STATE SIGNIFICANT DEVELOPMENT ASSESSMENT: Coraki Quarry Project (SSD 7036)

Environmental Assessment Report
Section 89E of the *Environmental Planning and Assessment Act 1979*

April 2016

Cover Photograph: *View of the Basalt resource to be extracted at Coraki Quarry, from an existing bench at Petersons Quarry. (Groundwork Plus, November 2015).*

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NSW Department of Planning & Environment
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1. BACKGROUND

Quarry Solutions Pty Ltd (Quarry Solutions) proposes to establish the Coraki Quarry adjacent to Seelems Road and Petersons Quarry Road, Coraki, on the Far North Coast of NSW (see **Figure 1**). The site is located in the Richmond Valley local government area (LGA), approximately 2.5 kilometres (km) northwest of Coraki. Quarry Solutions proposes to extract a maximum of 1,000,000 tonnes per annum of high quality basalt.

Figure 1: *Location of Coraki Quarry*

Coraki Quarry is located adjacent to the existing Petersons Quarry, owned by Richmond Valley Council (Council) and operated under an existing development consent and environment protection licence (EPL). Petersons Quarry has operated since 1916 supplying quarry materials for road construction and private sale. Peterson's Quarry has operated in response to demand, typically two or three days per week.

The land in the locality has been extensively cleared for rural purposes, primarily cattle grazing. Residential development in the vicinity of the site is sparse with the closest residences located approximately 335 metres (m) to the north, 820 m to the east and 595 m to the south. Coraki has a population of approximately 2,000 people.

2. PROPOSED DEVELOPMENT

Extraction associated with the proposed Coraki Quarry would be primarily located on Lot 401 DP633427, owned by Varoli Pty Ltd. Processing and stockpiling would take place on Lot 401 and a number of adjacent lots within the existing Petersons Quarry. Some existing facilities at Petersons Quarry would also be used by Coraki Quarry. Quarry Solutions leases Petersons Quarry from the Council and is also that quarry's operator. The proposed quarry could therefore be conceptualised as an extension of the existing Peterson's Quarry, with extraction occurring on a separate landholding and processing using shared equipment and facilities. Both Varoli Pty Ltd and Council have provided landowner's consent for the application.

Quarry Solutions is seeking to extract a maximum of 1,000,000 tonnes per annum of basalt from Coraki Quarry over an operating life of five to seven years, primarily to supply the planned upgrade of the Pacific Highway between Woolgoolga and Ballina. Geological investigations have identified a large basalt resource of approximately 2.9 million tonnes, located between 13 and 42 m AHD. The resource profile includes an overburden depth of 0.2 to 2 m and a basalt thickness of 12 to 20 m. The resource is interpreted to have high rock strength and durability suitable for use in high quality road base, concrete aggregate and asphalt/sealing aggregate. It is proposed to extract material from Coraki Quarry down to 18 m AHD.

Coraki Quarry was initially proposed to be operated from 6 am to 7 pm Monday to Saturday, with no operations on Sundays or public holidays. Discussions with the Environment Protection Authority (EPA) have resulted in Quarry Solutions agreeing to revised hours of operation, being 7 am to 6 pm Monday to Friday and 8 am to 1 pm on Saturdays. Blasting would occur between the hours of 9 am to 3 pm Monday to Friday.

Quarrying operations would involve clearing of vegetation, topsoil removal and stockpiling, overburden stripping, drilling and blasting, extraction of the resource, processing, stockpiling and despatch for sale. Quarry products would be transported by truck, via Petersons Quarry Road to Lagoon Road to Queen Elizabeth Drive to the Coraki Woodburn Road and then generally to the Pacific Highway at Woodburn. The majority of rehabilitation would be undertaken once the terminal benches are reached, towards the end of the quarry's life. The site has historically been used for grazing and the final landform is proposed to be compatible with this use over the short-term, leaving the long-term use open for potential redevelopment options such as industrial uses, subject to further strategic planning by Council.

A mobile processing plant consisting of crushers and screens would be established within the existing Petersons Quarry pit to be utilised by both Coraki and Petersons Quarry. The existing Petersons Quarry site office, weighbridge and visitor car parking area would be used for the proposed Coraki Quarry. A new site office and workshop would be established. Fuel and chemical storage, including a self-bunded above-ground fuel tank and oils for minor servicing on-site, would also be located close to the site office and workshop. The existing Petersons Quarry stormwater detention basins would be augmented to accommodate the additional disturbance area associated with Coraki Quarry and further detention basins would be constructed. The conceptual site layout for Coraki Quarry is shown in **Figure 2**.

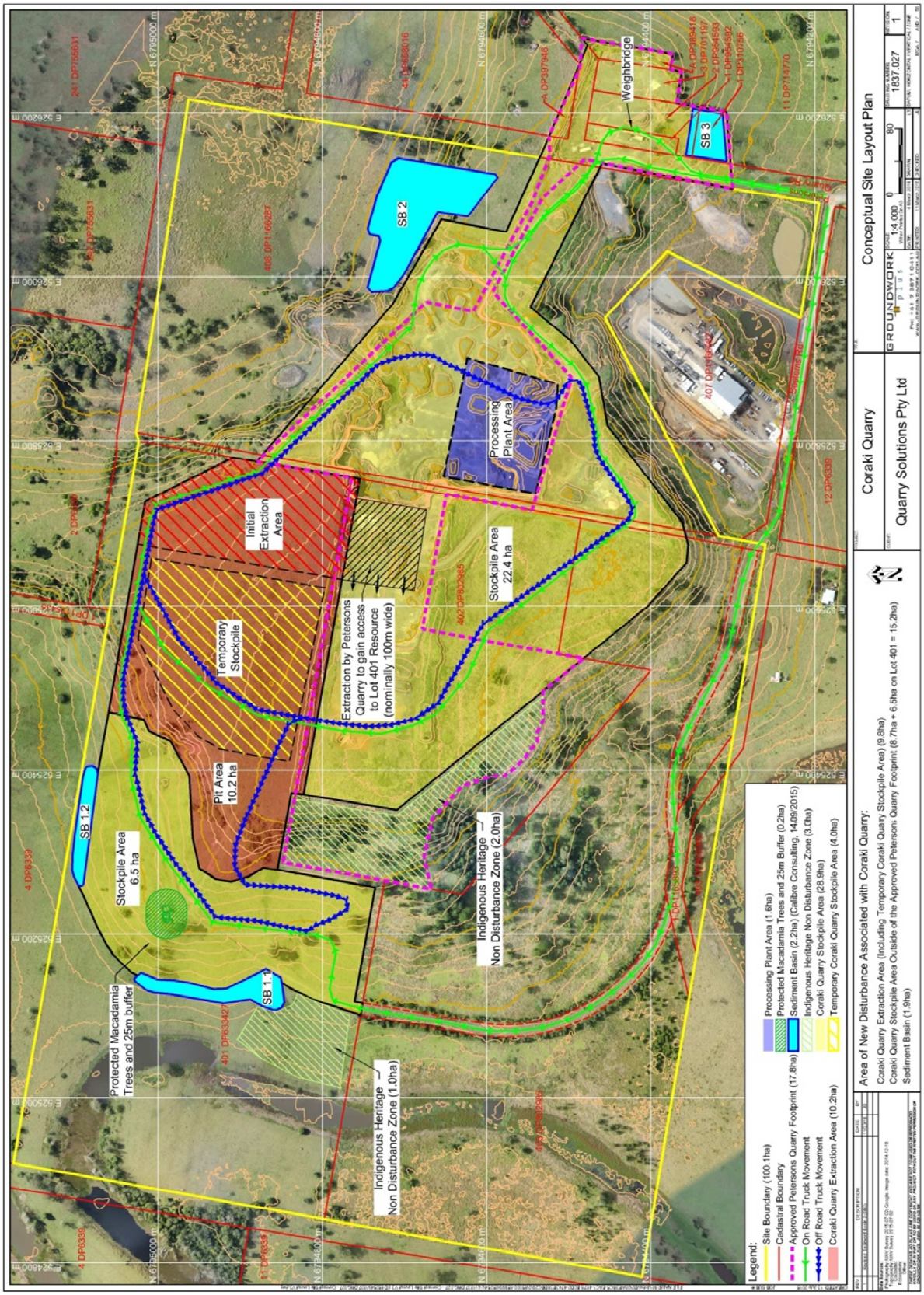

Figure 2: *Conceptual Site Layout Plan*

3. STATUTORY CONTEXT

3.1 State Significant Development

The proposal is classified as State significant development under section 89C of the *Environmental Planning and Assessment Act 1979* (EP&A Act), as it would involve a maximum extraction of more than 500,000 tonnes per annum. Therefore, it meets the criteria for State significant extractive industries development set out in Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011*.

The Minister for Planning is the consent authority for the development application. However, under the Minister's delegation of 16 February 2015, the Executive Director, Resource Assessments and Compliance, may determine the application.

3.2 Permissibility

The majority of the site is zoned RU1 – Primary Production under the *Richmond Valley Local Environmental Plan 2012*. Extractive industries are permissible with consent in land zoned RU1 – Primary Production.

A small section of the site comprising the location of Seelems Creek is zoned E2 Environmental Conservation. Extractive industries are prohibited in land zoned E2 - Environmental Conservation. However, all activities associated with the proposed development are located on land zoned RU1 and the development is therefore permissible with development consent.

The proposal is also permissible with consent under clause 7 of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP).

3.3 Environmental Planning Instruments

Under section 79C of the EP&A Act, the Department is required to consider the relevant provisions of any environmental planning instruments (EPIs) that are of relevance to the application.

Consideration of the relevant EPIs is provided in Section 4 of the Environmental Impact Statement (EIS, see **Appendix A**) and is further considered by the Department in **Appendix D** of this report. The Department is satisfied that Quarry Solutions has adequately addressed the applicable requirements of relevant EPIs. The Department is also satisfied that no EPI significantly constrains the carryng out of the proposed development.

3.4 Integrated Approvals

Under section 89J of the EP&A Act, a number of other statutory approvals have been integrated into the State significant development approval process and are not required to be separately obtained for the proposal. These include approvals under the *National Parks and Wildlife Act 1974,* the *Heritage Act 1977* and the *Water Management Act 2000*.

Under section 89K of the EP&A Act, a number of other statutory approvals are still required, but must be granted substantially consistent with any development consent. These approvals include EPLs under the *Protection of the Environment Operations Act 1997*.

The Department has consulted with relevant government authorities and has considered all relevant issues relating to these approvals in its assessment (see **Sections 4** and **5**).

3.5 Objects of the EP&A Act

The Minister is required to consider the objects of the EP&A Act when making decisions under the Act. The most relevant objects are Section 5(a)(i),(ii),(vi) and (vii), which are as follows.

> *To encourage:*
> *(i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment;*
> *(ii) the promotion and co-ordination of the orderly and economic use and development of land;*

(vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats; and

(vii) ecologically sustainable development.

The Department has undertaken a merit assessment of the proposed development in accordance with these objects.

4. CONSULTATION

The Department publicly exhibited the development application and EIS (see **Appendix A**) from 10 November to 10 December 2015:

- on the Department's website;
- at the Department's Information Centre;
- at Richmond Valley Council's office; and
- at the Nature Conservation Council's office.

The Department also advertised the exhibition in *The Northern Star*; and notified relevant State government authorities and Council of the exhibition.

Council and six State government agencies made submissions on the proposed development (see **Appendix B**). In addition, three submissions were received from the public.

4.1 Government Agency Submissions

Council was concerned about the:

- potential impact from quarry traffic on the condition of Coraki Woodburn Road, particularly as parts of the road are located on the floodplain and are therefore more susceptible to damage when saturated. Council requested the right to impose temporary load limits (or exclusion of heavy vehicles for a period) on portions of the road affected by inundation;
- air quality impacts associated with the use of Seelems Road which currently has a gravel surface, and requested that Seelems Road be sealed; and
- methods and assumptions used to calculate road traffic impacts (including road traffic noise) and the lack of a cumulative assessment considering Petersons Quarry and Moonimba Quarry off Boggy Creek Road.

Council recommended a number of conditions of consent relating to the:

- development of a Traffic Management Plan, Drivers Code of Conduct, Traffic Control Plan and Operational Plan of Management;
- public notification of contact details for community complaints;
- preparation of annual environmental management reports;
- requirements in relation to public infrastructure;
- payments in relation to construction certificates, section 94 contributions and the Long Service Levy;
- control of stormwater during construction;
- sealing of Seelems Road and works at the intersections of Petersons Quarry Road / Lagoon Road, Lagoon Road / Casino Coraki Road, and Coraki Woodburn Road / Pacific Highway; and
- implementation of noise control measures outlined in the EIS and the completion of a report by an acoustic engineer verifying that all controls have been implemented.

Following lodgement of Council's submission, Quarry Solutions' consultant met with Council to discuss its submission. Agreement was reached between the parties in relation to Council's requests. Council provided a revised submission detailing the agreed conditions. These have been considered in the assessment of the proposal and in drafting the proposed conditions of consent.

The **Geological Survey of New South Wales** (GSNSW), part of the **NSW Department of Industry**, reviewed the EIS and considered that the quarry's basalt resource was well defined, adequately tested and suitable for the intended uses. GSNSW requested that Quarry Solutions provide it with annual production data as a condition of consent. This was agreed to by Quarry Solutions.

The **Department of Primary Industries' Agriculture Division** (DPI Agriculture) identified that the subject land is mapped under the Northern Rivers Farmland project as containing areas of regionally significant farmland. DPI Agriculture requested that statements in the EIS that the site contains soil no deeper than 1 m and was therefore not suitable for farming be substantiated. Further clarification was provided regarding the mapping of soil which satisfied DPI Agriculture that the site does not contain regionally significant farmland.

DPI Water requested further information in relation to the EIS's modelled site water balance. Further information was provided by Quarry Solutions in its Response to Submissions (RTS); however this did not adequately address the issues raised. Further information was requested and subsequently provided by Quarry Solutions. The Department is now satisfied with the proposed management of impacts on surrounding watercourses, site water, sediment basins and groundwater.

DPI Lands advised that it had issues in relation to existing Crown roads within the site. These are in the process of being resolved with Quarry Solutions, Council and DPI Lands by way of Crown road closures and transfers to allow for appropriate access and extraction activities.

The **Office of Environment and Heritage** (OEH) requested that further detail be provided in relation to proposed management of four specimens of the Rough-shelled Bush Nut *(Macadamia tetraphylla)*, a suitable offset be provided with preference for on-site rehabilitation, the site's proposed Environmental Management Plan be updated to include all commitments, and that the EIS's recommendations for Aboriginal heritage be implemented. Quarry Solutions provided further information as part of its RTS, satisfying OEH. OEH recommended that a detailed Rehabilitation Plan and an updated Environmental Management Plan be required by conditions of consent.

OEH's **Heritage Division** (OEH Heritage) requested that a historic heritage assessment be undertaken, which was provided in Quarry Solutions' RTS. OEH Heritage requested information in relation to the heritage searches completed. This was then provided, confirming that there was no potential for impact on historic heritage.

The **Environment Protection Authority** (EPA) requested that a noise compliance review be undertaken after commencement, noted that a review of dust controls may be requested in the future if dust complaints are received or if dust emissions are observed and raised issues in relation to the quality of water discharged from sediment basins. These issues were addressed in Quarry Solutions' RTS. Quarry Solutions had initially proposed that the quarry be allowed to operate 6 am to 7 pm Monday to Saturday and with blasting to occur between the hours of 9 am to 3 pm Monday to Friday, with no operations on Sundays or public holidays. Following discussions with the EPA, it was agreed that the quarry could operate from 7 am to 6 pm Monday to Friday and 8 am to 1 pm on Saturdays. The EPA agreed to allow extended hours if the nearby sensitive receivers R1 to R9 (as identified in the EIS) grant written permission. All issues raised by the EPA were addressed by Quarry Solutions to EPA's satisfaction and agreed outcomes are reflected in the proposed conditions of consent (see **Appendix E**).

The **Rural Fire Service** (RFS) identified that parts of the site are mapped as bushfire prone. Quarry Solutions provided a Bushfire Management Plan in its RTS. Quarry Solutions has also agreed to operate a water truck with suitable fittings for firefighting. The Department is satisfied that bushfire management has been adequately addressed.

4.2 Community Submissions

Three submissions were received from nearby residents which raised issues relating to:

- the high volume of trucks on local roads and cumulative impacts with other quarries;
- the proposed long hours of operation;
- increased noise and dust associated with traffic;
- inadequate mitigation measures associated with traffic impacts;
- increased safety risks from increased traffic;
- the lack of assessment of rural accesses and lines of sight;
- the interaction of quarry vehicles with other road users, including rural vehicles and school buses; and
- speed limits through Coraki township.

The transportation of quarry products and issues associated with quarry-related traffic were the key concerns raised in public submissions. Quarry Solutions provided further information in the RTS in

relation to the issues raised in public submissions, including a Drivers' Code of Conduct. The Department has given thorough consideration to all public concerns and Quarry Solutions' responses.

4.3 Response to Submissions (RTS) and Residual Issues

Quarry Solutions liaised directly with Council and the EPA regarding their submissions and resolved a number of their issues prior to submitting its RTS on 9 February 2016 (see **Appendix C**). The Department then forwarded the RTS to relevant Government agencies and made it publicly available on its website.

Following agencies' review of the RTS, further information was requested by DPI Water in relation to the water balance and by OEH Heritage in relation to the historic heritage assessment. The Department also requested further information in relation the schedule of lands subject to the application, land ownership in the surrounding area, quantification of the impact area, historic heritage, air quality and noise impacts on vacant land, footprint impacts associated with sediment dams, and the water balance. This information was then provided by Quarry Solutions to the Department's satisfaction.

5. ASSESSMENT

The Department considers that the key issues associated with the proposal are:

- traffic impacts;
- biodiversity impacts;
- surface water management;
- noise management; and
- air quality management.

5.1 Traffic

The EIS includes a Traffic Impact Assessment (TIA) which included consideration of transport routes and potential impacts from increased traffic volumes. The RMS did not provide a submission following public exhibition of the development application and EIS. However, the three public submissions were primarily focussed on traffic and associated impacts, as outlined in **Section 4.2**.

Transport Routes

The road network surrounding Coraki Quarry is shown in **Figure 3**. Coraki Quarry is located on Seelems Road, a Crown road for which Council is the roads authority. The western extent of Seelems Road, beyond the access for Coraki Quarry, has been approved for closure. Seelems Road is currently unsealed and is used to access an adjacent industrial facility, Doolans Deck Factory. It is not used to access private properties.

The proposed primary transport route is shown in **Figure 3**. Laden trucks would exit the site via Petersons Quarry Road and unladen trucks returning to the quarry would return via Seelems Road. Seelems Road has a T-intersection with Petersons Quarry Road, which then intersects with Lagoon Road. Lagoon Road intersects with Queen Elizabeth Drive which becomes the Coraki Woodburn Road south of the township of Coraki. All are sealed local two-lane roads for which Council is the roads authority. Coraki Woodburn Road intersects with the Pacific Highway approximately 20 km to the southeast.

Existing and Proposed Traffic

Traffic was surveyed at three key intersections on Thursday 21 May 2015. Surveyed traffic volumes at two of these locations (on the Coraki Woodburn Road, near Lagoon Road and near the Pacific Highway) are shown in **Table 1** below. **Table 1** also shows the TIA's predictions for project-related heavy vehicle traffic and the resulting percentage increase during the AM and PM peak hours. The percentage increases would be higher during non-peak periods; however the overall hourly traffic volumes would be lower. Predicted average heavy vehicle traffic volumes to and from Coraki Quarry (14 heavy vehicles per hour, being 7 laden and 7 unladen), were calculated in the TIA on the basis that the quarry would operate from 6 am to 7 pm Monday to Saturday (ie 13 hours per day for 6 days a week).

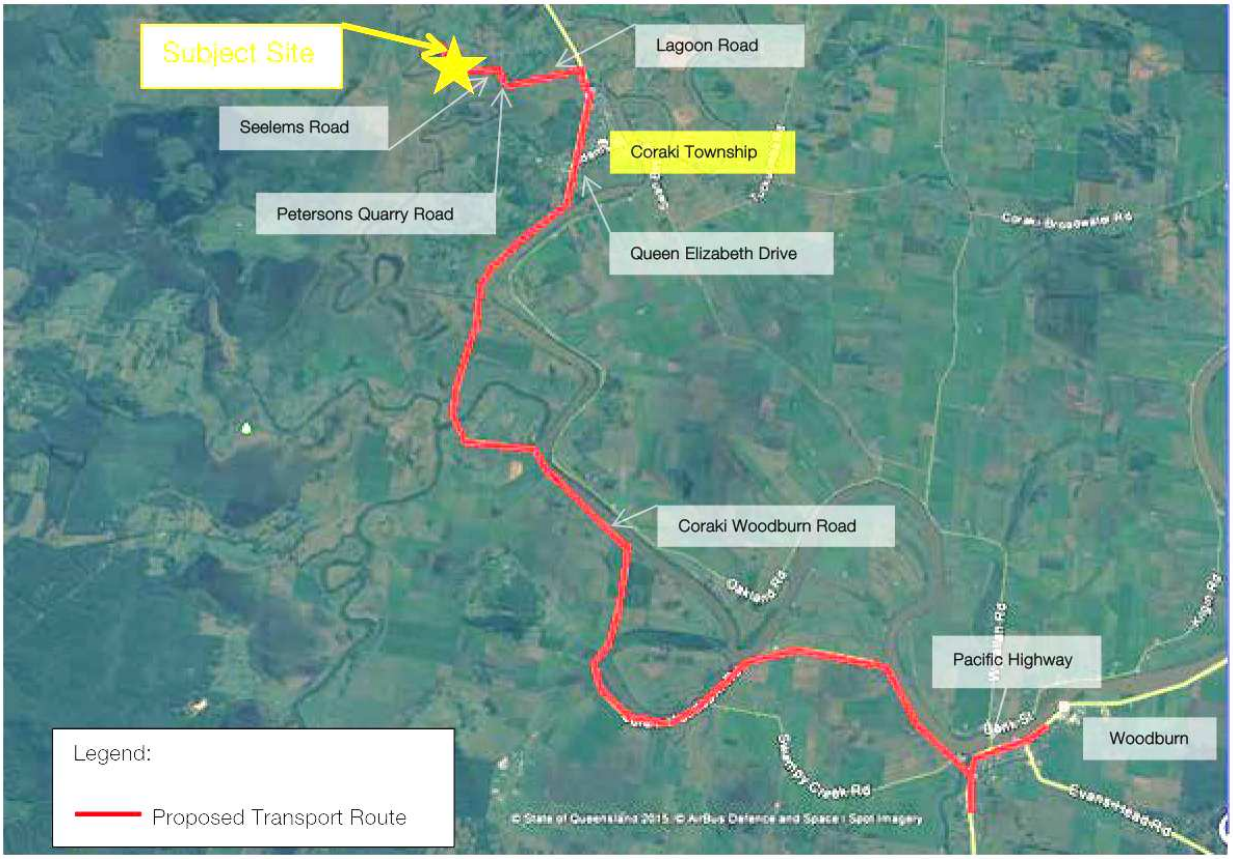

Figure 3: *Road Network and Transport Route*

Table 1: *Percentage Increases in Traffic Volumes – TIA*

Location on Coraki Woodburn Road	May 2015 Observed Traffic Volumes		Average Traffic Generated by the Proposal		Percentage Increase in Traffic Volumes	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Near Lagoon Road	254 vph	230 vph	14 vph	14 vph	5.5%	6.1%
Near Pacific Highway	162 vph	210 vph	14 vph	14 vph	8.6%	6.7%

However, Quarry Solutions has since agreed with the EPA that the quarry would only operate from 7 am to 6 pm Monday to Friday and 8am to 1pm on Saturdays, unless prior agreement is obtained from residents R1 to R9. As a result of these reduced hours, the Department has calculated that the average heavy vehicle traffic generated from the quarry would increase to approximately 18 vph, (being 9 laden and 9 unladen) resulting in amended percentage increases in the AM and PM peak hour traffic volumes (see **Table 2**).

The EIS separately proposes that Quarry Solutions would operate a maximum of 21 laden heavy vehicles per hour (ie 42 movements per hour in total) to allow for times of high demand during the Pacific Highway upgrade works. Considering the maximum heavy vehicle movements, the Department has calculated the amended percentage increases in the AM and PM peak hour traffic volumes (see **Table 2**).

Table 2: *Percentage Increases in Traffic Volumes – Updated Average and Maximum Heavy Vehicle Rates*

Location on Coraki Woodburn Road	Percentage Increase in Traffic Volumes			
	AM Peak Hour		PM Peak Hour	
	Average	Maximum	Average	Maximum
Near Lagoon Road	7%	16.5%	8%	18.3%
Near Pacific Highway	11.4%	25.9%	8.8%	20%

The TIA did not include an assessment of impacts on the level of service (LOS) on affected local roads but did include an assessment of degree of saturation and length of queue at intersections. The Department has considered LOS in its assessment. As detailed in *The Guide to Traffic Generating Developments* (RMS, 2002), for weekday peak hour flows on minor rural roads, a LOS of 'C' is desirable. Assuming 15% heavy vehicles in the overall traffic mix, vehicles per hour for LOS C is 570 for rolling terrain and 870 for level terrain. When comparing this to the existing and predicted traffic volumes in **Table 1**, it is straightforward that an adequate LOS would be maintained despite the additional traffic from Coraki Quarry.

Intersection Performance
The TIA modelled the impact of the increased traffic on the intersections of Petersons Quarry Road / Lagoon Road, Lagoon Road / Queen Elizabeth Drive, and Coraki Woodburn Road / Pacific Highway based on a maximum of 21 laden trucks per hour from the development. The TIA used degree of saturation and length of queue as the measure of intersection performance. A degree of saturation of 0.7 – 0.8 is generally considered satisfactory for intersection operations. The TIA identified that the highest degree of saturation for the three intersections was 0.43 at the intersection of Coraki Woodburn Road / Pacific Highway. This is well within the degree of saturation considered satisfactory for the intersection's operation. The length of queue was also low and considered satisfactory. The Department considers that all intersections would continue to operate satisfactorily despite the additional traffic from the proposal.

Sight Distances from Private Access Roads
In response to a public submission, Quarry Solutions included in its RTS an assessment of sight distances for a sample of private access roads. The assessment determined that some sight distances are less than current standard sight distances. This is not uncommon for many roads across NSW. Quarry Solutions considers that the line of sight from private access roads is an existing deficiency that is not the responsibility of Quarry Solutions. Quarry Solutions has prepared a Drivers' Code of Conduct to address this issue by way of driver behaviour and so minimise potential road safety issues.

Road Safety
The interaction of quarry-related traffic with other road users was also raised in public submissions. The RTS included a further analysis of road accident data which identified that only one crash resulting in injury was recorded between 2010 and 2014 on the affected local roads (including Coraki Woodburn Road). Quarry Solutions would prepare a Drivers' Code of Conduct and require all drivers of heavy vehicles to implement this code to minimise road safety issues.

Cumulative Impacts
The TIA noted that traffic associated with other quarries in the area would have been included in the baseline traffic counts undertaken at three survey points along the transport route from the quarry to the Pacific Highway. However, it was later determined that Petersons Quarry was not operating at the time of the traffic surveys and therefore was not included in these traffic numbers. Nonetheless, given there is ample capacity in the road network for both traffic efficiency and intersection performance, the Department considers that cumulative impacts would be low and can be adequately managed.

The Department is therefore satisfied that the impact of additional heavy vehicles on the road network as a result of the proposal would not be significant. The Department has recommended that the quarry's Drivers' Code of Conduct is prepared in consultation with Council and to the satisfaction of the Department. The Department has also recommended conditions requiring Quarry Solutions to limit its transport operations to 21 laden trucks per hour and that an independent traffic audit is undertaken following the commencement of dispatch of laden trucks from the quarry.

5.2 Biodiversity
Coraki Quarry is located within the Clarence Lowlands subregion of the South Eastern Queensland - Clarence Lowlands Bioregion. Seelems Creek meanders across the western portion of the study area as a series of ox-bow wetlands, none of which are recognised as 'important' wetlands.

Vegetation Communities
Native vegetation recorded during the field survey was restricted to the western and central portions of the site, as well as to the northeast (see **Figure 4**). The proposed development footprint is largely devoid of native vegetation and has been used for grazing livestock and existing quarrying operations associated with Petersons Quarry.

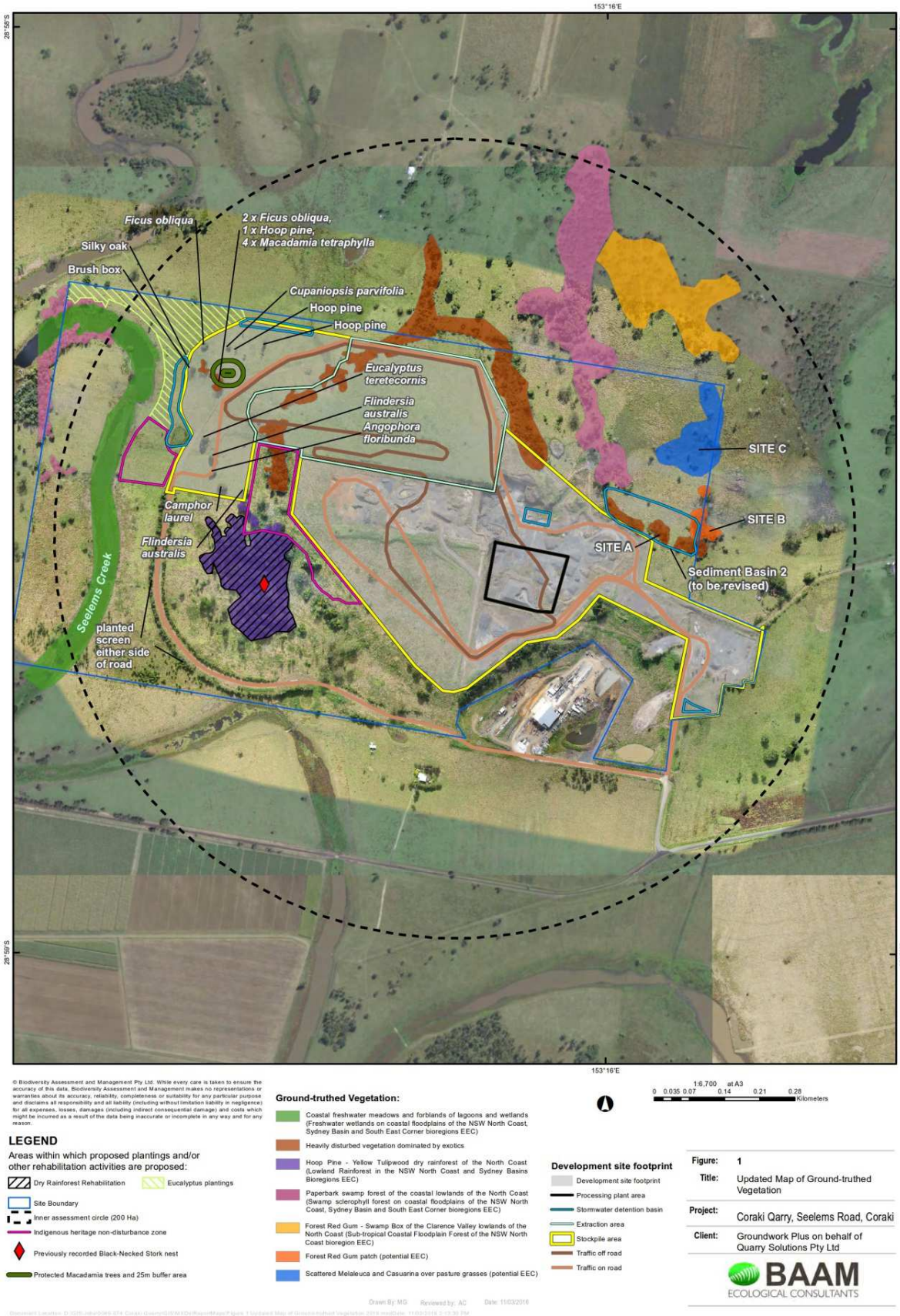

Figure 4: *Mapped Vegetation*

The field survey identified four native vegetation types on or in close proximity to the site, all of which are Endangered Ecological Communities (EECs):

- Hoop Pine - Yellow Tulipwood dry rainforest of the North Coast – a component of the "*Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions*" EEC. Found to be in moderate condition;
- Forest Red Gum - Swamp Box of the Clarence Valley lowlands of the North Coast – a component of the "*Sub-tropical Coastal Floodplain Forest of the NSW North Coast Bioregion*" EEC. Found to be in moderate condition;
- Paperbark swamp forest of the coastal lowlands of the North Coast – a component of the "*Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions*" EEC. Found to be in moderate condition; and
- Coastal freshwater meadows and forblands of lagoons and wetlands – a component of the "*Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions*" EEC. Found to be in good condition.

These native vegetation communities all occur outside of the proposed development footprint. Other native vegetation recorded on-site occurs as scattered paddock trees, planted amenity screens alongside access tracks, or as minor components within otherwise heavily disturbed patches of regrowth which are dominated by exotic species, such as Camphor Laurel (*Cinnamomum camphora*) and Lantana (*Lantana camara*). None of the vegetation on the site is recognised as a Threatened or Critically Endangered Ecological Community under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Threatened Species

The EIS's biodiversity assessment considered that the degraded habitats present within the area of the proposed development footprint provide very limited habitat value for threatened fauna species.

Four specimens of Rough-shelled Bush Nut *(Macadamia tetraphylla*) were recorded during the field survey, a species listed as Vulnerable under both the *Threatened Species Conservation Act 1995* (TSC Act) and EPBC Act. The specimens occur together, adjacent to a clump of other scattered, paddock trees and outside of any of the recognised native vegetation zones in the study area. These plants are either relicts of a dry rainforest or forested wetland community that once occupied that part of the site, or they have propagated from seeds dispersed from nearby communities.

No other threatened flora species were recorded during the field survey, despite targeted searching within all habitat types (including comprehensive searches within the proposed development footprint), and despite the majority of species being detectable throughout the year.

Forest Red Gums (*Eucalyptus tereticornis*) within the open forest habitat to the northeast of the site showed scratches consistent with those of Koala (*Phascolarctos cinereus*), which is listed as Vulnerable under both the TSC Act and EPBC Act. Forest Red Gum is one of the most significant Koala food trees in the local area. However, no evidence of Koalas was found within the study area itself. Although it is possible that this species may occasionally utilise food trees found within the open paddock and fringing the wetlands, these areas are considered to be of less value to the species than the habitats occurring off-site. In addition to Koala, a number of threatened fauna species have the potential to occur within habitats present within the study area, at least as transient visitors during foraging (particularly birds and bats). Black-necked Stork (*Ephippiorhynchus asiaticus*) (Endangered under the TSC Act) and Comb-crested Jacana (*Irediparra gallinacea*) (Vulnerable under the TSC Act) are also known to occur on the site from previous records, and the study area continues to provide suitable habitat for these species.

Assessment of Impacts

The overall disturbance footprint at Coraki Quarry (from extraction, stockpiling, processing and water management) would be approximately 45 hectares (ha), of which approximately 17.8 ha is currently approved for disturbance by Petersons Quarry.

The biodiversity assessment identified that native vegetation to be removed occurs as scattered paddock trees or as minor components within otherwise heavily disturbed patches of regrowth. This includes approximately 10 scattered individuals of Forest Red Gum or Brush Box *(Lophostemon confertus*), as well as a number of dry rainforest species that may provide foraging and nesting resources for birds. Removal of some heavily degraded patches of vegetation (although dominated by exotics) would also remove some native plant species and habitat values for native fauna.

No EECs, wetlands or important habitat for threatened flora and fauna species would be directly impacted. Buffers would be retained between the recognised vegetation communities (and associated EECs and wetlands) and the proposed disturbance footprint, in order to prevent secondary impacts.

Mitigation, Management and Offsets

Quarry Solutions has proposed mitigation and management measures and offsets including:

- modification of the quarry footprint to avoid disturbing four Rough-shelled Bush Nut trees and the maintenance of a 25 m buffer between these trees and extraction or other operations (see **Figure 4**);
- works within the Rough-shelled Bush Nut buffer including eradication of weeds, collection of seeds, supplementary planting, fencing and ongoing maintenance;
- rehabilitation of the Hoop Pine Dry Rainforest community occurring in the centre of the overall site (but to the south of the extraction area) including weed eradication and supplementary planting;
- plantings of canopy tree species, including Forest Red Gum, along Seelems Creek to replace Koala habitat trees lost within the footprint (at a ratio of 5:1 – ie 10 trees) and to facilitate Koala movement between larger habitat patches to the north and south of the site; and
- preparation of a Rehabilitation Management Plan.

Considering the above measures, the Department is satisfied that the impact of Coraki Quarry on biodiversity values would not be significant. OEH was also satisfied with the assessment and the mitigation and offsets measures proposed.

5.3 Water Management

Coraki Quarry is located within the Seelems Creek catchment, which is in excess of 800 ha. Seelems Creek flows to the Richmond River approximately 6 km downstream from the site. The Richmond River then flows in an easterly direction to the coast at Ballina.

The quarry's water management system would divert clean up-gradient run-off from around the quarry and capture runoff from disturbed areas in three sediment basins. The sediment basins would be managed to maintain adequate capacity to capture rainfall events. Water from the sediment basins would be used for on-site dust suppression with excess water used in an on-site irrigation area.

The EIS included an assessment against the water quality objectives in the *NSW Water Quality and River Flow Objectives* (OEH, 2015). The sediment basins would be sized in accordance with *Managing Urban Stormwater Soils and Construction: Volume 1 (Blue Book) and Volume 2E (Mines and Quarries)* to capture the 95th percentile 5 day rainfall event. The sediment basins are expected to discharge during intense or extended rainfall events. These discharges are expected to occur during high flow events in Seelems Creek, and thus to not significantly increase sediment loads. Quarry Solutions has committed to meet the relevant water quality criteria contained in the Blue Book. These criteria would also be included in any EPL issued for the quarry.

Water Balance

The updated water balance modelling contained in the RTS estimated that up to about 306 megalitres (ML) per year may need to be sourced from external supplies, to meet site water demands. It also estimated that the site may need to externally source water on up to 110 days per year. Even so, the quarry would need to discharge from its sediment basins between 2 to 4 times per year. Water in the sediment basins would otherwise be used to meet site water demands for dust suppression. The RTS reported that measures would be implemented to reduce water demands and the number of days that water needed to be sourced from external sources, including using a dust suppression agent, reducing trafficked areas, sealing other areas, and installing additional water storages if needed. Following the submission of further information from Quarry Solutions in relation to the water balance, the Department is satisfied that adequate systems would be implemented for water management. Nonetheless, the Department has recommended a condition to require an updated water balance to be included in the Water Management Plan to clearly quantify the water balance for dry, average and wet years, including the management controls proposed to be used. The aim of this more detailed quantification is to reduce both the quantity of externally sourced clean water and also the likelihood of discharges from site, for example through some re-sizing of on-site water storages.

Flooding

The quarry and associated infrastructure is located outside of the 100 year average recurrence interval (ARI) flood level, with the exception of a small portion of sedimentation basin SB 1.1 (see

Figure 2) which extends approximately 20 m into the Seelems Creek floodplain. The Department considers that this would have minimal impact on flooding in the area.

Groundwater

Drilling undertaken during 2015 did not encounter groundwater despite penetrating though the basalt resource into underlying clay and sandstone. Petersons Quarry has been in operation since 1916 and has a quarry floor at 18 m AHD. The EIS stated that there is no evidence of groundwater seepage in the Petersons Quarry pit. As Coraki Quarry would also extract basalt down to 18 m AHD, the EIS concludes that it is unlikely that the quarry would intercept groundwater. DPI Water and the Department are satisfied with this assessment. The Department has accepted DPI Water's recommendation to include a condition of consent requiring groundwater licensing if groundwater is encountered.

5.4 Noise

The EIS included an assessment of potential noise impacts for the proposal, including an assessment of traffic noise.

One residence is located within 500 m of the extraction area, and 44 residents were identified as being within 100 m of the transport route to the Pacific Highway. The nine closest residences (see **Figure 5**) to the extraction area were assessed for noise impacts and the 44 residences along the transport route were assessed for traffic-related noise. Given Petersons Quarry would be operated by Quarry Solutions using the same equipment as that in use at Coraki Quarry, an additional contribution to noise levels from Petersons Quarry was not included in the assessment.

The day-time Project Specific Noise Level (PSNL) for the quarry was determined to be LAeq 35 dB(A). The proposal meets the PSNL at all private residences; however four of the nine residences are predicted to receive a maximum noise level of 35 dB(A). The noise predictions assume that a number of noise control measures are in place including earth bunds and acoustic screens, lining of dump truck trays with absorptive material and locating noisy equipment in shielded locations.

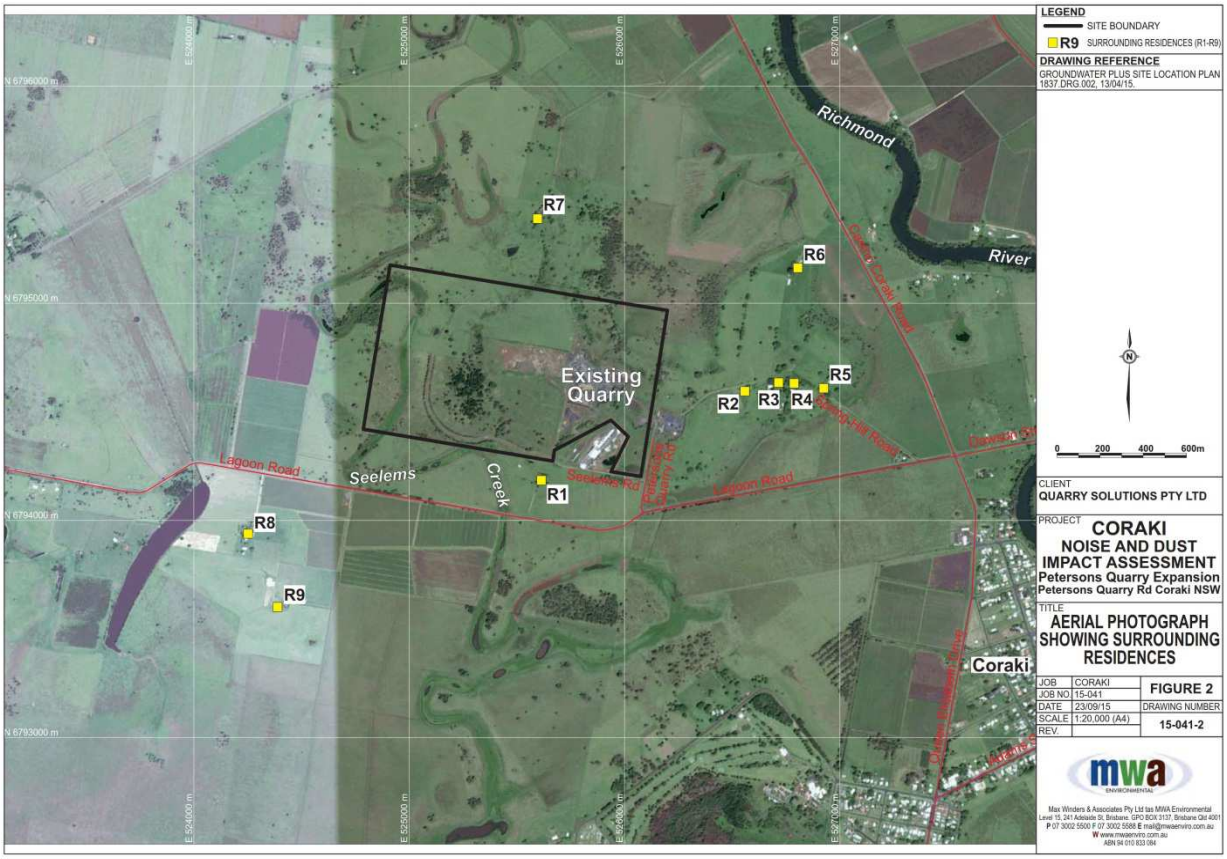

Figure 5: *Location of Private Receptors*

The day-time traffic noise criteria for residences along Queen Elizabeth Drive and Coraki Woodburn Road is 60 dB(A) and for residences along Seelems Road, Petersons Quarry Road and Lagoon Road is 55 dB(A). Where background traffic noise levels approach or exceed the nominated criteria, assessment is undertaken against a 'relative increase criterion' of up to 2 dB(A). Traffic noise levels meet the relevant criterion, or the 'relative increase criterion' at all private residences.

The EPA is satisfied with the noise assessment and requested that a noise compliance review is undertaken after commencement of quarrying operations to ensure that mitigation measures adequately control noise emissions. Recommended conditions of consent include operational noise limits of 35 dB(A) and the relevant road traffic noise limits. The Department is satisfied that the project's noise impacts can be appropriately managed with the proposed noise controls and criteria in place.

5.5 Air Quality

The EIS included an assessment of air quality impacts for particulate matter in the form of total suspended particulates (TSP), PM_{10}, $PM_{2.5}$ and dust deposition. Dust emissions from the proposal are predicted to meet all relevant criteria at all locations, except for one residence (R7) north of the quarry, where the maximum PM_{10} 24-hour average is modelled to reach 56 µg/m^3. Of this, 38.8 µg/m^3 is attributable to the quarry's operations and the remainder is background dust. However, the assessment notes that these dust levels are modelled to exceed the relevant criterion (50 µg/m^3) for only two days per year. The assessment also notes that the background contribution was based on data that is likely to be conservative in comparison to the Coraki area and that predictions of quarry-related dust are also likely to be conservative.

Dust control measures proposed by Quarry Solutions include watering haul roads, sealing part of Seelems Road, use of water sprays within the processing plant, dust controls on rock drills, and the use of sprinklers or chemical suppressant on stockpiles during high wind conditions.

The EPA noted that, while it was satisfied with the assessment, it may request a review of dust controls and monitoring if dust emissions are observed or if complaints are received. The Department is satisfied that dust impacts can be appropriately managed with the proposed dust controls in place.

5.6 Other Issues

Table 3 contains a summary of the other issues considered in the Department's assessment and the resulting conclusions and recommendations.

Table 3: *Other issues*

Issue	***Consideration***	***Conclusion and Recommendation***
Land Capability Agriculture and Acid Sulphate Soils	• Part of the site is mapped as '*Significant Non-Contiguous Regionally Significant Farmland*' under the Northern Rivers Farmland Protection Project. However, the EIS contained soil mapping data that DPI Agriculture accepted as supporting the position that the site did not meet the criteria for Regionally Significant Farmland. • The majority of the site is mapped Class 5 for acid sulphate soil, being the lowest risk. All development associated with the proposal is located above 5 m AHD and is therefore not assessable for acid sulphate soil related impacts.	• The proposal would not impact on Regionally Significant Farmland as defined in the Northern Rivers Farmland Protection Project or on acid sulphate soils. • The Department is satisfied there would be no loss of agricultural land and no significant impact on adjoining agricultural land as a result of the proposal.
Blasting	• The nearest residence to the extraction area is located 335 m to the north, at 140 Newmans Road. • The blast and vibration assessment found that the blast criteria for vibration and overpressure can be met at all private residences if blasting is initially restricted to 12 m high benches and 89 millimetre diameter blast holes, and a number of other measures are put in place. • Blast monitoring would be undertaken at the two nearest residences to the north and south. Blast design would be progressively refined as monitoring results become available.	• The consent and EPL would include vibration and overpressure criteria that accord with ANZEC guidelines. • Vibration and overpressure can be managed within these criteria, providing that blasts are designed and undertaken in accordance with specifications detailed in the EIS's blast assessment. • The consent limits the number of blasts to 2 blasts per month, as described in the EIS's Blast

	• A Blast Exclusion Zone (BEZ) of 304 m at the front of the blast and 208 m at the back of the blast would be established for the management of flyrock. The BEZ may extend over private land, depending on the orientation of the blast.	Assessment, unless with the prior approval of the Secretary. Quarry Solutions may particularly seek the Secretary's agreement for increased blast frequency during establishment of the quarry's initial extraction area, when smaller but more numerous blasts may be preferable. • Conditions would require Quarry Solutions to obtain an agreement with any private land owner that is affected by the BEZ, prior to blasting taking place.
Aboriginal Heritage	• The site is highly disturbed by previous agriculture and Petersons Quarry's quarrying activities. • There is one known Aboriginal site on the Petersons Quarry site. The site is located within a previously defined 'Non-Disturbance Zone' that would be maintained. • There were no other Aboriginal sites recorded during the field survey. • One area adjacent to the wetland is predicted to contain a low to moderate artefact density. It is proposed that a further non-disturbance zone be established over this area.	• Known Aboriginal heritage sites and areas identified as having potential for sites have been protected through the designation of 'Indigenous Heritage Non-Disturbance Zones'. The proposal is therefore not likely to impact on Aboriginal heritage sites. • OEH was satisfied with the assessment and requested that the recommendations contained in the EIS are implemented. • Proposed conditions include development of an Aboriginal Cultural Heritage Management Plan and the establishment of the 'Indigenous Heritage Non-Disturbance Zone' over survey unit 4, adjacent to the wetland.
Historic Heritage	• There were no heritage structures found during the field survey. • There are no listed heritage items located within the site boundary.	• The proposal is not likely to impact on historic heritage sites.
Visual Amenity	• Coraki Quarry is located in a predominantly rural setting of moderate scenic quality. • The quarry would be operated by extending the extraction area of the existing Petersons Quarry which is largely shielded from view by the surrounding topography of Spring Hill. Shielding is also provided by existing vegetation. Earthen bunds to be established for noise control would also assist to screen views of the quarry. • Some of the stockpile areas would be visible from some vantage points. • The quarry would operate during daylight hours; therefore only limited night lighting is required.	• The visual impacts of the project would be similar to those that currently exist for Petersons Quarry. • Recommended conditions requiring establishment of earthen bunds for noise control would also assist to mitigate visual impacts. • The Department is satisfied that the project would not significantly impact on the visual amenity of the area.
Hazards	• An assessment was undertaken in accordance with *State Environmental Planning Policy 33*, which found that criteria for hazardous material storage were not exceeded. • The criterion for hazardous material transportation was triggered based on the volume of Ammonium Nitrate Suspension (an explosives precursor) transported to the site. Bulk volumes above the criterion may be transported to the site.	• Conditions would require Quarry Solutions to conduct a transport safety study in accordance with Hazardous Industry Planning Advisory Paper No 11: Route Selection (HIPAP11) prior to transporting hazardous materials above the relevant criterion.
Rehabilitation	• A Rehabilitation Management Plan was provided by Quarry Solutions as part of the Environmental Management Plan included in the EIS. • Proposed rehabilitation includes progressive rehabilitation to a safe, stable landform with the reinstatement of the past land use, being grazing. • Consideration would also be given to potential long-term land uses such as industrial uses, subject to further strategic planning by Council.	• Conditions would require Quarry Solutions to develop and implement the proposed Rehabilitation Management Plan.

Socio Economic	• It is intended that Coraki Quarry would supply material for the upgrade of the Pacific Highway. • The proposal would involve ongoing employment of eight to ten full-time staff. Quarry Solutions has also committed to offering a range of traineeships for school leavers in the local area. • The EIS estimates the project would result in the direct expenditure in the local economy of approximately $1.9 million per annum for the life of the quarry. • Assuming the maximum annual production of 1 million tonnes per annum, a further $1.08 million per annum would be provided to Council in the form of section 94 contributions. • In addition, Coraki Quarry would contribute to the State and Commonwealth governments through the payment of taxes.	• The Department considers that the proposal's social impacts have been adequately addressed in the EIS and RTS, and that they can be appropriately managed. • Quarry Solutions is committed to ongoing consultation with the community over the life of the quarry. • The Department is satisfied the project would result in socio-economic benefits to the local and regional community through employment, local expenditure, section 94 contributions to Council, and State and Commonwealth taxes.

6. CONCLUSION

The Department has assessed the development application, EIS, submissions and RTS in accordance with the relevant requirements of the EP&A Act. The Department has carefully considered all impacts of the proposal, particularly those associated with traffic, biodiversity, water, noise and air quality.

The Department considers that the impacts associated with the project would not be significant and could be managed and/or mitigated so as to comply with relevant criteria at all privately-owned residences. The project would provide benefits to the region through provision of a source of hard rock aggregate for the proposed Pacific Highway upgrade works. The quarry would also create eight to ten jobs and other benefits in the local and regional community.

The Department has prepared a contemporary suite of conditions that are consistent with current practice and contemporary standards. Quarry Solutions has reviewed and accepted these conditions.

The Department is satisfied that the proposed modification is in the public interest and should be approved, subject to conditions.

7. RECOMMENDATION

It is RECOMMENDED that the Executive Director, Resource Assessments & Compliance, as delegate of the Minister for Planning:

- **considers** the findings and recommendations of this report;
- **approves** the development application, subject to conditions; and
- **signs** the attached instrument of consent (**Appendix E**).

Howard Reed

Howard Reed 11.4.16
Director
Resource Assessments

Oliver Holm
Executive Director
Resource Assessments & Compliance

APPENDIX A: ENVIRONMENTAL IMPACT STATEMENT

Refer to the following link:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7036

APPENDIX B: SUBMISSIONS

Refer to the following link:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7036

APPENDIX C: RESPONSE TO SUBMISSIONS

Refer to the following link:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7036

APPENDIX D: CONSIDERATION OF ENVIRONMENTAL PLANNING INSTRUMENTS

State Environmental Planning Instruments

SEPP (State and Regional Development) 2011
The proposal, being an extractive industry that extracts more than 500,000 tonnes per annum, is 'State Significant Development' as defined under clause 7 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011*, and requires development consent under Part 4 of the EP&A Act from the Minister for Planning, or the Minister's delegate.

SEPP No.33 – Hazardous and Offensive Development
An assessment of the proposal was undertaken in accordance with *SEPP No.33 – Hazardous and Offensive Development*. The proposal does not trigger the criteria for hazardous material storage; however it may trigger criteria for hazardous material transportation based on the volume of Ammonium Nitrate Suspension transported to the site.

The EIS did not include a transport safety study in accordance with *Hazardous Industry Planning Advisory Paper No 11: Route Selection (HIPAP11)*, as required under the SEPP in these circumstances. The conditions of consent require Quarry Solutions to complete this study prior to transporting hazardous substances to the site above the SEPP's trigger levels.

SEPP No.44 – Koala Habitat Protection
SEPP 44 requires a consent authority to consider the presence of any core or potential Koala habitat. Richmond Valley LGA is listed in Schedule 1 of SEPP 44, which therefore applies to the project.

The EIS identifies that Koala habitat exists to the north of the site, and that two Koala feed trees occur within the proposed quarry footprint. The proposal includes the planting of Koala feed tree species in the revegetation areas as an offset to this potential impact on biodiversity.

The Department has recommended conditions to minimise any potential impacts on Koalas and to require Quarry Solutions to develop and implement a Biodiversity and Rehabilitation Management Plan for the management of the project's biodiversity impacts. The Department is therefore satisfied that the proposal would have a negligible impact on Koala habitat.

SEPP No.55 – Remediation of Land
The Department is satisfied that the site does not have a significant risk of contamination given its historical and current land uses, and the proposed use is not contrary to the aims, objectives, and provisions of SEPP 55.

SEPP (Infrastructure) 2007
SEPP (Infrastructure) 2007 requires the consent authority to notify relevant government authorities about developments that may affect public infrastructure or public land. The Department notified Council and RMS of the proposed development. RMS did not provide a submission and Council did not object to the proposal. The relevant infrastructure-related recommendations of Council have been considered and included in the recommended conditions of consent.

SEPP (Mining, Petroleum Production and Extractive Industries) 2007
Under Part 3 of the *SEPP (Mining, Petroleum and Extractive Industries) 2007* (Mining SEPP), there are a number of matters that must be considered by a consent authority prior to granting development consent: The consent authority must consider the following:

a) compatibility of the proposal with other land uses;
b) natural resource management and environmental management;
c) resource recovery;
d) road transport; and
e) rehabilitation.

The Department has considered these matters in its merit assessment of the project and is satisfied that the project can be undertaken in a way that is generally compatible with other land uses in the area, and appropriately responds to issues relating to road transport and rehabilitation.

Local Environmental Planning Instruments

The majority of the site is zoned RU1 – Primary Production under the *Richmond Valley Local Environmental Plan 2012* (the LEP). A small section of the site comprising the location of Seelems Creek is zoned E2 Environmental Conservation under the LEP.

Extractive industries are permissible with consent in land zoned RU1 – Primary Production. Extractive industries are prohibited in land zoned E2 - Environmental Conservation. All activities associated with the proposed development are located on land zoned RU1 and are therefore permissible with development consent.

The objectives of the RU1 zone are:

- to encourage sustainable primary industry production by maintaining and enhancing the natural resource base;
- to encourage diversity in primary industry enterprises and systems appropriate for the area.
- to minimise the fragmentation and alienation of resource land;
- to minimise conflict between land uses within this zone and land uses within adjoining zones; and
- to ensure that development does not unreasonable increase the demand for public services or public facilities.

The Department considers the project is generally in accordance with the objectives of the RU1 zone and is satisfied that the proposed development can be undertaken in a manner that is generally consistent with the other aims, objectives and provisions of the LEP.

APPENDIX E: INSTRUMENT OF CONSENT