

Tweed Sand Quarry Extraction Rate Increase (DA 152-6-2005 MOD 1)

Environmental Assessment Report Section 75W of the *Environmental Planning and Assessment Act 1979*

1. BACKGROUND

Hanson Construction Materials Pty Ltd (Hanson) owns and operates the Tweed Sand Quarry, located off Crescent Street, Cudgen, in the Tweed local government area (see **Figure 1**).



Figure 1: Location and layout of the Tweed Sand Quarry

The quarry was established under development consent T4/2562, granted in 1995, and subsequently development consent 0041/2001, granted in 2001, by Tweed Shire Council. On 31 July 2006, the Minister for Planning granted consent for an expansion of the quarry (DA 152-6-2005) under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This consent allows for the:

- expansion of the extraction area to include 'Phase 4' (see **Figure 1**);
- extraction of up to 150,000 cubic metres (m³) of sand per annum, over a 30-year period;
- processing of extracted material on site;
- transport of quarry products from the site via public roads; and
- progressive rehabilitation of the quarry to form a recreational fishing facility.

2. PROPOSED MODIFICATION

On 7 February 2017, Hanson lodged a modification under section 75W of the EP&A Act. The modification involves:

- increasing the site's annual extraction rate; and
- increasing the number of allowable truck movements to and from the site per day.

2.1 Extraction Rate

Over the past 10 years, market demand for sand has fluctuated and the quarry has averaged an annual extraction rate of 128,000 m³. However, in recent years, Hanson has identified an increasing demand for sand from the quarry.

In the 2015-16 financial year, Hanson exceeded its approved annual extraction rate by approximately 26,000 m³. This exceedance resulted in compliance action by the Department, which led to Hanson being issued a penalty notice of \$15,000 under section 125 of the EP&A Act.

Due to the increasing demand for sand products from the quarry, Hanson is seeking to increase the allowable extraction rate from 150,000 m³ to 265,000 m³ (or 500,000 tonnes) per annum. Hanson is not proposing to increase the total volume of sand extracted from the site.

2.2 Truck Movements

To accommodate the proposed extraction rate increase, Hanson is also seeking to increase the number of allowable truck movements to and from the site per day. Hanson's existing and proposed number of truck movements are summarised in **Table 1** below.

Table 1: Existing vs proposed heavy vehicle movements (combined in + out)

	Existing	Proposed
Max Per Hour	20	36
Max Per Day	200	354
Per Day (Rolling Quarterly Average)	80	142

The proposed modification does not seek to change the operating hours of the quarry, including the allowable load and dispatch periods.

3. STATUTORY CONTEXT

3.1 Section 75W

DA 152-6-2005 was granted under Part 4 of the EP&A Act. The project is a transitional Part 3A project under Schedule 2 of the *EP&A (Savings, Transitional and Other Provisions) Regulation 2017*. The power to modify transitional Part 3A projects under section 75W of the EP&A Act as in force immediately before its repeal on 1 October 2011 is being wound up – but as the request for this modification was made before the 'cut-off date' of 1 March 2018, the provisions of Schedule 2 (clause 3) continue to apply. Consequently, this report has been prepared in accordance with the requirements of Part 3A and associated regulations, and the Minister (or his delegate) may approve or disapprove the carrying out of the project under section 75W of the EP&A Act.

Although the modification seeks a substantial increase to the extraction rate and truck movements, it would not change the overall disturbance footprint or the total amount of resource to be extracted from the site. As such, the Department is satisfied that the modification would not significantly change the nature and scale of the approved development.

The Department is satisfied that the proposed modification is within the scope of section 75W, and may be determined accordingly.

3.2 Approval Authority

The Independent Planning Commission of NSW (IPC) must determine the application, in accordance with the Minister's delegation of 14 September 2011, because:

- Council has objected to the proposed modification;
- Council's objection was not received during the public exhibition period, and as such, Clause 8A(2) of the *State Environmental Planning Policy (SEPP) (State and Regional Development) 2011*, does not apply;

- the Minister's delegation to Department officers (11 October 2017) only applies to applications where Council has not made an objection;
- the Minister's delegation of 14 September 2011 to the Planning Assessment Commission (PAC) has not been revoked; and
- references to the PAC are to be construed as references to the IPC.

3.3 Objects of the EP&A Act

The Minister or delegate must consider the objects of the EP&A Act when making decisions under the Act. The objects of the EP&A Act changed on 1 March 2018. The Department has assessed the proposed modification against the current objects of the EP&A Act (see Section 1.3 of the Act). The objects of most relevance to the decision on whether or not to approve the proposed modification are:

- (a) *to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources;*
- (b) *to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment;*
- (c) *to promote the orderly and economic use and development of land;*
- (e) *to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats;*
- (i) *to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State; and*
- (j) *to provide increased opportunity for community participation in environmental planning and assessment.*

The Department is satisfied that the proposed modification encourages the proper management and development of resources (object (a)) and the promotion of the orderly and economic use of land (object (c)), since the:

- modification involves a permissible land use on the subject land;
- modification can be carried out using existing site and transport infrastructure; and
- modification would provide ongoing socio-economic benefits to the community of NSW.

The Department has considered the principles of ecologically sustainable development (ESD, object (b)) in its assessment of the proposed modification. The Department considers that the proposal is able to be carried out in a manner that is consistent with the principles of ESD. The Department's assessment has sought to integrate all significant environmental, social and economic considerations.

Consideration of the protection of the environment (object (e)) is provided in Section 5 of this report. The Department considers that the proposal has been designed to minimise potential environmental impacts.

Lastly, the Department considers that the extensive consultation undertaken with key stakeholders satisfies the objectives to share responsibility between different levels of government in the State (object (i)) and increase the opportunity for community participation (object (j)).

4. CONSULTATION

After accepting the Environmental Assessment (EA) for the proposed modification (see **Appendix A**), the Department:

- publicly exhibited the EA from 29 June until 31 July 2017 on the Department's website and at:
 - NSW Service Centres;
 - Tweed Shire Council's office; and
 - the Nature Conservation Council's office;
- advertised the exhibition of the EA in the *Tweed Daily News*; and
- notified relevant State government agencies and Tweed Shire Council.

The Department is satisfied that the notification process met the requirements of the EP&A Act and the *Environmental Planning & Assessment Regulation 2000*.

In response to the exhibition, the Department received five submissions from government agencies. On 17 November 2017 (after the conclusion of the exhibition period), the Department received a submission from Gales Kingscliff Pty Ltd (Gales), the land owner of the adjoining Cudgen Lakes Sand

Quarry. Subsequently, Gales lodged additional submissions on 27 November, 22 December 2017 and 12 March 2018.

A summary of the issues raised in submissions is provided below. Full copies of these submissions and Hanson's Response to Submissions (RTS) are provided in **Appendices B** and **C**, respectively.

4.1 Submission from Gales Kingscliff Pty Ltd

Gales raised concerns over contradictory traffic modelling predictions for the Tweed Coast Road / Crescent Street intersection between the Traffic Impact Assessments (TIAs) in Hanson's EA and its own 2008 EA for its Cudgen Lakes Sand Quarry.

The Cudgen Lakes Sand Quarry's project approval requires Gales to upgrade the Tweed Coast Road / Crescent Street intersection, prior to transporting any extracted material from its site. This condition was implemented in response to traffic modelling predictions in that project's 2008 EA, which indicated that this intersection would operate inadequately by 2011. However, Hanson's 2017 EA concluded that no intersection upgrades would be required as a result of the proposed increase in truck movements. Gales did not object to Hanson's proposed increase in truck movements, but emphasised the need for an equitable approach to any intersection upgrades.

Additionally, Gales raised concerns over:

- whether Hanson's EA had considered the traffic impacts of two nearby residential subdivisions which are under construction; and
- development of an equitable maintenance agreement for Altona Road.

In response to the inconsistencies identified by Gales, the Department requested Hanson to provide additional information regarding the differences between the two TIAs. Subsequently, Hanson provided a revised TIA (referred to as Bitzios 2018).

The Department has considered these matters further in **Section 5.1**.

4.2 Agency Submissions

Council provided three submissions on the proposed modification. The first of these submissions was provided in August 2017, in response to the exhibition of the application. In this submission, Council noted that Altona Road is not a Council maintained road, and as such, it recommended that a suitable road maintenance agreement be negotiated between Council other benefitting parties regarding the increased truck movements.

Council supported Hanson's proposed amendments to the long-term rehabilitation timeframe in its Rehabilitation and Landscape Management Plan (RLMP) and recommended that, if approved, all components of the RLMP be modified to reflect the proposed extraction rates. Council also requested an update on current rehabilitation and water-quality monitoring. Hanson agreed to the recommended RLMP updates and the Department provided Council with the latest Annual Environmental Management Reports, which contained rehabilitation and water quality updates.

Council also provided two additional submissions in response to Bitzios 2018 and the Department's draft conditions of consent for the modification, respectively. The first of these submissions (May 2018) was provided by Council officers as 'preliminary comments', whilst awaiting its endorsement at Council's upcoming Planning Committee meeting. These comments raised concerns over the Department's drafting of conditions relating to road upgrade and maintenance agreements, the timing associated with upgrading the Tweed Coast Road / Crescent Street intersection, road contributions, and rehabilitation.

In June 2018, Council provided another submission which endorsed the comments made in the May 2018 submission, as well as additional comments arising from a Council resolution following consideration of the modification application. These additional comments advised that Council 'did not support' the application due to its inappropriateness in the iconic Tweed landscape. The Council resolution also raised a number of concerns over various aspects of the existing development, including water quality and water management, impacts on vegetation corridors, visual impacts, air quality and land use. Council also requested the deferred commencement of any increase in truck movements until Tweed Coast Road is upgraded to four lanes. Council also requested a meeting with the Department to further discuss these matters.

On 2 July 2018, the Department met with the Mayor, one other Councillor and Council officers at Council's office in Tweed Heads. Council concerns discussed at this meeting included impacts of the existing development, future potential cumulative impacts of quarrying in the region, flooding, traffic and land use. Council confirmed that its submission should be considered to be a formal objection.

The issues raised in Council's various submissions are further described and addressed in **Section 5.1**.

In its initial submission, **Road and Maritime Services (RMS)** noted that the identified haulage route for the quarry is also the approved haulage route for the Cudgen Lakes Sand Quarry. RMS requested that Hanson consider the cumulative traffic impacts of the proposed modification on the local road network. RMS advised that the Cudgen Lakes Sand Quarry approval already requires the upgrade of the Tweed Coast Road and Crescent Street intersection and recommended that Hanson consider equitable arrangements to deliver improvements to this intersection. RMS requested that further consideration be given to road safety at the site access and on the haulage route, particularly in relation to sight distances, intersection geometry and carriageway width. Lastly, RMS recommended key considerations to be included in a Driver's Code of Conduct for the site.

RMS provided two additional submission in response to Bitzios 2018 and the Department's draft conditions, respectively. RMS considered that Bitzios 2018 did not adequately consider the likely traffic on the road network over a 10-year horizon and that road safety impacts at the Tweed Coast Road / Crescent Street intersection were not assessed against Austroads guidelines. This matter is discussed in **Section 5.1**.

RMS was generally satisfied with the Department's draft conditions of consent but made a number of recommendations including that:

- the concept design for the upgrade of the Tweed Coast Road / Crescent Street intersection is submitted to RMS for concurrence, in accordance with Section 138 of the *Roads Act 1993*;
- the Tweed Coast Road / Crescent Street intersection is constructed in accordance with Austroads Guidelines and Australian standards; and
- the Traffic Management Plan be prepared in accordance with the *RTS – Traffic Control and Worksites Manual*.

The Department has included these recommendations in its draft conditions of consent.

Department of Industry (DoI), noted that the proposed increase in truck movements may result in a need for additional dust suppression. DoI recommended that an assessment be provided regarding any additional water that may be required for dust suppression, prior to determination of the modification. DoI also recommended that any encroachments on Crown roads within the site be addressed through road closure and acquisition, and that appropriate setbacks are implemented to avoid impacts to Crown roads outside the site.

In its RTS, Hanson advised that any additional water required for dust suppression would be of low volume and could be readily sourced from the dredge pond. Additionally, Hanson advised that no Crown roads would be encroached upon as part of the modification. DPI was satisfied with this response.

The Department's **Division of Resources and Geoscience (DRG)** noted that the proposed modification would result in the 'Phase 4' area being extracted sooner than anticipated. DRG recommended that Hanson continue to provide annual production data to assist in resource management planning for NSW.

The **Office of Environment and Heritage (OEH)** noted that the proposed increased extraction rate could result in the exhaustion of the sand resource earlier than anticipated. Consequently, OEH requested that the RLMP be revised to include updated rehabilitation delivery timeframes, a review of existing monitoring data against performance and completion criteria, and an updated Weed and Pest Management Plan.

5. ASSESSMENT

The Department has assessed the merits of the proposed modification in accordance with the relevant

objects and requirements of the EP&A Act, including the:

- Environmental Impact Statement for the original development application;
- conditions of consent for the development as originally approved;
- modification application, EA, RTS and additional information provided by Hanson;
- submissions received from State agencies, Council and Gales; and
- relevant environmental planning instruments, policies and guidelines.

The Department considers the key impacts of the modification relate to traffic and noise. Consideration of these impacts is provided below, with consideration of other impacts provided in **Table 2**.

5.1 Traffic

The EA included a TIA, prepared by Bitzios Consulting (Bitzios), to assess the potential traffic impacts on the quarry's haulage route. The quarry is located on the southern side of Altona Road, Chinderah, which can be accessed from Tweed Coast Road via Crescent Street (see **Figures 1 and 2**).



Figure 2: Tweed Sand Quarry haulage route

The existing conditions of consent impose limits on the number of trucks that can enter and exit the quarry per hour, per day and per day over a rolling quarterly average. The proposed modification seeks to increase each of these limits by 77%. Hanson advised that the proposed increases are proportional to the proposed increased extraction rate. The Department has based its assessment on the maximum truck movements proposed, being 36 truck movements (in + out) per hour.

5.1.1 Traffic Generation

Table 2 provides a summary of the proposed changes in comparison to existing traffic generation in the peak AM period.

Table 2: Proposed changes to traffic generation (AM peak period)

Road	Existing Traffic Volume (AM Peak hour)	Approved Truck Movements (per hour)	Proposed Truck Movements (per hour)	Percentage Increase
Tweed Coast Road	1482	20	36	1.1%
Crescent Street	162			10%
Altona Road	28			11%

As a result of the modification, traffic is predicted to increase on Altona Road by 11 %. The Department notes that existing traffic on this road is low and is dominated by vehicles accessing the quarry. This road is also used by vehicles accessing Council's Wastewater Treatment Plant. The maintenance of Altona Road is discussed further in **Section 5.1.3**.

The proposed modification would also result in a 10% increase in heavy vehicle movements on Crescent Street. The Department considers this increase to be minor in relation to the level of traffic on this road. The Department notes that heavy vehicles leaving the quarry are prohibited from turning right on to Crescent Street and travelling through Cudgen Village. As such, quarry truck movements only occur on Crescent Street for approximately 220 metres (m) north of Altona Road. Consequently, the impact of additional heavy vehicles on Crescent Street would be minor and would not impact Cudgen Village.

Lastly, the Department considers that a 1% increase in vehicle movements on Tweed Coast Road would have a negligible impact on traffic and road safety on this road.

5.1.2 Intersections

Inconsistency between Traffic Impact Assessments

The proposed modification would increase the number of heavy vehicles using the Tweed Coast Road / Crescent Street and Crescent Street / Altona Road intersections. The TIA provided an assessment of how the proposed additional truck movements would impact the performance and safety of these intersections.

The TIA concluded that, with the additional proposed truck movements, both intersections could operate below the Degree of Saturation (DoS) performance threshold (<0.8) required under RMS's *Traffic Modelling Guidelines* (2013). Accordingly, Hanson advised that no intersection upgrades would be required.

However, Gales raised concern over these conclusions, since they were significantly different to those provided in the 2008 Cudgen Lakes Sand Quarry EA. That EA identified that the Tweed Coast Road / Crescent Street intersection would operate inadequately by 2011. Accordingly, the project approval for Cudgen Lakes Sand Quarry requires Gales to upgrade the Tweed Coast Road / Crescent Street intersection prior to trucking any extracted materials from its site. Gales considered that approval of the proposed modification would result in an inequitable arrangement for Gales to deliver the intersection upgrade, which would then be used by Hanson, despite Hanson's TIA saying the upgrade was not required.

In response to the inconsistencies identified by Gales, the Department requested Hanson to provide additional information regarding the differences between the two TIAs. Hanson commissioned Bitzios to respond to this request, which was provided in a revised TIA (Bitzios 2018). Bitzios advised that, since the Cudgen Lakes Sand Quarry EA was prepared, the SIDRA traffic modelling software used to predict potential traffic impacts had been updated. The SIDRA output for the Cudgen Lakes Sand Quarry Project primarily focussed on the modelled average delay and its associated Level of Service (LoS) classification. However, contemporary SIDRA modelling focusses on a combination of DoS, LoS and 95th percentile queueing. Bitzios further advised that LoS on its own is not an accurate measure of the overall performance of an intersection and other factors should be considered (eg while delay time may be extensive, the queue length may be less than one vehicle).

Bitzios undertook additional traffic modelling to predict the likely performance of the Tweed Coast Road / Crescent Street intersection if both quarries were trucking at maximum capacity. The results indicated that acceptable intersection performance could be achieved without upgrading the intersection for a number of years (at least until 2027).

Based on the results of Bitzios 2018, Gales lodged a modification for its Cudgen Lakes Sand Quarry (Mod 3) seeking to remove its requirement to upgrade the Tweed Coast Road / Crescent Street intersection prior to commencing trucking. These upgrades include:

- Austroads CHR treatment for the right-hand turn from Tweed Coast Road to Crescent Street; and
- Austroads left turn treatment / acceleration lane for the left-hand turn from Crescent Street to Tweed Coast Road.

The Department recognises that these modifications present an opportunity to provide greater consistency between the Tweed Sand consent and the Cudgen Lakes Sand approval, and to provide for a more equitable division of costs for shared infrastructure. This is discussed further below.

Predicted Intersection Performance

Bitzios 2018 provided predictions of the performance of the relevant intersections based on:

- Scenario 1 - the existing intersections (no upgrades) with the additional Tweed Sand Quarry trucks proposed under this modification; and
- Scenario 2 – the existing intersections (no upgrades) with both Tweed Sand and Cudgen Lakes quarries operating at maximum trucking capacity (including the proposed additional trucks under this modification).

Under Scenario 1, it was predicted that the Crescent Street / Altona Road intersection would operate well within acceptable capacity, with a maximum DoS of 0.046 predicted in 2028. The Tweed Coast Road / Crescent Street intersection was predicted to only just remain within an acceptable capacity, with a maximum DoS of 0.75 predicted in 2028.

Since the emergence of the discrepancies between Hanson's 2017 TIA and the Cudgen Lakes Sand Quarry 2008 TIA, the Department considers that it would be inequitable to consider and assess Scenario 1 in isolation. As Gales is concurrently seeking to remove its road upgrade requirements based on the findings in Bitzios 2018, the Department considers that its assessment for both applications should focus on Scenario 2.

Under Scenario 2, it was predicted that the Crescent Street / Altona Road intersection would experience a maximum DoS of 0.055 and a maximum average delay of 6.5 seconds by 2028. The Tweed Coast Road / Crescent Street intersection was predicted to operate within acceptable performance standards until 2028, when a DoS of 0.818 is predicted.

By 2028, the right-hand turn from Crescent Street on to Tweed Coast Road is predicted to experience an average delay of 316.8 seconds. However, only a very small number of vehicles (ie less than 5 in peak hour) are predicted to make this turn. The majority of vehicles make a left-hand turn from Crescent Street on to Tweed Coast Road. By 2028, this turn is predicted to experience an average delay of 52.8 seconds and a DoS of 0.75.

Hanson advised that, if the right-hand turn out of Crescent Street was banned, the predicted DoS for the whole intersection would reduce to 0.74. The Department notes that vehicles leaving both quarries are currently prohibited from making this turn. However, the regulation of this turn for the general public is at the discretion of Council, as the relevant road authority. In its latter submission, Council advised that it would not agree to banning this turn for the general public.

Council and RMS raised concern that Bitzios 2018 did not consider traffic from nearby residential subdivision developments that are approved but not yet constructed. Hanson acknowledged that the occupancy of these residential developments would likely cause the Tweed Coast Road / Crescent Street intersection to exceed the performance thresholds earlier than 2028.

Council also raised safety concerns regarding the proposed increased truck movements through the Tweed Coast Road / Crescent Street intersection. These concerns primarily relate to trucks turning north on to Tweed Coast Road and the risk of heavy vehicles entering traffic streams during inappropriate gaps in an 80 kilometre per hour speed zone. Accordingly, Council recommended the construction of a northbound acceleration lane on Tweed Coast Road to enable heavy vehicles a safer entry to the traffic stream. Council also recommended that the intersection be upgraded prior to the commencement of additional trucks under this modification (and by extension, the commencement of trucking by Gales).

Hanson considered that the risk of truck drivers entering the traffic stream during inappropriate gaps would be alleviated by regular breaks in traffic flow due to the traffic light cycle at the Tweed Coast Road / Cudgen Road intersection. Additionally, Hanson advised that any proposed intersection works would likely be used for an interim period only due to a number of potential future development alternatives, including:

- the potential approval of alternative access routes under future development applications for the Tweed Sand Quarry and/or Cudgen Lakes Sand Quarry; and
- the potential upgrade of Tweed Coast Road to four lanes, by Council under strategic planning initiatives.

The Department has not received an application for the development of any alternate access route, and although it is Council's preference to delay the commencement of increased trucking until after Tweed Coast Road is upgraded to four lanes, no funding has been allocated to this upgrade. The Department considers that there is significant ambiguity in the timing of these alternatives. Consequently, the Department has made its recommendations based on the only existing and approved access route.

The Department acknowledges the financial imposition associated with recommending intersection upgrades. However, currently, this financial imposition lies solely with Gales, which is restricted from trucking until the upgrades are completed. Based on the findings of Bitzios 2018, the Department considers this arrangement to be inequitable.

Council advised that the key costs associated with upgrading the Tweed Coast Road / Crescent Street intersection would be the northbound acceleration lane, which would be in the order of \$250,000. To achieve the Austroads CHR treatment for the right-hand turn from Tweed Coast Road to Crescent Street, only line marking treatment would be required.

The Department consulted with both Hanson and Gales in relation to Council's recommendation for the immediate upgrade of the Tweed Coast Road / Crescent Street intersection. Both parties accepted Council's recommendation on the basis that equitable terms for its delivery could be negotiated between them. Council did not wish to be party to this agreement and requested instead that it merely be consulted. The Department accepted this position.

Upon further consideration of the Department's draft conditions, Hanson advised that it would be willing to solely fund the intersection upgrade, in the interest of negating potential delays to commencing operations under this modification.

Despite Hanson's offer, the Department considers that there should be sufficient flexibility in any imposed conditions for an equitable arrangement to be established, at Hanson's discretion. Consequently, the Department has recommended a condition of consent for the upgrade of the intersection to be undertaken either solely by Hanson or following Hanson and Gales entering into an equitable road upgrade agreement, in consultation with Council. Additionally, the Department has recommended that these upgrades are completed prior to any additional trucking under this modification.

5.1.3 Altona Road

Altona Road is partially located within Council's road reserve and partially on land owned by Gales. Consequently, it is only in part a Council-maintained public road. The first 650 m of Altona Road is a single-lane, one-way carriageway, with three passing bays located approximately 90 m apart. The road then widens to a two-way carriageway up to the entrance of the quarry. Council identified that Altona Road would require additional maintenance or upgrade to accommodate the proposed additional truck movements, due to sections of the road being very narrow and adjacent to open drains.

In its initial submission, Council recommended that Hanson enter into a legally binding road maintenance agreement with it and any other benefitting parties, to ensure that Altona Road could suitably accommodate the proposed additional heavy vehicle movements. In its subsequent submissions, Council retracted its preference to be a party to this agreement and requested that it merely be consulted.

Under its project approval, Gales committed to construct an additional two passing bays along Altona Road prior to the commencement of trucking. In its submission, Gales raised concern over the equity of any future maintenance agreement for Altona Road, particularly in relation to the potential need for major maintenance and upgrade works. Additionally, Gales queried the proportion of allocated costs before and after Altona Road is re-aligned under its approval. Gales requested that a formal agreement be established prior to determination of this modification.

The Department acknowledges that, in its existing state, Altona Road is not in an adequate condition to accommodate the increased truck movements under this modification and commencement of trucking from Gales. Accordingly, the Department considers that Altona Road should be upgraded prior to the commencement of increased truck movements, and that an equitable maintenance arrangement should be established for its ongoing use.

The re-alignment of Altona Road is a key component of the Cudgen Lakes Sand Quarry Project, as it is required to enable access to extract a key part of the sand resource. The Department considers that the costs associated with this re-alignment lie solely with Gales. Notwithstanding, the Department considers that the upgrade and maintenance of Altona Road should:

- at a minimum, include the construction of two additional passing bays that have sufficient length to accommodate a truck and dog trailer combination; and
- provide for the ongoing repairs and maintenance of the road, for both the existing and future alignment.

Both Hanson and Gales accepted the recommendation to establish an equitable cost sharing agreement. However, similar to the Tweed Coast Road / Crescent Street intersection, Hanson subsequently offered to fund the upgrade of Altona Road in the interest of negating delays to commencing operations under this modification. The Department has recommended that upgrade of Altona Road is undertaken either solely by Hanson, or else by Hanson and Gales entering into an equitable road upgrade agreement, in either case in consultation with Council.

The Department has recommended conditions to allow the Secretary to resolve any disputes, should the two parties be unable to reach an agreement.

5.1.4 Road Contributions

In accordance with the *Tweed Road Contributions Plan 2016* (TRCP), Hanson calculated that the proposed increased truck movements would generate a total contribution of \$46,630. In its initial submission, Council was satisfied with this amount.

Following a review of the Department's draft conditions, Council requested that the condition be reworded to account for any adjustment to the applicable contributions rate between the date of approval of the modification and the date the contribution is paid. Council also requested that the applicable contribution is paid prior to the commencement of trucking under this modification.

The Department considers that the recommended condition is worded such that it allows for any adjustment in the applicable contributions rate. The Department has also included the recommendation for the contribution to be paid prior to the commencement of trucking under this modification.

5.1.5 Conclusion

On the basis that Altona Road and the Tweed Coast Road / Crescent Street intersection are both upgraded, the Department is satisfied that traffic impacts associated with the proposed modification are acceptable. To ensure traffic impacts continue to be managed appropriately, the Department has recommended contemporary transport management operating conditions, as well as a contemporary Transport Management Plan with a Driver's Code of Conduct.

5.2 Noise

The EA included a Noise Impact Assessment (NIA) which utilised monitoring data from the site's 2016 Annual Noise Survey and 2015 Dredge Noise Survey to predict the likely noise impacts of the proposed modification.

5.2.1 Operational Noise

The proposal would result in additional noise from increased truck movements. Noise associated with dredging and loading operations would remain consistent with existing operations over any 15-minute period ($L_{Aeq15min}$). However, these operations would occur more frequently over the course of a day.

The 2016 Annual Noise Survey identified that the wash plant, loader and truck movements are not audible over the operation of the dredge. It was concluded that the average noise level ($L_{Aeq15min}$) associated with site operations at the closest receiver was 43 dB(A). This is 3 dB(A) above the noise

impact criterion in DA 152-6-2005, which is 40 dB(A). At this time, the dredge was operating at approximately 400-450 m from the closest receiver.

The NIA predicted that at the worst-case dredge location (300 m from the closest receiver), six receivers would experience noise level exceedances between 3 and 9 dB(A). The closest sensitive receiver would experience noise levels up to 49 dB(A). Hanson has negotiated an agreement with this receiver (543 Cudgen Road) to exceed the noise impact criterion. However, negotiated agreements are not in place with the other five receivers predicted to experience noise exceedances.

Hanson has proposed to implement a range of mitigation measures on site to achieve a 9 dB(A) reduction in noise emissions, to achieve compliance with the noise impact criterion. The proposed mitigation measures relate to noise attenuation of the dredge and include:

- replacing the engine with a quieter model;
- upgrading the enclosure of the engine;
- upgrading the engine exhaust muffler; and
- installing a noise attenuator to the engine radiation fan.

The Department considers that these measures would likely provide a reduction in noise levels at sensitive receivers below the noise impact criterion. Until these measures are implemented, the site may be operating in non-compliance with its existing consent. As the increased extraction rate would increase the number and daily duration of dredging operations, the Department considers that noise attenuation of the dredge must be undertaken prior to increasing the rate of extraction under this modification. The EPA agreed with this approach and the Department has recommended a condition of consent to this effect. The Department has also recommended updating noise conditions in the consent to a contemporary drafting standard, including a requirement for the preparation and implementation of a Noise Management Plan.

5.2.2 Road Noise

The NIA predicted that the proposed modification would result in noise level increases for sensitive receivers along the primary haulage route. The NIA calculated road noise impacts at 216 Tweed Coast Road, located on the corner of Crescent Street. The setback distance of this receiver (40 m to Crescent Street and 25 m to Tweed Coast Road) was considered representative of traffic noise levels for other receivers on these roads.

The NIA predicted that, during the peak hour period, road noise levels at this receiver would increase by 0.2 dB(A). The *NSW Road Noise Policy* (RNP) requires noise level increases associated with increased traffic generation in residential areas to not exceed 2 dB(A). The proposed 0.2 dB(A) increase is below this limit and is unlikely to be perceivable for sensitive receivers along these roads.

The nearest receiver along Altona Road is located at a setback of 260 m. The NIA considered that, due to this significant distance, the proposed modification would not result in exceedance of the RNP local road noise criterion.

EPA and Council raised no concerns over the potential road noise increases resulting from of the proposal. The Department considers that any increase in road noise levels would be negligible and would be appropriately managed under the recommended Traffic Management Plan and Noise Management Plan.

5.3 Other Impacts

The Department is satisfied that the other impacts of the proposal are likely to be minor. Assessment of these other impacts is summarised in **Table 3** below.

Table 3: Assessment of other impacts

Issue	Consideration and Assessment	Recommendation
<i>Air Quality</i>	<ul style="list-style-type: none"> • The proposed modification is likely to generate additional dust emissions from: <ul style="list-style-type: none"> ○ vehicle movements on unsealed roads; ○ wind erosion of exposed ground and stockpiles; and ○ materials handling, including screening, loading and stockpiling. 	<ul style="list-style-type: none"> • The Department has recommended the update of air quality management conditions to reflect

Issue	Consideration and Assessment	Recommendation
	<ul style="list-style-type: none"> • The EA estimates that these additional activities could increase emissions of TSP, PM₁₀ and PM_{2.5} by 37%, 30% and 24%, respectively. • Hanson acknowledges that dust mitigating activities, particularly watering of haul roads, is currently only undertaken on an 'as needs' basis. • Hanson has proposed to implement routine watering of haul roads to reduce dust emissions from operations. • With the application of routine watering, the site's overall dust emissions for TSP, PM₁₀ and PM_{2.5} are predicted to reduce by 16%, 12%, and 10%, respectively, notwithstanding the additional activities. 	<p>contemporary drafting standards. This includes the preparation and implementation of an Air Quality Management Plan and a requirement to implement routine watering of haul roads.</p>
Rehabilitation	<ul style="list-style-type: none"> • No changes are proposed to the final landform. However, due to the proposed increased extraction rate, the completion of quarrying activities is likely to occur sooner than previously expected. • OEH and Council recommended that the RLMP is updated in relation to rehabilitation delivery timeframes, completion criteria and management actions. • Hanson has agreed to this request. • Upon review of the Department's draft conditions, Council made a series of recommendations regarding the site's rehabilitation objectives and RLMP. • The Department considered that some of these recommendations could be implemented during the consultation stage of preparing the RLMP, including specifying timeframes for short, medium and long-term rehabilitation. • The Department agreed to Council's recommendation for the inclusion of the rehabilitation objective for 'natural looking bank design'. • The Department notes that all management plans, programs and strategies must be revised within three months of determination of a modification. 	<ul style="list-style-type: none"> • The Department has recommended the update of rehabilitation management conditions to reflect contemporary drafting standards.

6. CONDITIONS

The Department has drafted a recommended Notice of Modification (see **Appendix D**). The Department has taken the opportunity to review the overall consent for the quarry and to include a fully revised and contemporary suite of conditions that are consistent with current practice and standards. Some key changes to the approval include:

- revision, update and consolidation of specific environmental conditions to align with the Department's current standards for noise, air quality, rehabilitation, water and traffic management;
- revision, update and consolidation of administrative and reporting conditions to align with the Department's current standards; and
- update of the annual average PM₁₀ criterion and the inclusion of 24 hour and annual average PM_{2.5} criteria in accordance with the *Approved Methods for the Modelling and Assessments of Air Pollutants in New South Wales 2016*.

The Department considers that the environmental impacts of the project can be appropriately managed through the existing and recommended conditions of consent.

Hanson has reviewed and agreed to the recommended conditions of consent.

7. CONCLUSION

The Department has assessed the modification application, EA and submissions in accordance with the relevant requirements of the EP&A Act. The Department has carefully considered the likely impacts of the proposal on the natural and cultural environment, and on nearby residents. The Department is satisfied that the proposed modification would have limited environmental impacts. Moreover, the Department is satisfied that these impacts can be appropriately managed by existing, modified and/or updated conditions of consent.

Following on from its assessment of the modification, the Department considers that the modification is approvable, subject to the proposed conditions of consent (see **Appendix D**).

8. RECOMMENDATION

It is recommended that the Independent Planning Commission of New South Wales:

- consider the findings and recommendations of this report;
- determine that the modification request falls within the scope of section 75W of the EP&A Act;
- modify the consent DA 152-6-2005; and
- sign the attached modification of consent (**Appendix D**).

Recommended by:

 16/7/18
Genevieve Seed
Senior Planning Officer

Recommended by:

 16-7-18
Howard Reed
A/Executive Director
Resource Assessments and Compliance

