS): Retained Acidity not required because pH KCl greater than or equal to 4.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Compound	CAS Number	LOR	Unit	Client sample ID	BH1 8.2M	BH2 13.4M	BH3 10.6M	BH4 2.9M	BH4 13.4M
				Client sampling date / time	25-FEB-2014 15:00	26-FEB-2014 15:00	25-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
					EB1406058-001	EB1406058-002	EB1406058-003	EB1406058-004	EB1406058-005
EA029-A: pH Measurements									
pH KCl (23A)	----	0.1	pH Unit		5.1	5.6	6.9	5.4	5.9
pH OX (23B)	----	0.1	pH Unit		3.2	3.1	2.8	3.0	3.1
EA029-B: Acidity Trail									
Titratable Actual Acidity (23F)	----	2	mole H+ / t		9	<2	<2	3	<2
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t		62	34	28	37	20
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t		52	34	28	34	20
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S		<0.02	<0.02	<0.02	<0.02	<0.02
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S		0.10	0.05	0.04	0.06	0.03
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S		0.08	0.05	0.04	0.05	0.03
EA029-C: Sulfur Trail									
KCl Extractable Sulfur (23Ce)	----	0.02	% S		<0.02	<0.02	0.02	<0.02	<0.02
Peroxide Sulfur (23De)	----	0.02	% S		0.07	0.06	0.07	0.06	0.04
Peroxide Oxidisable Sulfur (23E)	----	0.02	% S		0.07	0.06	0.04	0.06	0.04
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t		45	40	26	38	28
EA029-D: Calcium Values									
KCl Extractable Calcium (23Vh)	----	0.02	% Ca		<0.02	<0.02	<0.02	<0.02	<0.02
Peroxide Calcium (23Wh)	----	0.02	% Ca		<0.02	<0.02	<0.02	<0.02	<0.02
Acid Reacted Calcium (23X)	----	0.02	% Ca		<0.02	<0.02	<0.02	<0.02	<0.02
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t		<10	<10	<10	<10	<10
sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S		<0.02	<0.02	<0.02	<0.02	<0.02
EA029-E: Magnesium Values									
KCl Extractable Magnesium (23Sm)	----	0.02	% Mg		<0.02	<0.02	<0.02	<0.02	<0.02
Peroxide Magnesium (23Tm)	----	0.02	% Mg		<0.02	<0.02	<0.02	<0.02	<0.02
Acid Reacted Magnesium (23U)	----	0.02	% Mg		<0.02	<0.02	<0.02	<0.02	<0.02
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t		<10	<10	<10	<10	<10
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S		<0.02	<0.02	<0.02	<0.02	<0.02
EA029-H: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-		1.5	1.5	1.5	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S		0.09	0.06	0.04	0.06	0.04
Net Acidity (acidity units)	----	10	mole H+ / t		54	40	27	41	28
Liming Rate	----	1	kg CaCO3/t		4	3	2	3	2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH5 7.4M	BH6 7.4M	BH7 2.9M	BH7 11.9M	----
			Client sampling date / time	27-FEB-2014 15:00	24-FEB-2014 15:00	28-FEB-2014 15:00	28-FEB-2014 15:00	----
Compound	CAS Number	LOR	Unit	EB1406058-006	EB1406058-007	EB1406058-008	EB1406058-009	----
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	5.9	5.7	5.3	5.7	----
pH OX (23B)	----	0.1	pH Unit	3.1	3.0	2.6	3.0	----
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	5	<2	----
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	11	31	126	33	----
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	11	31	121	33	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	<0.02	<0.02	----
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.02	0.05	0.20	0.05	----
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.02	0.05	0.19	0.05	----
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.02	<0.02	<0.02	<0.02	----
Peroxide Sulfur (23De)	----	0.02	% S	0.03	0.06	0.22	0.06	----
Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	0.03	0.06	0.22	0.06	----
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	17	37	141	40	----
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.02	% Ca	<0.02	<0.02	<0.02	<0.02	----
Peroxide Calcium (23Wh)	----	0.02	% Ca	<0.02	<0.02	<0.02	<0.02	----
Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.02	<0.02	<0.02	<0.02	----
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	<10	<10	<10	----
sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.02	<0.02	<0.02	<0.02	----
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.02	<0.02	<0.02	<0.02	----
Peroxide Magnesium (23Tm)	----	0.02	% Mg	<0.02	<0.02	<0.02	<0.02	----
Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.02	<0.02	<0.02	<0.02	----
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	<10	<10	<10	----
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.02	<0.02	<0.02	<0.02	----
EA029-H: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	1.5	1.5	1.5	1.5	----
Net Acidity (sulfur units)	----	0.02	% S	0.03	0.06	0.23	0.06	----
Net Acidity (acidity units)	----	10	mole H+ / t	17	37	146	40	----
Liming Rate	----	1	kg CaCO3/t	1	3	11	3	----

CERTIFICATE OF ANALYSIS

Work Order	: **ES1404609**	Page	: 1 of 9
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR BEN LUFFMAN	Contact	: Client Services
Address	: 230 HARBOUR DRIVE PO Box 1340 COFFS HARBOUR NSW, AUSTRALIA 2450	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: ben_luffman@ghd.com	E-mail	: sydney@alsglobal.com
Telephone	: +61 02 6650 5600	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 6652 6021	Facsimile	: +61-2-8784 8500
Project	: 2217200	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: 158451-3	Date Samples Received	: 04-MAR-2014
Sampler	: ----	Issue Date	: 11-MAR-2014
Site	: ----		
		No. of samples received	: 35
Quote number	: EN/005/13	No. of samples analysed	: 35

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **ASS: EA037 (Rapid Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme**
- **EA037 ASS Field Screening: NATA accreditation does not cover performance of this service.**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH1 5.1M	BH1 8.2M	BH1 9.85M	BH1 12.85M	BH1 14.30M
			Client sampling date / time	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404609-001	ES1404609-002	ES1404609-003	ES1404609-004	ES1404609-005
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	5.6	6.4	5.8	5.5	6.0
pH (Fox)	----	0.1	pH Unit	2.3	2.2	2.8	2.0	2.1
Reaction Rate	----	1	-	2	2	2	2	4

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH2 2.7M	BH2 5.9M	BH2 7.4M	BH2 8.9M	BH2 13.4M
			Client sampling date / time	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404609-006	ES1404609-007	ES1404609-008	ES1404609-009	ES1404609-010
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	6.0	5.6	5.0	5.5	6.0
pH (Fox)	----	0.1	pH Unit	3.8	2.0	2.2	2.4	2.1
Reaction Rate	----	1	-	1	2	4	4	2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH3 2.85M	BH3 4.3M	BH3 8.85M	BH3 10.6M	BH3 16.3M
			Client sampling date / time	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00	25-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404609-011	ES1404609-012	ES1404609-013	ES1404609-014	ES1404609-015
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	5.1	5.3	5.1	5.9	6.9
pH (Fox)	----	0.1	pH Unit	2.1	2.1	2.1	2.2	2.2
Reaction Rate	----	1	-	4	4	4	4	2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH4 2.9M	BH4 7.4M	BH4 10.4M	BH4 13.4M	BH4 16.2M
			Client sampling date / time	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00	26-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404609-016	ES1404609-017	ES1404609-018	ES1404609-019	ES1404609-020
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	5.7	5.6	5.5	5.9	5.3
pH (Fox)	----	0.1	pH Unit	2.5	2.2	2.0	2.2	2.2
Reaction Rate	----	1	-	2	2	4	2	2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH5 1.3M	BH5 2.9M	BH5 7.4M	BH5 13.2M	BH5 14.7M
			Client sampling date / time	27-FEB-2014 15:00	27-FEB-2014 15:00	27-FEB-2014 15:00	27-FEB-2014 15:00	27-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404609-021	ES1404609-022	ES1404609-023	ES1404609-024	ES1404609-025
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	4.9	5.4	5.7	5.7	5.3
pH (Fox)	----	0.1	pH Unit	4.4	2.4	2.2	2.3	2.2
Reaction Rate	----	1	-	1	4	2	4	4

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH6 2.7M	BH6 4.1M	BH6 7.4M	BH6 11.8M	BH6 16.4M
			Client sampling date / time	24-FEB-2014 15:00	24-FEB-2014 15:00	24-FEB-2014 15:00	24-FEB-2014 15:00	24-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404609-026	ES1404609-027	ES1404609-028	ES1404609-029	ES1404609-030
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	5.2	5.6	6.1	4.8	5.5
pH (Fox)	----	0.1	pH Unit	4.3	2.1	2.1	2.4	2.4
Reaction Rate	----	1	-	1	2	2	2	4

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH7 2.9M	BH7 7.4M	BH7 11.9M	BH7 14.9M	BH7 16.4M
			Client sampling date / time	28-FEB-2014 15:00	28-FEB-2014 15:00	28-FEB-2014 15:00	28-FEB-2014 15:00	28-FEB-2014 15:00
Compound	CAS Number	LOR	Unit	ES1404609-031	ES1404609-032	ES1404609-033	ES1404609-034	ES1404609-035
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	5.4	5.7	6.0	5.3	5.2
pH (Fox)	----	0.1	pH Unit	2.2	2.4	2.3	2.2	2.2
Reaction Rate	----	1	-	4	2	2	2	2

Appendix D – Summary of Treatment and Testing Requirements

Summary of ASS and Acid Water Treatment and Testing Requirements

Requirement	
Lime Rate	• **Sand** – Mix 11kg of agricultural lime per tonne of sand, as soon as possible following excavation. The rate of lime may be refined once operation commences based on the pH of the sand following treatment. • **Exposed soil surfaces following excavation** – lime the exposed walls of the excavation/lake following rain. • **Drainage lines** – place sand bags or a sand mixture with the neutralising agent in the drainage lines prior to the settlement pond. • **Settlement pond** - prior to discharge into the wetland – as required to meet a pH discharge limit of 6.5-8.5
Treatment Materials	• **Sand -** Agricultural lime. • **Water –** – Hydrated Lime/Calcined magnesia, to increase pH – Citric/Sulphuric Acid, as required, to lower pH
Monitoring	• **Sand –** the pH of the sand is to be analysed as part of the normal testing regime of the material. • **Settlement Pond Water-** Monitoring of the settlement pond water is to be undertaken prior to discharge or daily for pH. Monitoring is to be completed using an appropriate hand-held probe.
Reporting	All details regarding ASS testing and treatment are to be recorded and kept onsite. Details include but are not limited to: • Staff members conducting testing and treatment • Treatment measures implemented including quantities of neutralising agents used and treatment methodology • pH monitoring results

Appendix E – Monitoring Record Sheet

Sand ASS Treatment Record

Date	Volume Extracted (tonnes)	Quantity of Lime (kg)	Treatment Method	pH of treated material	Signed	Comments
01/01/2099	*100*	*1100*	*Mixed during stockpiling*	*6.5*	*Tom*	

Water ASS Treatment Record

Date	Approx. volume (ML)	pH prior to treatment	Quantity of lime used (kg)	Treatment method	pH following treatment	Signed	Comments
01/01/2099	*1*	*4.2*	*1.6*	*Hydrated lime sprayed across settlement pond*	*7.2*	*Tom*	*pH achieved in 6hrs*

GHD

230 Harbour Drive
Coffs Harbour NSW 2450
T: (02) 6650 5600 F: (02) 6650 5601 E: cfsmail@ghd.com

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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	B. Luffman	B. Cork		S. Lawer		23/06/2015

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RIXA QUARRIES
PTY LIMITED

PO Box 381
Corindi Beach NSW 2456
Ph: 6649 1414

23rd June 2015

Richmond Valley Council
Cnr Walker St & Graham Place
Casino NSW 2470

Attention: Dylan Johnston

Dear Sir,

Re: DOONBAH QUARRY DEVELOPMENT APPLICATION

I have been working as a Quarry Manager at Doonbah Quarry for the past 2 years. During this period I have not witnessed any contamination to the site.

Over the years Local and Government Authorities have carried out various testing finding the same result.

I have attached some Local history of the quarry from Mr Donaldson who created the quarry over 40 years ago and Mr Uebergang, who has been engaged in the quarry for the past 20 years.

Please find attached water and soil tests carried out by different authorities.

We have supplied material to the Council and the RTA who have also carried out their own tests for contamination and quality of material.

If I can be of any further assistance please do not hesitate to contact me on 0404 476 903.

Regards,

Richard Jamroz
Doonbah Quarry Manager
Rixa Quarries
Email: richard@rixa.com.au

24 June 2015

Richard Jamroz
Rixa Quarries Pty Ltd
PO Box 381
Corindi Beach NSW 2456

Our ref: 22/17200/16479
Your ref:

Dear Richard

Proposed Doonbah Quarry Expansion, Woodburn Evans Head Road, Doonbah Road Safety Audit Response

Austroads Guide to Road Safety, Part 6: Road Safety Audit, 2009, provides definitions for four different levels of risk, namely, “intolerable”, “high”, “medium” or “low”. Extracts of the risk assessment matrix from Austroads are provided below in Table 1.

Table 1 Summary of Level of Risk Frequency

Severity / Frequency	Frequent	Probable	Occasional	Improbable
Catastrophic	Intolerable	Intolerable	Intolerable	High
Serious	Intolerable	Intolerable	High	Medium
Minor	Intolerable	High	Medium	Low
Limited	High	Medium	Low	Low

Some of the issues identified by the Road Safety Audit are existing issues that may not be exacerbated by the quarry construction or operation. Any remedial action would benefit the broader community, and not only the quarry operations.

Table 2 Audit Review Commentary

Audit Report Reference for Finding	Audit Recommendation	Reported level of risk	Relevance to quarry proposal
Section 5.1 Quarry Intersection	Given that the ‘BAL’ treatment was constructed when Woodburn Evans Head Road was signposted at 100 kph and has now been reduced to 80 kph, truck traffic is left in and right out from the quarry and very few vehicles if any will enter	Low	The Traffic Impact Assessment agreed the BAR treatment is satisfactory but an improvement in the BAL treatment may be required subject to detailed survey.

GHD Pty Ltd ABN 39 008 488 373
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	the site from the east it is suggested that the existing 'BAL' treatment is adequate.		
Section 5.2 Truck advance warning signage	Both signs should be relocated so approximately 80m maximum from the quarry access and be positioned between 2 and 5 m from the edge of the travel lane. The replacement of the signs with reflective type signs would reinforce the presence of trucks in dull conditions (eg winter).	Low	Agreed
Section 5.3 Access road stop control	To assist intersection discipline and road safety the provision of a stop line (TB) could be considered marked 7.0 m from the main road centreline across the departure side of the access road. This would reinforce to exiting vehicles that stop control is in place and guide the stopped position for the vehicle.	Low	Agreed
Section 5.4 Culvert headwalls in clear zone	The road authority should consider as part of future upgrade works for individual culverts and/or Woodburn Evans Head Road that culvert headwalls be positioned further from the travelling lane.	Low	This is a maintenance issue for RVC to consider and not relevant to the quarry proposal. The hazard is not increased as a result of the quarry proposal.
Section 5.5 Centreline line marking	BAR treatments should generally have a barrier line on the major road approaches to reduce the likelihood of overtaking vehicles colliding with vehicles entering from the side road. It is noted that the existing centreline line marking along Woodburn Evans Head Road is faded and could be approaching renewal. It is suggested that when renewing line marking along Woodburn Evans Head Road that consideration be given to providing an appropriate length of barrier line on each approach to the quarry	Low	Agreed. Ongoing maintenance of the line marking at this location could be incorporated in Council's maintenance program.

access.

The RSA has identified a number of safety issues along the proposed access route. Many of the issues are not applicable to the proposal or, where applicable can be addressed by Council maintenance. Most of the safety issues raised that relate to the proposed quarry expansion were identified in the TIA and the recommendations are therefore supported.

If you have any further questions, please contact the undersigned.

Sincerely
GHD Pty Ltd

Tim Bickerstaff
Traffic and Transport Planner
03 6210 0763

Rixa Quarries

Doonbah Quarry, Evans Head
Road Safety Audit

June 2015

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Table index

Figure index

1. Background

GHD has been engaged by Rixa Quarries Pty Ltd (Rixa) to complete an existing conditions road safety audit for the proposed expansion of the Doonbah Quarry ('the quarry'), an existing sand quarry located at Lot 2 DP 1040274 on Woodburn Evans Head Road, Doonbah, NSW.

1.1 Purpose of this report

This report has been prepared to document the safety deficiencies identified during the existing conditions road safety audit of the entrance off Woodburn Evans Head Road and the primary quarry vehicle route along Woodburn Evans Head Road / Albert St to the Pacific Highway, Woodburn.

1.2 Study area location

The study area is located at the entrance to Doonbah Quarry located off Woodburn Evans Head Road. The quarry entrance is located approximately 5.5kms east of the Pacific Highway (Woodburn). The haulage route between the Pacific Highway and the quarry site is along Albert St / Woodburn Evans Head Road as shown on the study area figure below.

The Albert Street portion of the haulage route to Wagner St is within a sign posted 50 kph speed zone, with the remainder of the haulage route along Woodburn Evans Head Road to the quarry entrance is within a sign posted 80 kph speed zone.

The sites and features are shown in below in Figure 1-1.

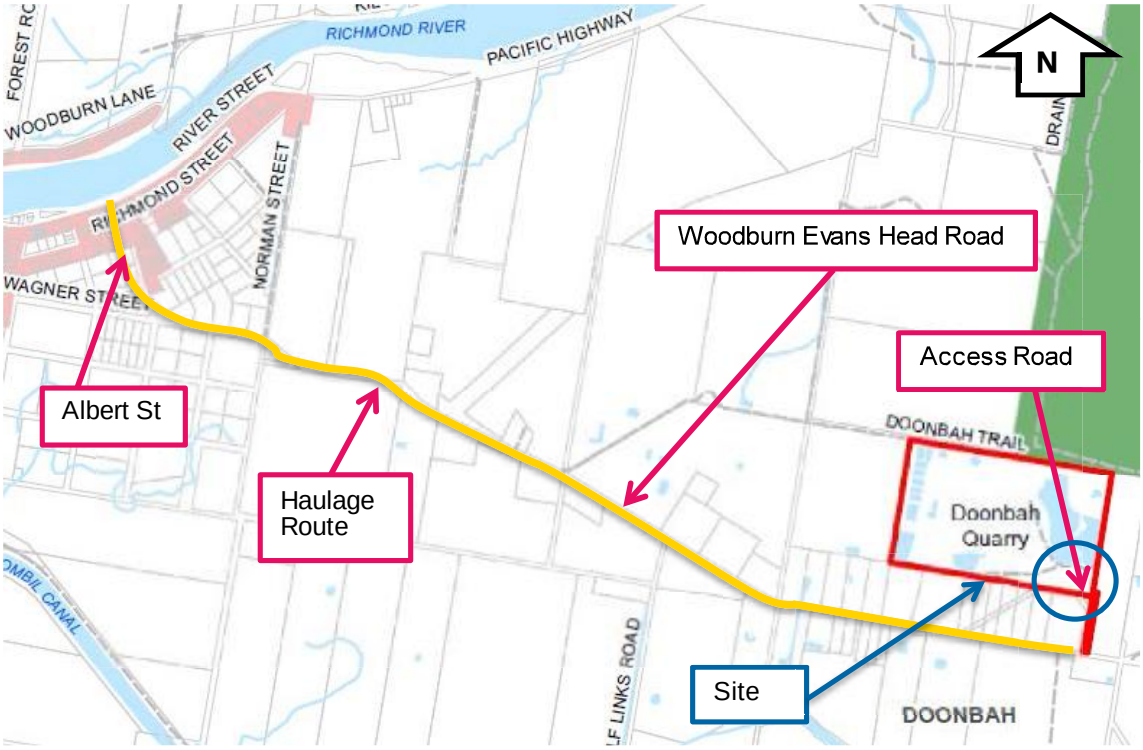

Figure 1-1 Study area

2. Objectives, process and evaluation criteria

A road safety audit is “a formal examination of a future road or traffic project or an existing road in which an independent, qualified examiner reports on the project's accident potential and safety performance” (Austroads 2002). In this case it is the examination of existing conditions at an intersection between a public and private road.

2.1 Process of the road safety audit

The road safety audit followed a standard practice in identifying safety related issues. Normal practise during a road safety audit is for a site visit during both daylight and night conditions to occur. Standard issues such as sight distance, speed zones, lighting, safety barriers, approach road alignment, delineation, line marking and signage, intersection layout and conditions (amongst others) are assessed with respect to safety. The audit is structured around a standard checklist provided in the Austroads “Guide to Road Safety: Part 6 – Road Safety Audits” and RMS’s Guidelines for Road Safety Audit Practices, July 2011”.

2.2 Criteria used to assess the levels of risk

Risk levels have been assigned for each deficiency identified along the route by the audit team and are based on the criteria set out in the Austroads guide. These risk levels have been determined based on the deficiency’s frequency and severity. Definitions of the different levels of frequency and severity have been reproduced in Table 2-1 and Table 2-2 from Austroads Guide to Road Safety, Part 6: Road Safety Audit, 2009.

Table 2-1 Summary of frequency descriptions

Frequency	Description
Frequent	Once or more per week
Probable	Once or more per year (but less than once a week)
Occasional	Once every five or ten years
Improbable	Less often than once every ten years

Table 2-2 Summary of severity descriptions

Severity	Description
Catastrophic	Likely multiple deaths
Serious	Likely death or serious injury
Minor	Likely minor injury
Limited	Likely trivial injury or property damage only

Austroads Guide to Road Safety, Part 6: Road Safety Audit, 2009, provides definitions for four different levels of risk, namely, “intolerable”, “high”, “medium” or “low”. Extracts of the risk assessment matrix from Austroads are provided in Table 2-3.

Table 2-3 Summary of levels of risk

Severity	Frequency			
	Frequent	Probable	Occasional	Improbable
Catastrophic	Intolerable	Intolerable	Intolerable	High
Serious	Intolerable	Intolerable	High	Medium
Minor	Intolerable	High	Medium	Low
Limited	High	Medium	Low	Low

It is noted that as a consequence of the Austroads guide not adopting a more objective risk ratings process, the risk rating reported in all Road Safety Audits are subjective. As a result, the audit findings can be skewed towards reporting risks as "high" and "intolerable". Care should be taken by the appropriate decision maker when using these results to justify an outcome.

Of the four possible risk ratings levels (i.e. Intolerable, high, medium or low) a description of their priority are defined below in Table 2-4.

Table 2-4 Priority of levels of risk

Level of risk	Description of priority to risk rating
Intolerable	A significant road safety risk requiring immediate or urgent attention.
High	A high road safety risk requiring immediate or urgent attention.
Medium	A road safety risk that may lead to crashes and that requires attention as soon as reasonably practicable.
Low	A lower road safety risk that requires attention. Remedial action may be carried out on a non-urgent basis, such as in conjunction with routine road maintenance or other planned work.

2.3 Road safety categories

Road safety audit categories are utilised to assist the management of corrective actions and the monitoring of road safety deficiency trends. A list of the available categories is scheduled in Table 2-5 below which have been derived from the Roads and Maritime road safety categories information sheet.

Table 2-5 Road Safety Audit Categories

Category	Examples
Access Impact	Property developments, traffic generators, rest areas, emergency vehicles, service vehicles, maintenance, vehicles breakdowns, etc.
Auxiliary Lanes	Overtaking lanes, passing lanes, tapers, merges, etc.
Bridge Structures	Road bridge, pedestrian bridge, rail bridges etc.
Bus Infrastructure	Bus lanes, bus facilities, bus stops etc.
Cycle Infrastructure	Cycleways, on-road facilities, off-road facilities, cycle routes etc.
Delineation	Guide posts, pavement markings, reflectors, warning signs etc.
Heavy Vehicle Infrastructure	Inspection bays, facilities, provisions, routes etc.
Intersection	Roundabouts, T-junctions, cross junctions etc.
Landscaping	Shrubs, trees etc.
Lighting	Street lighting, tunnel lighting etc.
Miscellaneous	Matters not covered by categories listed.
Network Effects	Road function, traffic composition, traffic volume, traffic characteristics, route choice, impact of continuity with the existing network etc.
Special Road User Infrastructure	Trains, ferries, trams, equestrian, stock, special events etc.
Pedestrian Infrastructure	Pathways, pedestrian crossings, pedestrian fencing etc.
Road Alignment and Cross Section	Sight distance, visibility, readability by drivers, glare, widths, shoulders, crossfalls, batter slopes, drains etc.
Road Pavement	Pavement defects, skid resistance, ponding, loose stones material etc.
Roadside Activities	Roadside advertising, road side designs, vending etc.
Roadside hazards	Clear zones, utility poles, culverts, bridge structures, trees etc.
Speed Zones	Speed limits, speed zones, design peed, school zones etc.
Traffic Management and Operation	Staging of works, temporary traffic control, detours, peak tidal flows, clearways, parking etc.
Traffic Management Devices	Threshold treatments, road humps, kerb extensions, slow points etc.
Traffic Signals	Signal phasing, bus signals, bicycle signals pedestrian signals etc.
Traffic Signs	Regulatory signs, warning signs, guide sighs etc.
Tunnel Structures	Road tunnels, pedestrian tunnels, cycle tunnels etc.

3. Audit team, administration and supporting material

3.1 Road safety audit team

The road safety audit team was comprised of the following:

Audit Team Leader: Graeme Robinson – over 40 years of experience in design, project management and review of road projects to RMS and Council standards. Graeme is an accredited Level 3 Lead Road Safety Auditor and has completed numerous audits for Roads and Maritime, Councils and private sector.

Auditor ID: RSA-02-0122

Audit Team Member: Matthew Parsons - Senior Road Engineer with over 12 years of experience in the design of road infrastructure and is an accredited Level 1 Road Safety Auditor awaiting notification of upgrade to a level 2 status, having completed numerous recent audits.

Auditor ID: RSA-02-0977

3.2 Site inspection and audit

3.2.1 Time and date

A day-time site visit and audit was undertaken on Monday 15 June 2015 from 13:30 hours to 15:00.

The night-time site visit and audit was undertaken on Monday 15 June 2014 from 18:00 hours to 18:30 hours.

3.2.2 Weather conditions

The weather condition during the day and night time audit was overcast. The road surface during the time of the audit was dry.

3.2.3 Limit of audit area

The existing conditions road safety audit was undertaken at the entrance to the quarry off Woodburn Evans Head Road, including 200m west and east of the quarry entrance. A drive through was also conducted along Woodburn Evans Head Road / Albert St between the quarry entrance and the Pacific Highway.

3.2.4 Commencement meeting

A project commencement meeting was undertaken between Ben Luffman (GHD) and Graeme Robinson (GHD) by phone prior to the site visit. The purpose of this was to be inducted into the project, discuss the project scope, status, limitations, safety and any other relevant project information.

The background information for the project was obtained from Ben Luffman of GHD through email on Friday 12th June 2015.

3.3 References

A number of relevant standards or guidelines were referenced as part of the audit. These are as follows:

- RMS Guidelines for Road Safety Audit Practices, July 2011
- Austroads Guide to Road Safety, Part 6: Road Safety Audit, 2009
- Austroads Guide to Road Design Series, 2009
- Standards Australia "AS 1742 Series 2003: Manual of uniform traffic control devices", 2003

3.4 Documentation provided

The following documentation was provided to assist the audit:

- Proposed expansion of Doonbah Quarry, Traffic Impact Assessment, prepared by GHD November 2014 (ref 105921).

Additional information such as bus timetables were sourced for the purpose of this audit.

3.5 Limitations of this audit

The following limitations are associated with this audit and report:

- Limited to the background information and conditions witnessed on site at the time of the audit
- Limited to the quarry entrance off Woodburn Evans Head Road and haulage route into Woodburn to the existing with the Pacific Highway.

In carrying out the road safety audit a number of areas were not included or considered. These are as follows:

- Existing speed zone review
- Traffic modelling and intersection warrants
- Existing stormwater drainage regime
- Demand for additional bus stops or facilities
- Demand for pedestrian crossing facilities

4. Audit assumptions and observations

4.1 Audit assumptions

Following a review of the Traffic Impact Assessment a number of assumptions have been noted for both current and future operations:

- Existing operation generates approximately 20 truck movements per day
- The future expansion will generate increased traffic and will vary on demand, but could reach as many as 140 truck movements per day
- The quarry is expected to operate 40 weeks of the year
- Haulage operations are throughout the day only – weekdays 7:00am to 6:00pm and Saturdays 8:00am to 1:00pm, with no haulage to take place on Sundays or Public Holidays
- It is expected that almost all truck movements will be to and from the west (Pacific Highway), with left turns into the quarry access road and right turns out onto Woodburn Evans Head road
- There have been no crashes at or in the vicinity of the entry to the quarry access road for the period October 2008 and September 2013
- Average daily traffic volumes for Woodburn Evans Head Road are as follows – east of quarry 2,691 and west of quarry 2,675 (Source: Richmond Valley Council for year 2013)
- Increased operations would result in a 5% increase in average daily traffic volumes to approximately 2820
- The 85th percentile speed in 2013 following a reduction in sign posted speed limit from 100 kph to 80 kph was approximately 86 kph (Source: Richmond Valley Council for year 2013)
- Woodburn Evans Head Road is a bus route in both directions
- The upgrade of the Pacific Highway will result in an overpass of Woodburn Evans Head Road west of the quarry access, with no access to the new highway being provided.
- An alternative route from Woodburn Evans Head Road to Pacific Highway via Wagner St / Woodburn St was indicated to have been used historically by the public. This route was understood to be off limits for quarry vehicles, following discussion with an employee of the quarry.

4.2 Observations

The following observations were made during the audit for the intersection with the private access road to the quarry and for Woodburn Evans head Road between the quarry access road and the Pacific Highway to the west:

- The quarry access road is a private road with locked gates, with an internal speed limit of 10 kph – see Figure 4-1 below
- Exit from the quarry access road is controlled by a stop sign
- The intersection with the quarry access road, although a private road, has a basic 'BAL' intersection treatment. That is, there has been widening of the existing bitumen seal to allow for overtaking of right turn vehicles into the quarry access road – see Figure 4-2 below

- No existing street lighting at the intersection of Woodburn Evans Head Road and the quarry access road. It is understood that no night time operations would occur at the quarry
- Sight distance from the exit of the quarry access road to the east or west is excellent, providing more than adequate distance to observe an approaching vehicle. See Figure 4-3 and Figure 4-4 below
- Power poles located on northern and southern side of Woodburn Evans Head Road east and west of the quarry access have a minimum clear zone requirement for 80 kph of 5m
- There are shallow culverts crossing Woodburn Evans Head Road east and west of the quarry access with the headwalls within the clear zone, but are clearly indicated with guideposts at all locations. Table drains adjacent and parallel to Woodburn Evans Head Road are shallow with flat grassed batters. It was noted that some culverts have been recently upgraded – new pipework and headwalls, however the new headwalls were reinstated within the clear zone
- Woodburn Evans Head Road is a rural type 2-lane bitumen sealed road with lane widths varying from 3.25 m to 3.5 with little or no shoulder. See Figure 4-5 below
- Woodburn Evans Head Road has existing centreline line marking throughout. It was noted that some sections of Woodburn Evans Head Road has been upgraded to provide a minimum of 3.5 m lanes with centreline and edge line marking
- There are numerous existing private accesses along Woodburn Evans Head Road east and west of the quarry access
- The speed zone of Woodburn Evans Head Road from Wagner Street at Woodburn to east of the quarry entrance is signed posted as 80 kph
- The speed zone between the Pacific Highway and Wagner Street at Woodburn is sign posted as 50 kph
- No cyclists or pedestrians

Figure 4-1 Access to Doonbah Quarry

Figure 4-2 View to the west of widened pavement at intersection

Figure 4-3 View to the west from exit of quarry access road

Figure 4-4 View to the east from exit of quarry access road

Figure 4-5 View to the west of Woodburn Evans Head Road, west of the quarry access

5. Road safety audit findings

Whilst carrying out the road safety audit a number of road safety issues were noted. These are as follows.

5.1 Quarry intersection configuration

The intersection with the quarry access road has had in the past been upgraded to a typical 'BAL' treatment – widening of the westbound lane to provide for overtaking of a stationary right turn vehicle. The date of this upgrade is not known but appears to be old pavement and not recent construction.

Current standards for a 'BAL' treatment indicate minimum width of widening for 'BAR' for 80 kph of 6.5m. A sealed width of 6.0m was measured onsite, although the actual edge of sealed pavement varied due to gravel and grass incursion over the edge of seal throughout.

Tapers on approach and exit to the 'BAL' treatment were also checked. Current standards indicate a minimum total length for a 'BAL' treatment, including tapers for 80 kph of 119.5m. The measured length was approximately 111m, although the start of the approach taper was difficult to establish due to some sealed shoulder provision on approach.

It was noted that tapers in bitumen sealing had been applied on approach and exit for the quarry access. Refer Figure 5-1and Figure 5-2 below.

It would appear that this 'BAL' treatment would have been constructed at a time when Woodburn Evans Head Road was sign posted at 100 kph and approved and constructed to an old road authority standard.

There is a minor safety risk for westbound vehicles when overtaking a stationary right turn vehicle waiting to access the quarry due to the available width of sealed pavement.

Road safety category: Intersections

Risk rating

Severity: Minor

Frequency: Improbable

Risk: Low

Comment

Given that the 'BAL' treatment was constructed when Woodburn Evans Head Road was signposted at 100 kph and has now been reduced to 80 kph, truck traffic is left in and right out from the quarry and very few vehicles if any will enter the site from the east it is suggested that the existing 'BAL' treatment is adequate.

Figure 5-1 View to west of existing quarry entrance layout

Figure 5-2 View to east of existing quarry entrance layout

5.2 Truck advance warning signage

On each approach to the quarry access, truck warning signs have been provided. Both signs have been located approximately 200 m from the quarry access and vary in offset from the road edge.

It was also noted at the time of the night time audit that the signs were not reflective, however it is noted that there are no night time quarry operations.

The distance for this type of advance warning sign from an intersection for 75 to 90 kph is 60 to 80m from the intersection. The signs on both approaches are well outside this requirement.

In addition, the required offset for the sign from the edge of travel lane is between 2.0m and 5.0m. The sign to the east of the access satisfies this requirement, but the sign to the west is too close to travel lane as shown in Figure 5-3 and Figure 5-4 below.

Road safety category: Traffic Signs

Risk rating

Severity: Minor

Frequency: Improbable

Risk: Low

Comment

Both signs should be relocated so approximately 80m maximum from the quarry access and be positioned between 2 and 5 m from the edge of the travel lane. The replacement of the signs with reflective type signs would reinforce the presence of trucks in dull conditions (e.g. winter).

Figure 5-3 View to east of existing truck warning signage

Figure 5-4 View to west of existing truck warning signage

5.3 Access road stop control

Stop control (sign) has been provided for vehicles exiting the quarry access road as shown in Figure 5-5 below.

Although the access to the quarry is a private road and there is adequate sight distance to the west and east of the intersection, stop control has been adopted for exiting vehicles. However, no line marking has been provided to control the position of a stopped vehicle or guide the driver as to where to stop without getting too close to the through lane.

Road safety category: Delineation

Risk rating

Severity: Minor

Frequency: Improbable

Risk: Low

Comment

To assist intersection discipline and road safety the provision of a stop line (TB) could be considered marked 7.0 m from the main road centreline across the departure side of the access road. This would reinforce to exiting vehicles that stop control is in place and guide the stopped position for the vehicle.

Figure 5-5 View of stop control for the access road

5.4 Culvert headwalls in clear zone

On the eastern and western sides of the access along Woodburn Evans Head Road there are a number of culvert headwalls left and right of the road. These headwalls are located within the minimum desirable clear zone requirement of 5.0m for an 80 kph sign posted speed limit.

Existing headwalls are marked by guideposts at all locations as per normal requirements and the majority are small diameter pipes with adjoining shallow open drain, resulting in a minimal drop off for an errant vehicle.

There is a risk that an errant vehicle may cross over a headwall and could result in an off-road accident.

Road safety category: Roadside hazard

Risk rating

Severity: Limited

Frequency: Improbable

Risk: Low

Comment

The road authority should consider as part of future upgrade works for individual culverts and/or Woodburn Evans Head Road that culvert headwalls be positioned further from the travelling lane.

Figure 5-6 View of existing culvert headwall west of quarry access

5.5 Centreline line marking – Woodburn Evans Head Road

Woodburn Evans Head Road at and beyond the intersection with the quarry access has existing broken centreline line marking, which allows overtaking of vehicles on approach and through the intersection with the quarry access road, when safe to do so.

A 'BAR' type intersection can be marked with a broken centreline, as per existing conditions. In this case the access is located on a long straight section of Woodburn Evans Head Road. As the access to the quarry is a private road and not a formal intersection with another public road the application of a broken line for overtaking is warranted.

However, as overtaking is not restricted past the quarry access, there is a risk that a vehicle commencing an overtaking manoeuvre on approach to the intersection will not see a truck that is exiting the quarry access road.

Road safety category: Delineation

Risk rating

Severity: Serious

Frequency: Improbable

Risk: Medium

Comment

BAR treatments should generally have a barrier line on the major road approaches to reduce the likelihood of overtaking vehicles colliding with vehicles entering from the side road.

It is noted that the existing centreline line marking along Woodburn Evans Head Road is faded and could be approaching renewal. It is suggested that when renewing line marking along Woodburn Evans Head Road that consideration be given to providing an appropriate length of barrier line on each approach to the quarry access.

Figure 5-7 View to the west of line marking at the quarry access

6. Summary of findings

Table 6-1 Summary of road safety audit findings

Item	Finding	Road safety category	Risk
5.1	Quarry intersection configuration	Intersection	Low
5.2	Truck advance warning signage	Traffic signs	Low
5.3	Access road stop control	Delineation	Low
5.4	Culvert headwalls in clear zone	Roadside hazard	Low
5.5	Centreline line marking – Woodburn Evans Head Road	Delineation	Medium

7. Audit statement

We, the undersigned, have undertaken an existing conditions road safety audit in accordance with Austroads Guide to Road Safety, Part 6: Road Safety Audits. An assessment of the existing intersection off Woodburn Evans Head Road for the Doonbah Quarry and Woodburn Evans Head Road from the Pacific Highway to the quarry access was undertaken for the purpose of identifying any features which could potentially impair road safety.

Whilst every care and due diligence has been taken to identify potential safety concerns and suitable recommendations as detailed in this report, we do not warrant that every safety issue has been identified.

The problems identified have been noted in this report and readers are urged to seek further specific technical advice on matters raised and not rely solely on the report.

Signed: ..... Dated: 16 June 2015

Graeme Robinson, GHD Pty Ltd, Newcastle
Auditor ID: RSA-02-0122

Signed: ..... Dated: 16 June 2015

Matthew Parsons, GHD Pty Ltd, Newcastle
Auditor ID: RSA-02-0977

GHD

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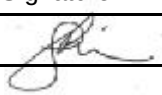
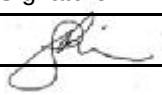
Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	M Parsons	G Robinson		G Robinson		25/06/2015

www.ghd.com

From: Swati Sharma [Swati.Sharma@planning.nsw.gov.au]
Sent: Monday, 23 March 2015 4:59:37 PM
To: Dylan Johnstone
CC: Howard Reed
Subject: RE: DA2015.130 Expansion of Doonbah quarry to 490,000 tonnes per annum - Designated Development

Dear Dylan,

Thank you for your email and Council's referral of the Doonbah Quarry Expansion Development (copy of your cover letter is attached for reference).

As advised over the telephone this afternoon, the Department will not be making comments.

If you have any additional queries on the above, please do not hesitate to contact me.

Regards,
Swati

Swati Sharma
Planning Officer
Resource Assessments
Department of Planning and Environment
23-33 Bridge Street | GPO Box 39 SYDNEY NSW 2001
T 02 9228 6221 E swati.sharma@planning.nsw.gov.au

From: Dylan Johnstone [mailto:Dylan.Johnstone@richmondvalley.nsw.gov.au]
Sent: Monday, 23 March 2015 4:24 PM
To: Swati Sharma
Subject: DA2015.130 Expansion of Doonbah quarry to 490,000 tonnes per annum - Designated Development

Hi Swati,

I refer to Council correspondence dated 17 February 2015 requesting any comments the Department may have regarding the preparation of the EIS in accordance with DGRs issued and any comments regarding submissions received by Council during the exhibition period.

Could you please confirm that the Department has no comments regarding the EIS and submissions received.

Regards

Dylan Johnstone
Development Assessment Planner
Richmond Valley Council | Locked Bag 10, CASINO NSW 2470
T: 02 6660 0261 | F: 02 6660 1300
E: dylan.johnstone@richmondvalley.nsw.gov.au | www.richmondvalley.nsw.gov.au

NSW GOVERNMENT | Office of Environment & Heritage

Your reference: DA2015.130
Our reference: DOC14/303437
Contact: Krister Waern (02) 66402503

John Walker
General Manager
Richmond Valley Council
Locked Bag 10
Casino NSW 2470

Attention: Dylan Johnstone

Dear Mr Walker

Re: Development Application No.2015.130 – Designated Development – Expansion of Existing Quarry, Doonbah

Thank you for your letter dated 8 December 2014 requesting comment from the Office of Environment and Heritage (OEH) on the above matter. I appreciate the opportunity to provide input.

OEH has statutory responsibilities relating to biodiversity (including threatened species, populations, ecological communities, and their habitats), Aboriginal and historic heritage, National Parks and Wildlife Service estate, flooding and estuary management.

OEH has reviewed the documents supplied and advises that, although it has no concerns in relation to NPWS estate, or historic heritage, a number of issues are apparent with respect to the assessments for biodiversity, flooding and Aboriginal cultural heritage. These issues are discussed in detail in Attachment One.

In summary OEH provides the following comments:

a) Council should require an appropriate offset for the proposed impacts and ensure the offset is protected in perpetuity.
b) Council should require rehabilitation and revegetation of the quarry area after quarry activities have ceased for each proposed stage.

Should you require further information or clarification, or should Council be in possession of information that suggests that OEH's statutory interests may be affected, please contact Krister Waern (Regional Biodiversity Conservation Officer) on (02) 6640 2503.

Yours sincerely

20/1/2015

ROSALIE NEVE
Acting/Senior Team Leader Planning, North East Region
Regional Operations

Locked Bag 914, Coffs Harbour NSW 2450
Federation House, Level 7, 24 Moonee Street
Coffs Harbour NSW
Tel: (02) 6651 5946 Fax: (02) 6651 6187
ABN 30 841 387 271
www.environment.nsw.gov.au

Attachment 1 – Detailed Comments – Expansion of Existing Quarry, Doonbah

Biodiversity comments

OEH has reviewed the Ecological Assessment prepared by GHD dated November 2014. The following comments are provided for consideration:

a) OEH promotes the 'avoid mitigate and offset' approach. If the in-situ protection of the significant biodiversity features of the site is not achievable through avoiding these areas, OEH would recommend that these features are appropriately offset.

b) The current proposal will remove 1.3ha of Swamp Sclerophyll Forest which is an Endangered Ecological Community (EEC). This vegetation has many hollow-bearing trees and is habitat for threatened species.

c) A suitable metric should be used to calculate the biodiversity values of the losses and gains associated with the proposal in a repeatable and transparent way. Without a suitable metric the offsetting discussion and negotiation will be arbitrary.

d) OEH recommends the use of the BioBanking Assessment Methodology to ensure the offsetting contributions will improve or maintain environmental outcomes. BioBanking is a market-based scheme that provides a streamlined biodiversity assessment process for development, a rigorous and credible offsetting scheme as well as an opportunity for rural landowners to generate income by managing land for conservation. The use of BioBanking negates the need for an SIS to be prepared and may reduce the need for on ground survey work to be undertaken.

e) If Biobanking is not going to be used, then the proposed offset should be in accordance with the '*OEH principles for the use of biodiversity offsets in NSW*'. These principles have been developed by OEH to provide a useful framework when considering biodiversity impacts and appropriate offset requirements and can be accessed at: http://www.environment.nsw.gov.au/biodivoffsets/oehoffsetprincip.htm

f) No map has been provided of where the proposed offset site is located and the area that in encompasses. Further, limited analysis has been undertaken on the proposed offset site and it is unclear whether the offset site supports the same vegetation types and threatened species and habitat requirements as the impact site. Further surveys may be required to validate the offset area and further information should be provided in relation to the rehabilitation and security of the proposed offset in accordance with the above principles.

g) OEH is willing to further assist Council in reviewing an appropriate biodiversity offset for the proposal.

h) OEH notes that the applicant proposes to '*rehabilitate the area of the quarry, excluding the excavation and hard stand areas, to its pre-quarrying condition after quarrying activities have ceased*'. OEH recommends that Council consider including the excavation and hard stand areas as part of the rehabilitation plan and that the rehabilitation should include replanting with native species to provide habitat for the threatened species that currently utilise the site.

Recommendation:

- Council should encourage the use of BioBanking to assess the proposed impacts and the required offset for the proposal.
- If Biobanking is not the preferred option for the applicant:
    - Council should consider the need for further survey work to be undertaken to ensure the adequacy of the proposed offset;

25 MAY 2015

NSW GOVERNMENT | Office of Environment & Heritage

Your reference: DA2015.130
Our reference: DOC14/303437
Contact: Krister Waern (02) 6640 2503

General Manager
Richmond Valley Council
Locked Bag 10
Casino NSW 2470

SCANNED
25 MAY 2015
Doc. No. .....

Attention: Mr Dylan Johnstone

Dear Mr Walker

Re: Biodiversity Offset Assessment - Development Application No.2015.130
Designated Development – Expansion of Existing Quarry, Doonbah

Thank you for your email dated 8 May 2015 requesting comment from the Office of Environment and Heritage (OEH) in relation to the proposed biodiversity offset. I appreciate the opportunity to provide input.

As indicated in our letter dated 20 January 2015 regarding the proposed development, OEH is willing to assist Council in reviewing a suitable biodiversity offset strategy for the proposal.

OEH promotes use of the BioBanking Assessment Methodology (BBAM) to ensure the offsetting contributions will improve or maintain environmental outcomes. BBAM is a transparent, consistent and scientifically-based set of rules to assess biodiversity values.

BBAM is used to calculate the number and type of credits that a development site will require in order to offset its biodiversity impacts and thus improve or maintain biodiversity values. It is also used to calculate the number and type of credits that can be created from undertaking conservation management at an offset (BioBank) site.

Entering into the BioBanking scheme negates the need for threatened species assessment to be undertaken and may reduce the need for on ground survey work. OEH suggests that Council should identify the BioBanking scheme as a potential option for addressing biodiversity impacts at an early stage for proposed developments that have the potential to impact on biodiversity values

OEH has reviewed the proposed offset in more detail using BBAM and the Credit Calculator. In summary, OEH considers that the proposed offset does not meet the improve-or-maintain principles as the offset is not 'like for like'.

Effectively the proposed development will clear swamp sclerophyll forest Endangered Ecological Community (EEC) whereas the offset put forward is mainly heathland vegetation. **Attachment 1** provides further detail regarding OEH's assessment of the proposed biodiversity offset.

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Federation House, Level 7, 24 Moonee Street
Coffs Harbour NSW
Tel: (02) 6651 5946 Fax: (02) 6651 6187
ABN 30 841 387 271
www.environment.nsw.gov.au

OEH recommends that:

1. Council should consult with the applicant to determine whether:

    a. the existing onsite EEC offset can be expanded to an area of 3.8ha to provide a 'like for like' offset; or,

    b. an alternative offsite EEC offset can be sourced.

2. If the above options are not viable, Council should request the applicant to develop and justify the proposed offset in accordance with the '*OEH principles for the use of biodiversity offsets in NSW*'.

Should you require further information or clarification, or should Council be in possession of information that suggests that OEH's statutory interests may be affected, please contact, Senior Operations Officer, Mr Krister Waern, on (02) 6640 2503.

Yours sincerely

Dimitri Young 20 May 2015

DIMITRI YOUNG
Senior Team Leader Planning, North East Region
Regional Operations

Attachment 1 – Detailed OEH Comments – Offsets for Expansion of Existing Quarry, Doonbah

OEH has reviewed the additional information supplied by GHD dated 30 April 2015 and the following comments are provided:

- OEH notes that GHD has not supplied the BioBanking calculations upon which it has based its offsetting estimate. GHD assumes that the cleared offset land will generate only 2-3 credits per hectare. However the BioBanking Assessment Methodology provides greater credits per hectare for cleared land than vegetated land as there will be a greater increase in biodiversity benefit from rehabilitating degraded areas.

- GHD's estimate has not taken into account the different vegetation types on the property, specifically between the vegetation type to be cleared, the swamp sclerophyll forest, and the majority of the vegetation proposed to be offset being the heathland vegetation type. BioBanking requires the vegetation offset to be of the same type as the vegetation to be cleared, i.e. 'like for like'.

- The very brief justification provided by GHD is lacking in detail and appears to incorrectly apply the BioBanking Assessment Methodology as stated above.

- OEH has undertaken a desktop analysis of the proposed offset and applied the BioBanking Assessment Methodology to provide greater clarity of the offset considerations. This demonstrates that the impact to 1.3ha of swamp sclerophyll forest Endangered Ecological Community (EEC) would require approximately 41 ecosystem credits to be retired.

- The current proposed offset appears to only provide 1.1ha of this EEC and an additional 3.2ha of heathland vegetation type.

- Based on the onsite EEC condition, the proposed 1.1ha onsite offset would need to be increased to 3.8ha to provide the approximate 41 ecosystem credits for the EEC vegetation type. This calculation has factored in a relatively low offset ratio due to the rehabilitation works that are required to re-establish the EEC on site. A larger area of EEC may be required, depending on its condition, to fulfil the 41 ecosystem credits if an existing EEC vegetation community was to be considered offsite.

- OEH is willing to work with Council to ensure an appropriate biodiversity offset is provided.

Recommendations:

- Council should consult with the applicant to determine whether:
  - the existing onsite EEC offset can be expanded to an area of 3.8ha to provide a 'like for like' offset; or,
  - an alternative offsite EEC offset can be sourced.

- If the above options are not viable, Council should request the applicant to develop and justify the proposed offset in accordance with the '*OEH principles for the use of biodiversity offsets in NSW*'.

NSW GOVERNMENT | Office of Environment & Heritage

13 JUL 2015

Your reference: DA2015.130
Our reference: DOC15/232361
Contact: Krister Waern 6640 2503

SCANNED
13 JUL 2015
Doc. No. .....

General Manager
Richmond Valley Council
Locked Bag 10
Casino NSW 2470

Attention: Mr Dylan Johnstone

Dear Mr Walker

Re: Biodiversity Offset Assessment - Development Application No.2015.130 – Designated Development – Expansion of Existing Quarry, Doonbah

Thank you for your email dated 22 June 2015 requesting comment from the Office of Environment and Heritage (OEH) in relation to the proposed biodiversity offset. I appreciate the opportunity to provide input.

Further to our previous correspondence of 20 January 2015 and 20 May 2015 regarding the proposed quarry expansion, OEH provides the following comments for consideration:

- The area size and type of vegetation proposed for rehabilitation and protection as an offset appears to satisfy the preliminary BioBanking calculations that OEH prepared for the proposed quarry expansion.
- We note that the location and shape of the two offset areas is not ideal as it abuts the proposed quarry expansion and the two offset areas are not connected by vegetation.
- The details of a rehabilitation plan and a securing mechanism for the offset areas have not been provided. We are willing to assist Richmond Valley Council in reviewing these important elements of the proposal if Council approves the development application.

We recommend that:

1. Council should impose a condition of approval to ensure that a detailed rehabilitation plan is prepared to the satisfaction of Council and implemented for the proposed offset areas;
2. Prior to determining the development application Council should ensure that the proposed offset areas are appropriately secured for biodiversity protection in perpetuity via a suitable regulatory mechanism; and,

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3. Council should satisfy itself that the proposed offset areas are not impacted by the approval of the quarry expansion over time by imposing appropriate conditions of consent to prevent and/or mitigate such potential impacts.

If you require further information or clarification or should Council be in possession of information that suggests that OEH's statutory interests may be affected, please contact Senior Operations Officer, Mr Krister Waern, on 6640 2503.

Yours sincerely

Dimitri Young 7 July 2015

DIMITRI YOUNG
Senior Team Leader Planning, North East Region
Regional Operations

Department of Primary Industries
Office of Water

Contact Peter Hackett
Phone 02 66416563
Fax 02 66416642
Email Peter.Hackett@dpi.nsw.gov.au
Our ref 9058921
Your ref DA2015.130

Dylan Johnstone
Richmond Valley Council
Locked Bag 10
CASINO NSW 2470

24th June 2015

Dear Dylan,

Development Application 2015.130 - Expansion of Doonbah Quarry - 499 Woodburn Evans Head Road Doonbah.

The NSW office of Water has reviewed the submissions concerning the expansion of the quarry including the Rous Water submission and offers the following comments for consideration.

NOW considers that the development of the comprehensive groundwater management plan and ASS management plan required in the general terms of approval will address the concerns raised in the submissions. The required monitoring program and contingency requirements should adequately mitigate the issues raised in the submissions and it is considered that the development therefore will have minimal impact on groundwater levels and quality in the area.

The Office of Water will require a security deposit to protect the environment and the TWS bore field from any unforeseen adverse impacts. The management plans should be undertaken with particular consideration of the sensitive areas of the bore field and the national park estate nearby.

If you have any further questions, please contact me at the Grafton office.

Yours sincerely

Water Regulation Officer
Grafton

Department of Primary Industries
Office of Water

Contact: Vanessa Sultmann
Phone: 02 6676 7382
Fax: 02 6676 7388
Email: vanessa.sultmann@dpi.nsw.gov.au
Our ref: 30 ERM2014/1163
Our file: 9058921
Your ref: DA2015.130

- 2 FEB 2015

The General Manager
Richmond Valley Council
Locked Bag 10
Casino NSW 2470

Attention: Dylan Johnstone

29 January 2015

Dear Sir/Madam

Re: Integrated Development Referral – General Terms of Approval
Dev Ref: DA2015.130
Description of proposed activity: Extractive Industry - Sand Extraction
Site location: 499 Woodburn-Evans Head Road, Doonbah

I refer to your recent letter regarding an integrated Development Application (DA) proposed for the subject property. Attached, please find the Office of Water's General Terms of Approval (GTA) for works requiring a licence under the *Water Act 1912* (W Act), as detailed in the subject DA.

Please note Council's statutory obligations under section 91A (3) of the *Environmental Planning and Assessment Act 1979* (EPA Act) which requires a consent, granted by a consent authority, to be consistent with the general terms of any approval proposed to be granted by the approval body.

If the proposed development is approved by Council, the Office of Water requests that these GTA be included (in their entirety) in Council's development consent. Please also note the following:

- The Office of Water should be notified if any plans or documents are amended and these amendments significantly change the proposed development or result in additional works on waterfront land (which includes (i) the bed of any river together with any land within 40 metres inland of the highest bank of the river, or (ii) the bed of any lake, together with any land within 40 metres of the shore of the lake, or (iii) the bed of any estuary, together with any land within 40 metres inland of the mean high water mark of the estuary).

- Once notified, the Office of Water will ascertain if the amended plans require review or variation/s to the GTA. This requirement applies even if the proposed works are part of Council's proposed consent conditions and do not appear in the original documentation.

- The Office of Water should be notified if Council receives an application to modify the development consent and the modifications change any activities on waterfront land.

- The Office of Water requests notification of any legal challenge to the consent.

As interception of groundwater should not commence before the applicant applies for and obtains a licence, the Office of Water recommends the following condition be included in the development consent:

> "The Construction Certificate will not be issued over any part of the site requiring a licence until a copy of the licence has been provided to Council".

The attached GTA are not the licence. The applicant must apply (to the Office of Water) for a licence **after consent** has been issued by Council **and before** the commencement of any work or activity that interferes with groundwater.

Finalisation of a licence can take up to eight (8) weeks from the date the Office of Water receives all documentation (to its satisfaction). Applicants must complete and submit (to the undersigned) an application form for a licence together with any required plans, documents, the appropriate fee and security deposit or bank guarantee (if required by the Office or Water) and proof of Council's development consent.

Application forms for the licence are available from the undersigned or from the Office of Water's website:
www.water.nsw.gov.au

The Office of Water requests that Council provide a copy of this letter to the applicant.

The applicant's attention is specifically drawn to condition (11) which requires that a security deposit be lodged with the Office of Water.

The Office of Water also requests that Council provides the Office of Water with a copy of the determination for this development application as required under section 91A (6) of the EPA Act.

Yours Sincerely

Peter Hackett
Water Regulation Officer
Office of Water - Water Regulation, North & North Coast

NSW Office of Water

GENERAL TERMS OF APPROVAL FOR A LICENSE UNDER THE WATER ACT 1912 FOR DEVELOPMENT APPLICATION NUMBER__DA_2015.130

General Conditions (all approvals)

The purposes of these conditions are to:

- Define certain terms used in other conditions
- Specify the need to obtain a license, permit or authority before commencing any works
- Specify that, in most cases an approval will only be issued to the occupier of the lands where the works are to be located (as required by the Water Act)
- Require existing approvals to be cancelled or let lapse when a license is issued (if applicable)
- Require the safe construction and operation of all works
- Require the use of appropriate soil conservation measures
- Limit vegetation destruction or removal to the minimum necessary
- Require the separate authorisation of clearing under the NVC Act
- Allow conditions to be imposed for management of fuel (petroleum)

In the following conditions relating to an approval under the Water Act 1912;
'the department' means the department administering the Water Act 1912;
'approval' means a license, permit, authority or approval under that Act;
'river' has the same meaning as in Section 5 of the Water Act 1912;
'work' means any structure, earthwork, plant or equipment authorised under the approval to be granted, as defined in Section 5 and 105 of the Water Act 1912;
controlled work' means any earthwork, embankment or levee as defined in Section 165 of the Water Act 1912

Before commencing any works or using any existing works for the purpose of industrial (sand & gravel extraction) an approval under Part V of the Water Act 1912 must be obtained from the department. The application for the approval must contain sufficient information to show that the development is capable of meeting the objectives and outcomes specified in these conditions.

An approval will only be granted to the occupier of the lands where the works are located, unless otherwise allowed under the Water Act 1912.

When the department grants an approval, it may require any existing approvals held by the applicant relating to the land subject to this consent to be surrendered or let lapse.

All works subject to an approval shall be constructed, maintained and operated so as to ensure public safety and prevent possible damage to any public or private property.

All works involving soil or vegetation disturbance shall be undertaken with adequate measures to prevent soil erosion and the entry or sediments into any river, lake, waterbody, wetland or groundwater system.

The destruction of trees or native vegetation shall be restricted to the minimum necessary to complete the works.

All vegetation clearing must be authorised under the Native Vegetation Conservation Act 1997, if applicable.

The approval to be granted may specify any precautions considered necessary to prevent the pollution of surface water or groundwater by petroleum products or other hazardous materials used in the construction or operation of the works.

A license fee calculated in accordance with the Water Act 1912 must be paid before a license can be granted.

Conditions of water use (including irrigation)

The purpose of these conditions are to:

- Allow the department to obtain an accurate measure of water use where necessary
- Specify the purpose(s) for which the water may be used

If and when required by the department, suitable devices must be installed to accurately measure the quality of water extraction or diverted by the works.

All water measuring equipment must be adequately maintained. It must be tested as and when required by the department to ensure its accuracy.

The water extracted under the approval to be granted shall be used for the purpose of industrial (sand & gravel extraction)and for no other purpose. A proposed change in purpose will require a replacement license to be issued.

Conditions for bores and wells

See also 'general conditions' and 'conditions for water use'

The purpose of these conditions are to:

- Set a limited period bore construction
- Require the bore to be properly completed and sealed
- Require certain information to be provided on completion of the work, including a location plan
- Allow NOW access for inspection and testing
- Specify procedures if saline or polluted water found
- Specify a volumetric allocation for the works purpose
- Allow NOW to alter the allocation at any time

Works for construction of bore must be completed with such period as specified by the department.

Within two months after the works are completed the department must be provided with an accurate plan of the location of the works and notified of the results of any pumping tests, water analysis and other details as are specified in the approval.

Any water extracted by the works must not be discharged into any watercourse or groundwater if it would pollute that water.

The department has the right to vary the volumetric allocation or the rate at which the allocation is taken in order to prevent the overuse of an aquifer.

(1) The licensee must allow authorised officers of the NSW office of Water, and its authorised agents reasonable access to the works with vehicles and equipment at any time for the purposes of:

- Inspecting the said work
- Taking samples of any water or material in the work and testing the samples.

(2) The licensee shall within 2 weeks of being notified install to the satisfaction of the NSW Office of Water in respect of location, type and construction an appliance(s) to measure the quantity of water extracted from the works. The appliance(s) to consist of either a measuring weir or weirs with automatic recorder, or meter or meter(s) of measurement as may be approved by the NSW Office of Water. The appliance(s) shall be maintained in good working order and condition. A record of all water extracted from the works shall be kept and supplied to the NSW Office of Water upon request. The licensee when requested must supply a test certificate as to the accuracy of the appliance(s) furnished either by the manufacturer or by some person duly qualified.

(3) The authorised work shall not be used for the discharge of polluted water into a river or lake otherwise than in accordance with the conditions of a licence granted under the protection of the environment operations act 1997. A copy of the licence to discharge is to be provided to the NSW Office of Water.

(4) The term of this licence shall be five (5) years.

(5) The volume of groundwater authorised from the work by this licence shall not exceed 300 megalitres per water year.

(6) The authorised work shall not be used for the discharge of water unless the ph of the water is between 6.5 and 8.5, or the water has been treated to bring the ph to a level between 6.5 and 8.5 prior to discharge, or the water is discharged through the council's sewerage treatment system.

(7) The licensee shall test the ph of any water extracted from the work prior to the commencement of any discharge and at least twice daily thereafter and record the date, time and result of each test in the site log. A copy of the records of the ph testing is to be returned with the form 'ag'.

(8) A modified Groundwater Management Plan must be developed for the site including a comprehensive monitoring bore network, a comprehensive list of analytes, and proposed threshold values for parameters with contingency and reporting measures outlined for threshold breaches.

(9) An acid sulphate soil management plan to the satisfaction of the NSW Office of Water must be developed for the site in accordance with the ASSMAC guidelines which includes management of impacts on both soils and the pit water. The need for procedures such as mechanical removal of ASS fines and lime dosing should be considered.

(10) The works shall be managed in accordance with the approved Acid Sulfate Soil Management Plan.

(11)A Security Deposit will be required for remediation of the site for events that may cause adverse environmental impacts occurring from operation of the quarry including groundwater quality impacts within the groundwater excavation at the site.

Protection of the Environment Operations Act 1997

General Terms of Approval - Issued

Notice No: 1527092

Richmond Valley Council

Locked Bag 10

Casino NSW 2470

Attention: Dylan Johnstone

30 JAN 2015

Notice Number	1527092
File Number	EF13/8208
Date	30-Jan-2015

Re: Development Application - Designated Development - No 2015.130 Expansion of Existing Quarry to a maximum 490,000 tonnes per annum from a total resource of 4 million tonnes

Issued pursuant to Section 91A(2) Environmental Planning and Assessment Act 1979

I refer to the development application and accompanying information provided for the Development Application No. 2015-130 received by the Environment Protection Authority (EPA) on 10 December 2014.

EPA has reviewed the information provided and has determined that it is able to issue a licence for the proposal, subject to a number of conditions. The applicant will need to make a separate application to EPA to obtain this licence.

The general terms of approval for this proposal are provided in Attachment A. If Richmond Valley Council grants development consent for this proposal these conditions should be incorporated into the consent.

These general terms relate to the development as proposed in the documents and information currently provided to EPA. In the event that the development is modified either by the applicant prior to the granting of consent or as a result of the conditions proposed to be attached to the consent, it will be necessary to consult with EPA about the changes before the consent is issued. This will enable EPA to determine whether its general terms need to be modified in light of the changes.

The EPA will be requiring noise mitigation measures in any Environment Protection Licence issued for the premises. This will including the sealing of the haul road / access road on the quarry premises. However any licence is restricted to the profit a prendre area. The EPA therefore strongly recommends that any consent granted by Council mandate the sealing of the quarry haul road / access road, including from the boundary of the profit a prendre area south to Evans Head Road, prior to the development operating.

General Terms of Approval - Issued

Notice No: 1527092

Consent conditions requiring the installation of noise mitigation measures along the quarry haul road, including from the boundary of the profit a prendre area south to Evans Head Road (for example noise walls/fencing/staged acoustic barriers/earthen mounds), should also be included.

If you have any questions, or wish to discuss this matter further please contact Geff Cramb on (02) 6640 2513.

Yours sincerely

.....

Graeme Budd

Head Environmental Management Unit

North - North Coast

(by Delegation)

General Terms of Approval - Issued

Notice No: 1527092

Attachment A - General Terms of Approval for Doonbah Quarry non-mandatory conditions

Administrative conditions

A1. Information supplied to the EPA

A1.1 Except as expressly provided by these general terms of approval, works and activities must be carried out in accordance with the proposal contained in:

- The Development Application No. 2015.130 submitted to Richmond Valley Council; and,
- The environmental impact statement *Proposed Sand Quarry Expansion at Lot 2 DP 1040274 Doonbah Environmental Impact Statement* (EIS) dated November 2014 relating to the development.

A2. Fit and Proper Person

A2.1 The applicant must, in the opinion of the EPA, be a fit and proper person to hold a licence under the Protection of the Environment Operations Act 1997, having regard to the matters in s.83 of that Act.

Discharges to Air and Water and Applications to Land

P1.1 The following utilisation areas referred to in the table below are identified in the EPA's general terms of approval, or a licence under the Protection of the Environment Operations Act 1997, for the purposes of the monitoring and/or setting of limits for any application of solids or liquids to the utilisation area.

Water and Land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
Monitoring/Discharge Point 1	Water	N/A	Overflow point of temporary settling pond
Monitoring/Discharge Point 2	Water	N/A	Inflow into the excavation lake from the settling ponds processing/storing
Discharge Point 3	N/A	Water	South-west corner of the profit a prendre area (the premise) where water runs off-site
Groundwater 1	Water	N/A	Bore (GW1) to the East of the excavation lakes
Groundwater 2	Water	N/A	Bore (GW2) north of the Stage 1 Temporary Settling Pond
Groundwater 3	Water	N/A	Bore (GW3) South-West of the Stage 2 Temporary Settling Pond inside the profit a pendre boundary
Groundwater 4	Water	N/A	Proposed bore, down hydraulic

			gradient from site

P1.2 All location descriptions in the table above have been taken from the labels in *Rixa Quarries Pty Ltd Proposed Sand Quarry Expansion at Lot 2 DP 1040274, Doonbah Environmental Impact Statement* by GHD dated November 2014 in Figure 01 Appendices A - Quarry Plans.

Limit conditions

L1. Pollution of waters

L.1.1 Except as may be expressly provided by a licence under the Protection of the Environment Operations Act 1997 in relation of the development, section 120 of the Protection of the Environment Operations Act 1997 must be complied with in and in connection with the carrying out of the development.

L2. Concentration limits

L2.1 For each discharge point or utilisation area specified in the table/s below, the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentrations limits specified for that pollutant in the table.

L2.2 Where a pH quality limit is specified in the Table, the specified percentage of samples must be within the specified ranges.

L2.3 To avoid any doubt, this condition does not authorise the discharge or emission of any other pollutants.

L2.4 Water and/or Land Concentration Limits

Monitoing/Discharge Point 3 **Surface Water**

Pollutant	Units of Measurement	100% concentration limit
Total Suspended Solids	mg/L	50
pH	pH units	6.5-8.5
Oil and Grease	mg/L	10

L2.5 The concentration limits in the above table do not apply to any discharge from the sediment basin (at Point 1) solely arising from rainfall measured at the premises exceeding 82.5 mm in total falling over any consecutive five day period.

L2.6 If the applicant uses turbidity (NTU) in place of total suspended solids (TSS) to determine compliance with the EPA's general terms of approval, or a licence issued under the Protection of the Environment Operations Act 1997, the applicant must develop a statistical correlation which identifies the relationship between NTU and TSS for water quality in the sediment basin/s in order to determine the NTU equivalent of 50 mg/L TSS prior to its use.

L2.7 If the applicant uses turbidity (NTU) in place of total suspended solids (TSS) to determine compliance with the EPA's general terms of approval, or a licence issued under the Protection of the Environment Operations Act 1997, the applicant must provide the EPA with a copy of the statistical correlation assessment methodology and results before using NTU in place of TSS.

L2.8 If the applicant uses turbidity (NTU) in place of total suspended solids (TSS) to determine compliance with the EPA's general terms of approval, or a licence issued under the Protection of the Environment Operations Act 1997, the applicant must develop and implement a method to enable the ongoing verification of the relationship between NTU and TSS.

L2.9 If the applicant uses turbidity (NTU) in place of total suspended solids (TSS) to determine compliance with the EPA's general terms of approval, or a licence issued under the Protection of the Environment Operations Act 1997, the applicant must provide the EPA with any amendments the applicant makes to the statistical correlation as a result of the ongoing verification required by Condition L2.8 before using the revised statistical correlation.

L3. Waste

L3.1 The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by a licence under the Protection of the Environment Operations Act 1997.

L4. Noise limits

L4.1 Noise from the premises must not exceed an LAeq(15 minute) noise emission criterion of 41 dB(A), except as expressly provided by these general terms of approval:

L4.2 Noise from the premises is to be measured at the most affected residential receiver who has not given written permission for an exceedance of condition L4.1 to determine compliance with this condition.

L4.3 The noise limits set out in condition L4.1 apply under all meteorological conditions except for the following:

- Wind Speeds greater than 3 metres/second at 10 metres above ground level; or
- Temperature inversion conditions up to 3 degrees C/100m and wind speeds greater than 2 metres/second at 10 metres above ground level; or
- Temperature inversion conditions greater than 3 degrees C/100m.

L5. Blasting

L5.1 No blasting operation are permitted at the premises.

L6. Hours of operation

L6.1 Activities covered by the EPA's general terms of approval, or a licence under the Protection of the Environment Operations Act 1997, must only be carried out between the hours of 7:00 am and 6:00 pm Monday to Friday, and 8:00 am and 1:00 pm Saturday, and at no time on Sundays and Public Holidays.

L6.2 This condition does not apply to the delivery of material outside the hours of operation permitted by condition L6.1 if that delivery is required by police or other authorities for safety reasons; and/or the operation or personnel or equipment are endangered. In such circumstances, prior notification must be provided to the EPA and affected residents as soon as possible, or within a reasonable period in the case of emergency.

Notice No: 1527092

L6.3 The hours of operation specified in condition L6.1 may be varied with written consent if the EPA is satisfied that the amenity of the residents in the locality will not be adversely affected.

L6.4 Heavy vehicles (including excavators, dredges, haul trucks, front end loader and water carts) and machinery (including screening plant, water pump, cyclone, generator, cyclone pump and water pump) cannot be started, maintained, arrive or leave the site or operated outside of operating hours as detailed in L6.1 and at no time on Sundays and Public Holidays.

Operating conditions

O1. Dust

O1.1 Activities occurring at the premises must be carried out in a manner that will minimise emissions of dust from the premises.

O2. Processes and management

O2.1 Sediment basins shall be treated, if required, to reduce the Total Suspended Solids level to the concentration limit of 50 mg/L provided by the EPA's general terms of approval, or a licence under the Protection of the Environment Operations Act 1997, before being released to the environment. Treatment can be with gypsum or any other material that has been approved by the EPA.

O2.2 The applicant must maximise the diversion of run-on waters from lands upslope and around the site whilst land disturbance activities are being undertaken.

O2.3 The applicant must maximise the diversion of stormwater runoff containing suspended solids to sediment basins installed on the premises.

O2.4 Where sediment basins are necessary, all sediment basins and associated drainage must be installed and commissioned prior to the commencement of any clearing or grubbing works within the catchment area of the sediment basin that may cause sediment to leave the site.

O2.5 The applicant must ensure the design storage capacity of the sediment basins installed on the premises is reinstated within 5 days of the cessation of a rainfall event that causes runoff to occur on or from the premises.

O2.6 The applicant must ensure that sampling point(s) for water discharged from the sediment basin(s) are provided and maintained in an appropriate condition to permit:
a) the clear identification of each sediment basin and discharge point;
b) the collection of representative samples of the water discharged from the sediment basin(s); and
c) access to sampling point(s) at all times by an authorised officer of the EPA.

O2.7 Each sedimentation basin must have a marker (the "sediment basin marker") that identifies the upper level of the sediment storage zone.

O2.8 Whenever the level of liquid and other material in any sedimentation basin exceeds the level indicated by the sedimentation basin marker, the licensee must take all practical measures as soon as possible to reduce the level of liquid and other material in the sedimentation basin.

O2.9 All liquid chemicals, fuels and oils must be stored in tanks or containers inside suitable bund(s). Bund(s) are to be designed, constructed and maintained in accordance with AS1940-2004 Storage and Handling of Flammable and Combustible Liquids.

O2.10 Any water re-entering the excavation lake from processing/storage needs to be neutralised to a pH between 6.5 and 8.5 before being discharged.

O2.11 There can be no de-watering/draining of the excavation lake.

O2.12 All material that is excavated from below 4 metres of the original land surface, must be excavated from under the surface of the lake for the purpose of risk minimisation with regard to acid sulphate soils.

O2.13 The licensee can accept imported material on site for the purpose of blending. This can only include rock, topsoil or landscaping products. The amount imported onto the premises must be weighed and recorded. As this imported material will be stored on the premises, it's volume (tonnage) will count towards the 'scale' of the activity i.e. <490,000 tonnes.

O2.14 Excavation activity must maintain at least a 10 metre buffer within the proposed excavation extent until the full depth of the quarry is reached and stable.

Monitoring and recording conditions

M1. Monitoring records

M1.1 The results of any monitoring required to be conducted by the EPA's general terms of approval, or a licence under the Protection of the Environment Operations Act 1997, in relation to the development or in order to comply with the load calculation protocol must be recorded and retained as set out in conditions M1.2 and M1.3.

M1.2 All records required to be kept by the licence must be:

a) in a legible form, or in a form that can readily be reduced to a legible form;

b) kept for at least 4 years after the monitoring or event to which they relate took place; and

c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected: the date(s) on which the sample was taken;

a) the time(s) at which the sample was collected;

b) the point at which the sample was taken; and

c) the name of the person who collected the sample.

M2. Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/ discharge point or utilisation area specified below (by a point number), the applicant must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The applicant must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

Water and Land - Monitoring/Discharge Point 1, 2

Pollutant	Units of Measurement	Frequency
Total Suspended Solids	mg/L	Special Frequency 1
pH	pH units	Special Frequency 1
Oil and Grease	mg/L	Special Frequency 1

< *Special Frequency 1* means sampling any discharge, whether controlled or otherwise, which has not occurred from rainfall exceeding 82.5mm over any consecutive five day period.

Goundwater - Monitoring Point 1, 2, 3, 4

Pollutant	Units of Measurement	Frequency
Water Level	meters (AHD)	Quarterly
pH	pH units	Quarterly
Oil and Grease	mg/L	Quarterly

M3. Testing methods - concentration limits

M3.1 Subject to any express provision to the contrary of the EPA's general terms of approval, or a licence under the Protection of the Environment Operations Act 1997, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

M4. Environmental monitoring

M4.1 The applicant is required to install and maintain a rainfall depth measuring device.

M4.2 Rainfall at the premises must be measured and recorded in millimetres per 24 hour period, at the same time each day.

Note: The rainfall monitoring data collected in compliance with Condition M4.2 can be used to determine compliance with L2.4.

M5. Other monitoring and recording condition

M5.1 For the purposes of monitoring for compliance with the noise limit conditions of the EPA's general terms of approval, or a licence under the Protection of the Environment Operations Act 1997, (condition L4) noise emitted from the premises must be measured or computed at 30 metres from the nearest residential dwelling/s over a period of 15 minutes using the "FAST" response on the sound level meter. A modifying factor correction must be applied for tonal, impulsive, or intermittent noise in accordance with the document NSW Industrial Noise Policy (NSW EPA, January 2000).

M5.2 For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.

Reporting conditions

R1.1 The applicant must provide an annual return to the EPA in relation to the development as required by any licence under the Protection of the Environment Operations Act 1997 in relation to the development. In the return the applicant must report on the annual monitoring undertaken (where the activity results in pollutant discharges), provide a summary of complaints relating to the development, report on compliance with licence conditions and provide a

calculation of licence fees (administrative fees and, where relevant, load based fees) that are payable. If load based fees apply to the activity the applicant will be required to submit load-based fee calculation worksheets with the return.

Special Conditions

E1. Noise management

E1.1 The proponent must prepare and implement an Operational Noise Management Plan that covers all quarry extraction, processing and transport operations. The plan must include but not be limited to:

a) Ongoing assessment of feasible and reasonable noise mitigation measures that will be applied at the premises to consistently achieve the noise limits prescribed in **Condition L4.1**;
b) A system that allows for periodic assessment of Best Management Practice (BMP) and Best Available Technology Economically Achievable (BATEA) to minimise noise impacts over the life of the proposal;
c) Measures to monitor noise performance and respond to complaints;
d) Measures for community consultation including site contact details;
e) Noise monitoring, and reporting procedures.

DUE DATE: This management plan is to be submitted to the EPA prior to the commencement of quarrying activities under this approval/licence.

E1.2 The applicant must implement at a minimum, the noise mitigation measures as outlined in the EIS before the Environment Protection Licence will be issued.

E1.3 A noise compliance assessment shall be undertaken within three months of the issue of the Environment Protection Licence. The assessment must be conducted by a suitably qualified and experienced acoustical practitioner and shall assess compliance with noise limits presented in **Condition L4.1.** The assessment must recommend further noise mitigation works/strategies where necessary.

E2. Acid Sulphate Soil Management Plan

E2.1 The applicant must prepare an Acid Sulphate Soil Management Plan as recommended in Appendices C - Acid Sulphate Soil Assessment in Doonbah Quarry's Soil and Water Management Plan completed by GHD dated November 2014. This Acid Sulphate Soil Management Plan must be in accordance with *Acid Sulphate Soil Manual* by the NSW Acid Sulphate Soil Management Advisory Committee August 1998.

E3. Sealing of the quarry access road

E3.1 The applicant must seal the access road north from the profit a prendre boundary to the weighbridge to control: noise and dust pollution; stabilise the road; and, reduce tracking of material onto public roads. This must be completed before the Environment Protection Licence is issued.

E4. Sediment basin sizing

E4.1 The temporary settling ponds designed to treat any water leaving the excavation lake must be sized according to *Landcom - Soils and Construction, Volume 1, 4th Edition, March 2004* "Blue Book". Sizing calculations for these basins must be based on a 82.5mm 5 day rainfall event and must be sent to the EPA prior to issue of the Environment Protection Licence.

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E5. Groundwater monitoring

E5.1 The groundwater monitoring bore proposed on the western boundary, in Doonbah Quarry's Soil and Water Management Plan completed by GHD dated November 2014, must be installed and monitored as soon as possible. This must be completed prior to the issue of the Environment Protection Licence.

E6. Road traffic noise management plan

E6.1 The proponent must prepare and implement a Traffic Noise Management Plan (TNMP), prior to commencement of operation activities that includes but is not necessarily limited to:

a) identification of all potentially affected sensitive receivers in the vicinity of the site,
b) the traffic noise objectives,
c) an assessment of potential noise from traffic movements associated with the quarry against the objectives,
d) identification and application of feasible and reasonable noise management strategies for vehicle movements associated with the quarry, including but not necessarily limited to the following;
   I. driver training to ensure that noisy practices such as the use of compression engine brakes are not unnecessarily used near sensitive receivers;
   II. best noise practice in the selection and maintenance of vehicle fleets;
   III. movement scheduling where practicable to reduce impacts during sensitive times of the day (eg school bus times);
   IV. communication and management strategies for non-quarry owned and operated vehicles to ensure the provisions of the TNMP are implemented;
   V. a system of audited management practices that identifies non conformances, initiates and monitors corrective and preventative action (including disciplinary action for breaches of noise minimization procedures) and assesses the implementation and improvement of the TNMP;
   VI. specific procedures for drivers for minimising road traffic noise impacts;
   VII. clauses in conditions of employment, or in contracts, of drivers that require adherence to the noise minimisation procedures and facilitate effective implementation of the disciplinary actions for breaches of the procedures.

DUE DATE: This management plan is to be submitted to the EPA prior to the commencement of quarrying activities under this approval/licence.

E7. Environmental management plan

E7.1 The proponent must prepare and implement an Environmental Management Plan. The plan must be as per the EIS (including Chapter 6 of the EIS).

E8. Waste management plan

E8.1 The proponent must prepare and implement an Waste Management Plan. The plan must be as per the EIS (including Chapter 5 of the EIS).

Attachment B – Mandatory conditions for all EPA licences

Operating conditions

Activities must be carried out in a competent manner

Licensed activities must be carried out in a competent manner.

This includes:

- the processing, handling, movement and storage of materials and substances used to carry out the activity; and,
- the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

Maintenance of plant and equipment

All plant and equipment installed at the premises or used in connection with the licensed activity:

- must be maintained in a proper and efficient condition; and,
- must be operated in a proper and efficient manner.

Monitoring and recording conditions

Recording of pollution complaints

The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

The record must include details of the following:

- the date and time of the complaint;
- the method by which the complaint was made;
- any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
- the nature of the complaint;
- the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
- if no action was taken by the licensee, the reasons why no action was taken.

The record of a complaint must be kept for at least 4 years after the complaint was made.

The record must be produced to any authorised officer of the EPA who asks to see them.

Telephone complaints line

The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

Notice No: 1527092

The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

This condition does not apply until 3 months after this condition takes effect.

Reporting conditions

Annual Return documents

What documents must an Annual Return contain?

The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:

- a Statement of Compliance; and,
- a Monitoring and Complaints Summary.

A copy of the form in which the Annual Return must be supplied to the EPA accompanies this licence. Before the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

Period covered by Annual Return

An Annual Return must be prepared in respect of each reporting, except as provided below

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

Where this licence is transferred from the licensee to a new licensee,

- the transferring licensee must prepare an annual return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
- the new licensee must prepare an annual return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an annual return in respect of the period commencing on the first day of the reporting period and ending on

- in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
- in relation to the revocation of the licence – the date from which notice revoking the licence operates.

Deadline for Annual Return

The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

Licensee must retain copy of Annual Return

The licensee must retain a copy of the annual return supplied to the EPA for a period of at least 4 years after the annual return was due to be supplied to the EPA.

Certifying of Statement of Compliance and Signing of Monitoring and Complaints Summary

Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:

(a) the licence holder; or

(b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

A person who has been given written approval to certify a Statement of Compliance under a licence issued under the Pollution Control Act 1970 is taken to be approved for the purpose of this condition until the date of first review this licence.

Notification of environmental harm

Note: The licensee or its employees must notify the EPA of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act

Notifications must be made by telephoning the EPA's Pollution Line service on 131 555.

The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

Written report

Where an authorised officer of the EPA suspects on reasonable grounds that:

a) where this licence applies to premises, an event has occurred at the premises; or

b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence, and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

The request may require a report which includes any or all of the following information:

- the cause, time and duration of the event;
- the type, volume and concentration of every pollutant discharged as a result of the event;
- the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event; and
- the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
- action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
- details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event;
- any other relevant matters.

The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

General Terms of Approval - Issued

Notice No: 1527092

General conditions

Copy of licence kept at the premises or on the vehicle or mobile plant

A copy of this licence must be kept at the premises or on the vehicle or mobile plant to which the licence applies.

The licence must be produced to any authorised officer of the EPA who asks to see it.

The licence must be available for inspection by any employee or agent of the licensee working at the premises or operating the vehicle or mobile plant.

Dylan Johnstone

From: Geff Cramb <Geff.Cramb@epa.nsw.gov.au>
Sent: Tuesday, 28 July 2015 11:30 AM
To: Andrew Hanna
Cc: Dylan Johnstone
Subject: (DWS Doc No 1089338) RE: Doonbah Quarry - EPA General Terms of Approval

Andrew

Thanks for the email.

EPA confirm that the below is satisfactory to the EPA and Richmond Valley Council can proceed with the amendments including amending condition E1.2 as below and deleting condition E6 from the General Term Of Approval – Issued by the EPA, Notice No. 1527092.

Regards
Geff

Geff Cramb | Operations Officer - North Coast | NSW Environment Protection Authority | (: (02) 6640 2510 7 :(02) 6640 2539 8 : geff.cramb@epa.nsw.gov.au

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From: Andrew Hanna [mailto:andrew.hanna@richmondvalley.nsw.gov.au]
Sent: Thursday, 23 July 2015 5:28 PM
To: Cramb Geff
Cc: Dylan Johnstone
Subject: RE: Doonbah Quarry - EPA General Terms of Approval

Thanks Geff for the response below and subsequent phone discussion with Dylan Johnstone and myself. Council notes that the area of responsibility / regulatory control for the EPA is within the Profit a Prendre area only.

As an outcome of our talk and your email below, the following amendments to the EPA's General Terms Of Approval – Issued, Notice No. 1527092 for the proposed expansion of Doonbah quarry at Lot 2 DP 1040274 is proposed as follows;

Special condition E1.2
This be amended as recommended below. Council considers that the changes to the condition make the requirements clearer for the proponent and require submission of a further report to verify that they have implemented the recommended noise mitigation measures. A reporting requirement tends to better secure compliance.

Proposed amended special condition E1.2

- All noise mitigation measures that relate to works and or actions within the Profit a Prendre and recommended in Section 5 of the report titled "Appendix E - Noise Impact Assessment" prepared by GHD dated November 2014 must be implemented and complied with. To this extent the relevant measures recommended in sections 5.1.1, 5.1.2, 5.2, 5.3 and 5.4 of the GHD report shall be implemented. A report from a suitably qualified acoustic engineer detailing that all recommendations have been implemented must be submitted to and approved by the EPA prior to issue of the Environment Protection Licence.

Special condition E3.1
Council is now aware that the area under the EPA's regulatory control is within the Profit a Prendre only. Therefore Council will formulate a condition to put on the DA requiring works on the access road outside this area to ensure

compliance with recommendations in the GHD noise assessment. This will be a Council condition to be regulated by Council.

Special condition E6
As discussed a condition about road traffic noise is necessary. However as you identify this relates to issues outside the Profit a Prendre the EPA will not regulate the condition E6 even though you include it as a GTA. Council recommends that your condition E6 be removed from the GTA document and instead Council use the condition or a variation of the condition in the consent. This way ongoing compliance can be regulated by Council.

Please confirm that the above is satisfactory to the EPA and that Council can proceed with the amendments including amending condition E1.2 as above and deleting condition E6 from the General Term Of Approval – Issued by the EPA, Notice No. 1527092.

If you have any further queries please don't hesitate to contact me on the number below or Dylan Johnstone on 6660 0261.

Regards,

Andrew Hanna
Coordinator Environment and Regulatory Control
Richmond Valley Council | Locked Bag 10, CASINO NSW 2470
T: 02 6660 0345 | F: 02 6660 1300 | M: 0447 283 925
E: andrew.hanna@richmondvalley.nsw.gov.au | www.richmondvalley.nsw.gov.au

File No: NTH13/ 00047, CR 2014/006119

The General Manager
Richmond Valley Council
Locked Bag 10
CASINO NSW 2470

Attention Dylan Johnstone

Dear Sir

Development Application No. 2015.130 Designated Development Proposed Expansion of Existing Quarry to a Maximum 490,000 tonnes Per Annum.

I refer to your letter of 4 December 2014, about a development application for an increased extraction rate of the existing Doonbah Quarry at Evans Head.

Roles & Responsibilities

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

In accordance with *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* Clause 16(3), Roads and Maritime is given the opportunity to review and provide comment on the quarry expansion.

Comments

Roads and Maritime provides the following comments to assist the consent authority in making a determination:

1. An AUSTROADS Guide to Road Design Part 4A Figure 8.2 basic left turn treatment should be considered at the junction of the quarry access and the Woodburn Evans Head Road.
2. Hinged truck turning signs should be provided on the Evans Head Woodburn Road in advance of the quarry access. These signs should be displayed when quarry haulage is taking place.
3. A Drivers Code of Conduct could be prepared to address, but not be limited to, the following:
    - A map of primary haulage routes highlighting critical locations;
    - Safety initiatives for trucks travelling along school bus routes and through residential areas and school zones;
    - An induction process for vehicle operators;
    - Format of regular toolbox meetings;
    - A complaints resolution and disciplinary procedure; and
    - Any community consultation measures to address peak haulage periods.

4. A contribution should be collected towards the maintenance of Council's road network.

If you require further information please contact Mr Michael Baldwin on 6640 1362 or email Development.Northern@rms.nsw.gov.au.

Yours faithfully

23 December 2014

for Peter Lane
Acting Network and Safety Manager, Northern Region

Steve

I have presented the two developments

Development Application

No 2015.130 – Expansion of Existing Quarry to a maximum 490,000 tonnes from a total resource of 4 million.

No 2015.096 - Land to Create 186 Lots and Associated Works & Infrastructure, Iron Gates Evans Head.

To the local Traffic Committee for consideration As Per RMS Document ' Delegation to Councils for the Regulation of Traffic ' Section 8 – Traffic Engineering Advice

I have received 3 replies and have copied the emails below.

Electronic Traffic Committee Meeting 06 January 2015

LTC Members

As discussed previously, single items that would not, on their own, require a meeting can be dealt with by email correspondence between LTC committee members.

This is to free up committee members time and to expedite relatively simple items in a more efficient manner

Your prompt responses would be appreciated.

Please respond to all members collectively so that all members can assess the information given.

I will summarise and advise of the LTC decision for agreement of all parties before reporting to Council.

Informal Item Only; As Per RMS Document ' Delegation to Councils for the Regulation of Traffic ' Section 8 – Traffic Engineering Advice

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Council is currently processing 2 x Development Applications being Nos 2015.130 and No 2015.096 which have been submitted by CJ Ubergang and Gold Coral Pty Ltd.

Development Application

No 2015.130 – Expansion of Existing Quarry to a maximum 490,000 tonnes from a total resource of 4 million.

No 2015.096 - Land to Create 186 Lots and Associated Works & Infrastructure, Iron Gates Evans Head.

As Per RMS Document ' Delegation to Councils for the Regulation of Traffic ' Section 8 – Traffic Engineering Advice

Council would appreciate input from the LTC members in regard to these DA applications and their traffic impact concerns if any.

Council will use any outcome from the input of LTC members in its consideration of the application.

The application process has time restrictions and as such I would ask that you respond to me with any comments , advice or concerns by 30 Jan 2015.

As the applications are quite large I have attached hyperlinks to the relevant areas of Councils website.

Please see attached Drop box Hyperlink for documentation.

http://www.richmondvalley.nsw.gov.au/page/Planning__Development/Development_Consents__Proposals/Iron_Gates_residential_subdivision/

http://www.richmondvalley.nsw.gov.au/page/Planning__Development/Development_Consents__Proposals/

If for any reason these are inaccessible please contact me directly

Regards

Graeme

Graeme Robertson
Asset Administrator
Richmond Valley Council | Locked Bag 10, CASINO NSW 2470
T: 02 6660 0293 | F: 02 6660 1300 | M: 0457 505 621
E: graeme.robertson@richmondvalley.nsw.gov.au | www.richmondvalley.nsw.gov.au

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Afternoon Graeme and TLC Members,

With regards to the Iron Gates DA,I would be concerned about roads OUT in case of Bush Fires with an extra 150 plus cars inside the estate.

As for the Quarry expansion ,there would have to be a STOP sign for trucks coming onto Woodburn Road plus warning signs for existing traffic about trucks entering and exiting and consideration for lower speed on Woodburn Road for a small section.

Kindest regards

Ray

I think the points Ray makes are both Valid. I have nothing more to Ad. Ta

Daniel Simpson

Hi all,

Iron Gates development - On the face of things I don't see any major problems, however, if approved and in the later stages of development there may be a need to look at a treatment option (ie roundabout or similar) at the intersection of Wattle Street and Woodburn Street if, of course, issues are experienced with the increase in activity.

Quarry expansion - My concern is the dramatic increase in truck movements (an expected 140 per day) and I'm wondering if it would warrant consideration of acceleration/deceleration lanes at the property entry/exit intersection point on Woodburn Evans Head Road. I understand this increase in activity at the quarry isn't a long term thing, however, a sudden increase such as this will most certainly have an impact on traffic. Not only on the Woodburn Evans Head Road but the intersection of the Pacific Hwy, Woodburn as well. I know the sight distances are excellent at the entry/exit point but a truck and dog at 32 tonnes isn't going to clear the current T intersection in a hurry. The only other issue I wanted to raise was the possibility of trucks cueing upon Woodburn Evans Head Road waiting to enter the property as other truck/s are leaving. Mitigation in the form of a BAL (Basic left turn) type treatment is mentioned, however, I don't believe this would be sufficient for the number of anticipated peak in/out movements.

Regards
Rob

S/C Rob Clark ♦ Traffic Officer ♦ Richmond Local Area Command ♦ NSW Police Force
☎ (02) 6626 0525 [65525] (02) 6626 0518 [65518] clar3rob@police.nsw.gov.au

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Trade & Investment
Resources & Energy

18th December 2014

Dylan Johnstone
Development Assessment Planner
Richmond Valley Council
Locked Bag 10
CASINO NSW 2470

Your Reference: DA2015.130 – DJ:DC
Our Reference (TRIM):OUT14/40605

EMAILED council@richmondvalley.nsw.gov.au

Dear Mr Johnstone

Re: Development Application No.2015.1309 – Designated Development – Proposed Expansion of Existing Quarry to a maximum 490,000 tonnes per year from a total resource of 4 million tonnes

Thank you for the opportunity to provide advice on the above matter. This is a response from NSW Trade & Investment – Geological Survey of New South Wales (GSNSW).

Specific Issues

The building and construction industries in NSW require ongoing replacement of supplies as sources are exhausted. The expansion of existing quarries, subject to environmental assessment, helps to ensure a continued supply of material for a range of building and construction uses in NSW. The resource in the subject area represents a regionally important source of construction sand for the north coast area including the Woolgoolga to Ballina Pacific Highway upgrade, as well as supply to local Councils and private contractors.

It is in the best interests of both the proponent and the community to fully assess the resources which are to be extracted. This means that a thorough geological assessment should be undertaken to determine the nature, quality and extent of the resource. Failure to undertake such an assessment could lead to operational problems and possibly even failure of the proposal. GSNSW recognises past extraction and exploration at the site has provided the proponent with a good understanding of the nature and extent of the resource.

GSNSW notes seven boreholes were drilled in February 2014, with drill logs, cross sections and NATA accredited laboratory results appended and/or summarised. GSNSW considers the sand resource to be adequately assessed in terms of extent and characteristics; however a Statement of Commitment to provide NSW Trade & Investment with annual production statistics should be included.

General Information

Please note Petroleum Exploration License (PEL) 445 held by Dart Energy (BRUXNER) PTY LTD exists over a broad regional area that includes the subject site. Identification of the title is to make the consent authority aware that there are other stakeholders with interests in the region.

Geoscience Information Services

The GSNSW has a range of online data available on line through the following website address:
http://www.resources.nsw.gov.au/geological/online-services

This site hosts a range of data to enable research into exploration, land use and general geoscience topics. Additionally, the location of exploration and mining titles in NSW may be accessed by the general public using the following online utilities:

1. **MinView** allows on-line interactive display and query of exploration tenement information and geoscience data. It allows spatial selection, display and download of geological coverages, mineral deposits and mine locations, geophysical survey boundaries, drillhole locations, historical and current exploration title boundaries and other spatial datasets of New South Wales. This online service is available at:
   http://www.resources.nsw.gov.au/geological/online-services/minview

2. **NSW Titles** enables the public to access and view frequently updated titles mapping information across NSW. This online service is available at:
   http://nswtitles.minerals.nsw.gov.au/nswtitles/

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@trade.nsw.gov.au.

Yours sincerely

Cressida Gilmore
Team Leader - Land Use

NSW GOVERNMENT | Department of Primary Industries

Our Ref: V14/159#44

The General Manager
Richmond Valley Council
Locked Bag 10
CASINO NSW 2470

22 December 2014

Attention: Mr Dylan Johnstone

Dear Mr Johnstone

Re: Development Application No. DA 2015.130
Expansion of existing quarry to a maximum 490, 000 tonnes per annum from a total resource of 4 Million tonnes

Thank you for your letter of 4 December 2014 requesting that Fisheries NSW, a division within the Department of Primary Industries consider the above mentioned development application.

Fisheries NSW is responsible for ensuring that fish stocks are conserved and that there is "no net loss" of key fish habitats upon which they depend. To achieve this, the Aquaculture and Aquatic Ecosystems Unit assesses activities under Part 5 of the *Environmental Planning and Assessment Act* 1979 in accordance with the objectives of the *Fisheries Management Act* 1994, the aquatic habitat protection and threatened species conservation provisions in Parts 7 and 7A of the Act, and the *Policy and Guidelines for Fish Habitat Conservation and Management (2013 Update)*. In addition Fisheries NSW is responsible for ensuring the sustainable management of commercial, quality recreational fishing and viable aquaculture within NSW.

The above mentioned proposal does not directly affect key fish habitats, but does occur in close proximity to known habitat for the threatened fish species Oxleyan Pygmy Perch (*Nannoperca oxleyana*) (OPP) a threatened species under both state and Commonwealth legislation. The findings of the test of significance included with the EIS are noted. Off-site impacts on OPP that could result from draw down of groundwater appear not to have been separately considered. The OPP recovery plan background document notes:

> "the extraction of water from watertables that feed wetland areas can diminish or desiccate habitat areas, particularly during droughts."

Division of Primary Industries, Fisheries NSW
1243 Bruxner HWY WOLLONGBAR NSW 2477
Tel: 02 6626 1397 Fax: 02 6626 1377 ABN 72 189 919 072 www.dpi.nsw.gov.au

Considering this, Fisheries NSW recommends that the proposal satisfactorily address the management of groundwater in a manner consistent with NSW government policy.

If you have any further enquiries please contact me on (02) 6626 1397.

Yours sincerely

Patrick Dwyer
Regional Assessments Officer (North)

Division of Primary Industries, Fisheries NSW
1243 Bruxner HWY WOLLONGBAR NSW 2477
Tel: 02 6626 1397 Fax: 02 6626 1377 ABN 72 189 919 072 www.dpi.nsw.gov.au

From: Patrick Dwyer [patrick.dwyer@dpi.nsw.gov.au]
Sent: Tuesday, 17 February 2015 5:22:09 PM
To: Dylan Johnstone
Subject: RE: DA2015.130 Doonhab Quarry

G'day Dylan

Thanks for your email. The NSW Office of Water is the government agency that regulates groundwater within NSW. Fisheries NSW is satisfied that assessment of the proposal by the that agency and their provision of GTAs will fulfil Fisheries NSW recommendation in my letter of 22 December 2014 that management of groundwater be in a manner consistent with NSW Govt policy.

Sincerely

PAT

Patrick Dwyer | Regional Assessment Officer (North)|
Aquaculture & Aquatic Environment **|** Primary Industries NSW
T 02 6626 1397 | F 02 6626 1377 | M 0407 264 391 | E patrick.dwyer@dpi.nsw.gov.au
W: www.industry.nsw.gov.au | www.dpi.nsw.gov.au
Postal Address: | 1243 Bruxner Hwy | Wollongbar NSW 2477 |

PERMIT APPLICATION FORMS & FISH HABITAT POLICIES AVAILABLE AT:
www.dpi.nsw.gov.au/fisheries/habitat/protecting-habitats/toolkit

Submit permit applications via email to: ahp.central@dpi.nsw.gov.au

NB from date of receipt of application please allow:
- 28 days for Permits, Consultations and Land Owner's Consent responses
- 40 days for Integrated Development Applications

From: Dylan Johnstone [mailto:Dylan.Johnstone@richmondvalley.nsw.gov.au]
Sent: Friday, 13 February 2015 9:11 AM
To: 'patrick.dwyer@dpi.nsw.gov.au'
Subject: FW: DA2015.130 Doonhab Quarry

Hi Pat

Council notes your concerns raised within correspondence dated 22 December 2014 regarding Oxleyan Pygmy Perch habitat and the need to address management of groundwater in accordance with NSW government policy.

Please note that the application is Integrated Development with the Office of Water under the Water Management Act – Council has now received GTAs from Office of Water (see attached).

Are you satisfied that these GTAs cover Fisheries concerns or would you like the applicant to provide further comment with regard to the off-site impacts of the proposal on Oxleyan Pygmy Perch?

Regards

Dylan Johnstone
Development Assessment Planner
Richmond Valley Council | Locked Bag 10, CASINO NSW 2470
T: 02 6660 0261 | F: 02 6660 1300
E: dylan.johnstone@richmondvalley.nsw.gov.au | www.richmondvalley.nsw.gov.au

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From: Patrick Dwyer [mailto:patrick.dwyer@dpi.nsw.gov.au]
Sent: Monday, 22 December 2014 1:41 PM

To: Dylan Johnstone
Subject: DA2015.130 Doonhab Quarry

Dear Dylan

Fisheries NSW comments attached.

Sincerely

PAT

Patrick Dwyer | Regional Assessment Officer (North)|
Aquaculture & Aquatic Environment **|** Primary Industries NSW
T 02 6626 1397 | F 02 6626 1377 | M 0407 264 391 | E patrick.dwyer@dpi.nsw.gov.au
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This message is intended for the addressee named and may contain confidential information. If you are not the intended recipient, please delete it and notify the sender. Views expressed in this message are those of the individual sender, and are not necessarily the views of their organisation.

- 4 DEC 2014

Located in DA tray in Customer Service on 4/12/2014

DA No	2015.130
Date	28/11/14
Amt $	3101 —
Receipt No	6893
Prop No	31760
Assess	302-06140.3
Census	1061205
Zoning	RU1

Richmond Valley Council

RICHMOND VALLEY COUNCIL

Offices: Cnr Walker Street & Graham Place, Casino
19-25 Woodburn Street, Evans Head
Postal Address: Locked Bag 10, CASINO NSW 2470
Email Address: council@richmondvalley.nsw.gov.au
Casino Telephone: (02) 6660 0300 – EDS Fax: (02) 6660 1370
Evans Head Telephone: (02) 6660 0365 - Fax: (02) 6682 4252

Development Application

(Environmental Planning and Assessment Act 1979 (As Amended))
(PLEASE COMPLETE FORM IN BLACK INK)

July 2011

SCANNED
- 4 DEC 2014

1. Land

No.................. Street/Road Woodburn Evans Head Road

Locality Doonbah

Lot No. 2 Sec.................. Deposited/Strata/ Plan No. 1042364 Doc. No. ....

2. Applicant

Name(s) or Company Cameron & Jenny Uebergang

Postal Address c/o- Ben Luffman, GHD, PO Box 1340,

Coffs Harbour Postcode 2450

Telephone – Business 02 6650 5613 Mobile.................. Private..................

Email Address ben.luffman@ghd.com Fax..................

Name (Print) Cameron Uebergang Signature x [signature]

Date 24 / 11 / 2014

3. Owner(s) of the Land and Owners Consent

All owners must sign, attach separate sheet if required, provide the name of every owner - for company, body corporate or Crown land refer to page 4 of this form.

Family Name(s) ~~or Company~~ UEBERGANG

Given name(s) Cameron Colin & Jennifer Anne

Full Postal Address PO BOX 17

Evans Head NSW Postcode 2473

Telephone – Business 0266824216 Mobile 0431350386 Private 02 66824715

Email Address ehsand1@bigpond.com Fax N/A.

**** If signing on the owner's behalf as the owner's legal representative, you must state the nature of your legal authority and attach documentary evidence (eg, power of attorney, executor, trustee or company director).**

Name (Print) Cameron Uebergang Signature x [signature]

Name (Print) Jenny Uebergang Signature [signature]

Name (Print).................. Signature..................

Date 24 / 11 / 2014

RICHMOND VALLEY COUNCIL
Development Application Checklist

The checklist below identifies the information that may be required and will need to be submitted with your application.
(PLEASE COMPLETE FORM IN BLACK INK)

Please tick all relevant boxes and attach information

- [x] True Market Value of work & Council fees
- [ ] Consent of all owners
- [x] 6 Copies of plans for subdivisions, commercial/industrial buildings, etc – see DA Guide
- [ ] 3 Copies of plans for dwellings
- [ ] 2 Specifications – see DA notes
- [x] Detailed Site Plan showing all trees & structures - drawn to scale
- [ ] 2 Copies of Rural Fire Service Bushfire Management Plan
- [ ] 3 Copies of BASIX Certificate – available at www.basix.nsw.gov.au
- [x] 6 Copies Statement of Environmental Effects (2 copies for dwellings) – see Fact Sheet
- [ ] Water Sensitive Urban Design details – see DCP 9 and Fact Sheet
- [ ] Floor and Ground Levels in Flood Prone Land
- [ ] 6 Copies of On Site Sewage Management Consultants Report
- [x] Completed Development Application Form
- [x] Disclosure of Political Donations and Gifts
- [ ] Cheque(s) for $250.00 for each referral (Integrated Development) plus extra copy of complete DA for each authority.

NOTE: Failure to supply all the information will result in delay of your application for which Council cannot accept responsibility and may result in a refusal of the application.

The assessment may identify other issues that may require clarification or further submissions.

DEVELOPMENT APPLICATIONS MUST BE LODGED WITH COUNCIL
PRIOR TO 3.30PM MONDAY TO FRIDAY

TO BE COMPLETED BY APPLICANT

I have read all the information attached to this development application and have completed the checklist above. I acknowledge that the failure to supply all of the information requested by Council will result in the processing of this application being delayed.

Cameron Uebergang	x [signature]	24/11/14
Print Name	**Signature**	**Date**

4. Development Type

Description of proposal for which development is sought (eg Dwelling, Residential Flat Building, Change of Use, Subdivision, Extractive Industry, Animal Establishment etc)

Expansion of Doonbah Quarry to an extraction rate of 490,000 tonnes per annum

5. Section 68 Approvals

Approvals under Section 68 of the Local Government Act, 1993

- ☐ Carry out water supply work
- ☐ Carry out stormwater drainage work
- ☐ Carry out sewerage work
- ☐ Connect a private sewer with a public sewer
- ☐ Use a building as a place of public entertainment
- ☐ Connect a private drain with a public drain
- ☐ Install a sewage management facility & ancillary drainage
- ☐ Alter a sewage management facility & ancillary drainage
- ☐ Place a waste storage container in a public place
- ☐ Other

6. Cost of Development

Estimated cost of the development $50,000

(Note: Estimate will be checked against current construction cost indices)

7. Statement of Environmental Effects / Impact Statement

To assess your proposal, the consent authority needs to understand the impacts it will have. Depending upon the nature and scale of your proposal you will need to provide:

- ☐ A Statement of Environmental Effects (see attached Fact Sheet)
- ☑ An Environmental Impact Statement (for designated development)

(It is a legal requirement that all Development Applications must be accompanied by a Statement of Environmental Effects)

8. Development Type

- ☐ Local
- ☐ State
- ☑ Integrated
- ☐ Concurrence (SEPP1)
- ☐ Advertised
- ☑ Designated

9. Principal Certifying Authority

Appointment of Principal Certifying Authority

☐ Richmond Valley Council ☐ Private Certifier (*please complete details*)

Name .....

Full Postal Address.....

.....Postcode.....

Telephone – Business.....Mobile.....Private.....

Accreditation Authority .....

Accreditation No..... Expiry Date .....

Company Issuing Indemnity Certificate .....

Expiry Date .....

10. Integrated Development

If this application is for Integrated Development list other approvals required to be obtained *(please specify)*

- ☐ Fisheries Management Act 1994
- ☐ Heritage Act 1977
- ☐ Mine Subsidence Compensation Act 1961
- ☐ Mining Act 1992
- ☐ National Parks and Wildlife Act 1974
- ☐ Petroleum (On Shore) Act 1991
- ☐ Pollution Control Act 1970
- ☑ Protection of the Environment Act
- ☑ Roads Act 1993
- ☐ Rural Fires Act 1997
- ☐ Soil Conservation Act 1938
- ☐ Waste Minimisation and Management Act 1995
- ☑ Water Management Act 2000

11. Disclosure Statement

Disclosure of Political Donations and Gifts

Legislation requires the disclosure of reportable political donations, made with the past two (2) years to political parties, elected members of NSW Parliament, Local Government elections and elected Council members. This includes disclosure of gifts made to Councillors or Council employees, and any donation or gift made when a person was a candidate for Council election.

Have you made a Political Donation or Gift ☐ Yes ☑ No

(if ticked "Yes" a separate disclosure form must be completed. Forms are available at Council or downloaded from the Department of Planning's website)

Richmond Valley Council
DA Fees 2014/2015

Date		24/11/2014
Applicant		Cameron & Jenny Ubergang
Fax / Email / Postal Address		ben.luffman@ghd.com
Address of Works		Evans Head Road, Doonbah
Contract Cost		$50,000.00
Type of Development	PLD code office use only	Expansion of Sand Quarry
Fee quote provided by Council Officer		Sandra

DA Fee (for Subdivsion see below)		0001	$ 305.00
CC Fee		0010	
Inspections **	2	0024	$ 260.00
Long Service Levy		0023	
Signage		0005	$ -
DA Archiving Fee **		0014	$ 36.00
Sewer Inspection **	Private PCA Council PCA	0030 0032	$ -
OSMS	Check if rural & PCA	0020	$ -
Rural Road Number **		0021	$ -
Certificate Registration **		0028	$ -
Builders Closet **		0017	$ -
Subdivision	New Road No New Road Strata	0002 0003 0004	$ -
Advertising **		0037	$ 2,220.00
Integrated Development		0082	$ 280.00
Total Cost ** GST included			$ 3,101.00

The application fees listed above are based on the information provided at this time.
Actual fees and other charges will be based on a formally submitted application.

Other charges associated with the application may include water connection, sewer connection, Section 64 charges, Section 94A charges, driveway bonds, etc.