



Tweed Sand Plant – Air Quality Management Plan

Prepared for:

Hanson Construction Materials Pty Ltd

March 2019

Final

Prepared by:

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Air Quality Management Plan

6. The Applicant must prepare an Air Quality Management Plan for the development to the satisfaction of the Secretary. This plan must:

- a) Be prepared by suitably qualified and experienced person/s whose appointment has been endorsed by the Secretary;
- b) Be prepared in consultation with the EPA
- c) Be submitted to the Secretary within three months of the determination of Modification 1;
- d) Describe the measures to be implemented to ensure:
 - i. compliance with the air quality criteria and operating conditions of this consent;
 - ii. best practice management is being employed; and
 - iii. the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events;
- e) describe the air quality management system in detail; and
- f) include an air quality monitoring program that:
 - i. is capable of evaluating the performance of the development against the air quality criteria;
 - ii. adequately supports the air quality management system; and
 - iii. includes a protocol for determining any exceedances of the air quality criteria

The Applicant must implement the Air Quality Management Plan as approved from time to time by the Secretary.

3. TWEED SAND PLANT

3.1 Site Layout and Activities

Tweed Sand Plant is located off Altona Road in Cudgen, Northern NSW. The site is formally described as Lot Plans; 22DP1082435, 23DP1077509 and 494DP720450, with a total area of approximately 77 hectares (ha) of which some 46 ha is the approved extraction area.

Sand extraction has been undertaken on this site since 1983 with Hanson taking over operation of the site in 2005. Tweed Sand Plant operates a single dredge unit that is linked to an onshore wash plant via a floating flow line. Sand is processed through the wash plant, stockpiled and then loaded via a front-end loader into standard highway trucks.

Loaded trucks pass across the site weighbridge (logging product weight and truck departure date/time) then follow the standard haul route of Altona Road onto Crescent Street then Tweed Coast Road to proceed either north or south bound on the Pacific Highway. An aerial image of the Tweed Sand Plant site is shown in Figure 1.



Figure 1 Tweed Sand Plant site layout

3.2 Location of sensitive receptors

Sensitive places are defined under the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (EPA, 2016) as follows:

A sensitive place could include but is not limited to:

- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises
- a motel, hotel or hostel
- a kindergarten, school, university or other educational institution
- a medical centre or hospital
- a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 2004* or a World Heritage Area
- a public park or garden
- a place used as a workplace including an office for business or commercial purposes.

Tweed Sand Plant is located within the Tweed Valley flood plain and is surrounded by the following land uses/receptors:

- North – Tweed Shire Council's wastewater treatment facility; isolated residential receptors; agricultural land (cane, grazing); Pacific Motorway and township of Chinderah in the distance (approximately 2 km).
- East – Cudgen Lake Sand Quarry (Cudgen Lakes); township of Cudgen (approximately 1 km); Township of Kingscliff in the distance (approximately 3 km).
- South – Residential receptors located along Cudgen Road ridge.
- West – Australian Bay Lobster Producers Pty Ltd; Melaleuca Station Memorial Gardens and Crematorium; Pacific Motorway; agricultural land (cane, grazing).

Figure 2 shows the location of Tweed Sand Plant and the nearest sensitive receptors.

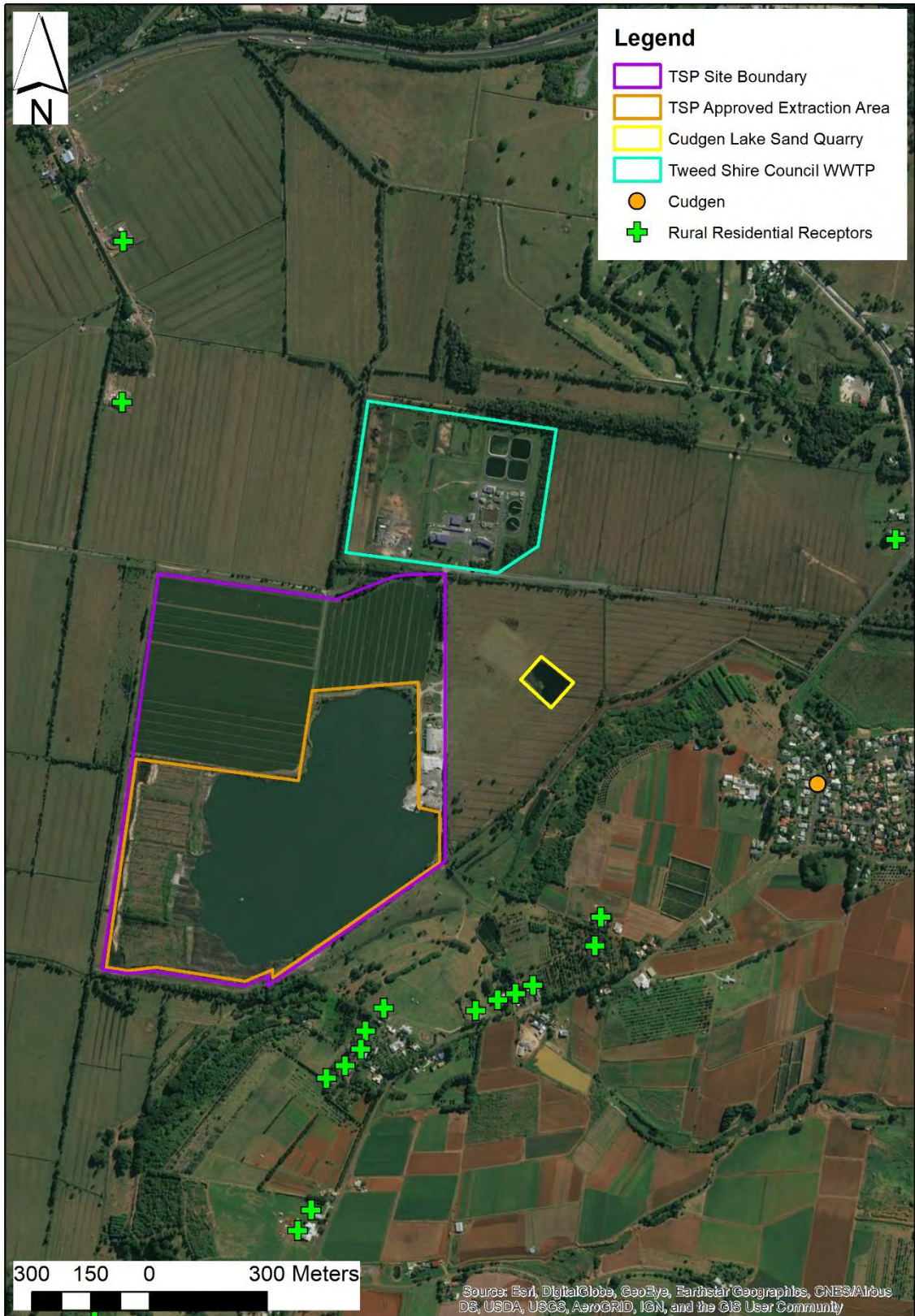


Figure 2 Location of Tweed Sand Plant and nearest sensitive receptors

4. CONSULTATION

Condition 6 in MOD 1 requires an AQMP be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Secretary and prepared in consultation with the EPA.

Attachment A includes a letter from DPE that approves the appointment of Katestone to prepare the AQMP. Attachment B includes email correspondence between Katestone and the EPA and Tweed Shire Council in regard to preparation of this AQMP which include the following statements.

NSW EPA

“The EPA is content with the scope for the air quality management plan (Schedule 3, Condition 6). There is no need for the EPA to review the draft of the air quality management plan prior to its submission to DPE for approval”.

Tweed Shire Council

“Please be advised that TSC is satisfied with the scope of the Mod 1 requirements. No additional information is considered necessary. Please also be advised that TSC does not require a copy of the draft AQMP for review prior to its submission to the Department”.

5. DUST SOURCES AND CONTROLS

5.1 Sources of Dust

Certain activities at Tweed Sand Plant will generate emissions of dust. The type and magnitude of dust emitted from Tweed Sand Plant will vary depending upon the rate and intensity of each activity, the properties of the materials and the application of emission control measures.

The material (sand) that is extracted (dredge operation), screened and stockpiled is relatively wet and the potential for generation of dust is extremely low from these activities. Notwithstanding this, the activities occurring at Tweed Sand Plant that may give rise to emissions of dust are:

- Dredge operation (wet material so very minimal dust generation)
- Material handling
 - Wash plant operation – screening material
 - Stacking product in stockpiles
 - Reclaiming product from stockpiles
 - Loading product into trucks
 - Product stockpile maintenance (front-end loader operation)
- Removing topsoil from future sand dredging area (bulldozer operation)
- Wind erosion of exposed ground and product stockpiles
- Wheel generated dust from vehicle movements on unsealed site roads.

5.2 Existing Dust Control Measures

The following dust control measures are currently in use at Tweed Sand Plant:

- Material handling:
 - Wash plant structure is protected by side walls
 - Material drop heights are minimised.
- Wind erosion of exposed ground and product stockpiles:
 - Water sprinklers are used on product stockpiles and exposed ground with watering frequency on an “as needed” basis, determined by visible dust
 - The area of exposed ground and stockpiles is minimised as far as practical
 - Vegetation screen around the wash plant and stockpile area is maintained.
- Wheel generated dust from vehicle movements on unsealed site roads:
 - Remote control water sprinklers are used on the site haul roads with watering frequency on an “as needed” basis, determined by visible dust
 - A shaker grid at the site exit prevents any track out of dust onto public roads
 - Site vehicle speed limit set to 30 kph

- Minimisation of site vehicle movements through fleet optimisation and haulage planning.
- All trucks leaving the site are covered.

5.3 Additional dust control measures to be implemented under the Notice of Modification

The following dust control measures will be implemented at Tweed Sand Plant as part of the Notice of Modification:

- Application of water to site haul roads linked to vehicle movements, with more frequent application to occur during high vehicle movement periods, as and when required.
- Regular inspection of site haul road integrity.
- Management actions during unfavourable meteorological conditions or high dust levels include:
 - Increase water application
 - Limit certain operations
 - Cease all operations.
- Meteorological conditions shall be determined in accordance with Section 6.2.
- Provide dust minimisation training to all staff and include as part of Tweed Sand Plant site induction (as detailed in Section 8).

5.4 Implementation and record keeping

The Tweed Sand Plant Site Manager is responsible for the implementation and recording of the dust control measures detailed above. Responsibilities will include, but not be limited to, the following:

- a) Daily review of the air quality and meteorological monitoring data.
- b) Ensure the water sprinkler systems remain in good working condition.
- c) Ensure available water supply is sufficient to control dust.
- d) Alternative sources of water are to be available. Records of any water purchases are to be kept on site.
- e) Records of routine and non-routine dust controls used to be kept on site.

(northerly to westerly winds) and dry temperatures are the key parameters that will drive dust management at Tweed Sand Plant. The dust management measures detailed in Section 5.3 will be applied during unfavourable meteorological conditions. Dust management measures include increased water application, limiting certain operations and ceasing operations.

6.3 Monitoring locations

The dust deposition monitoring locations at Tweed Sand Plant are shown in Figure 3.

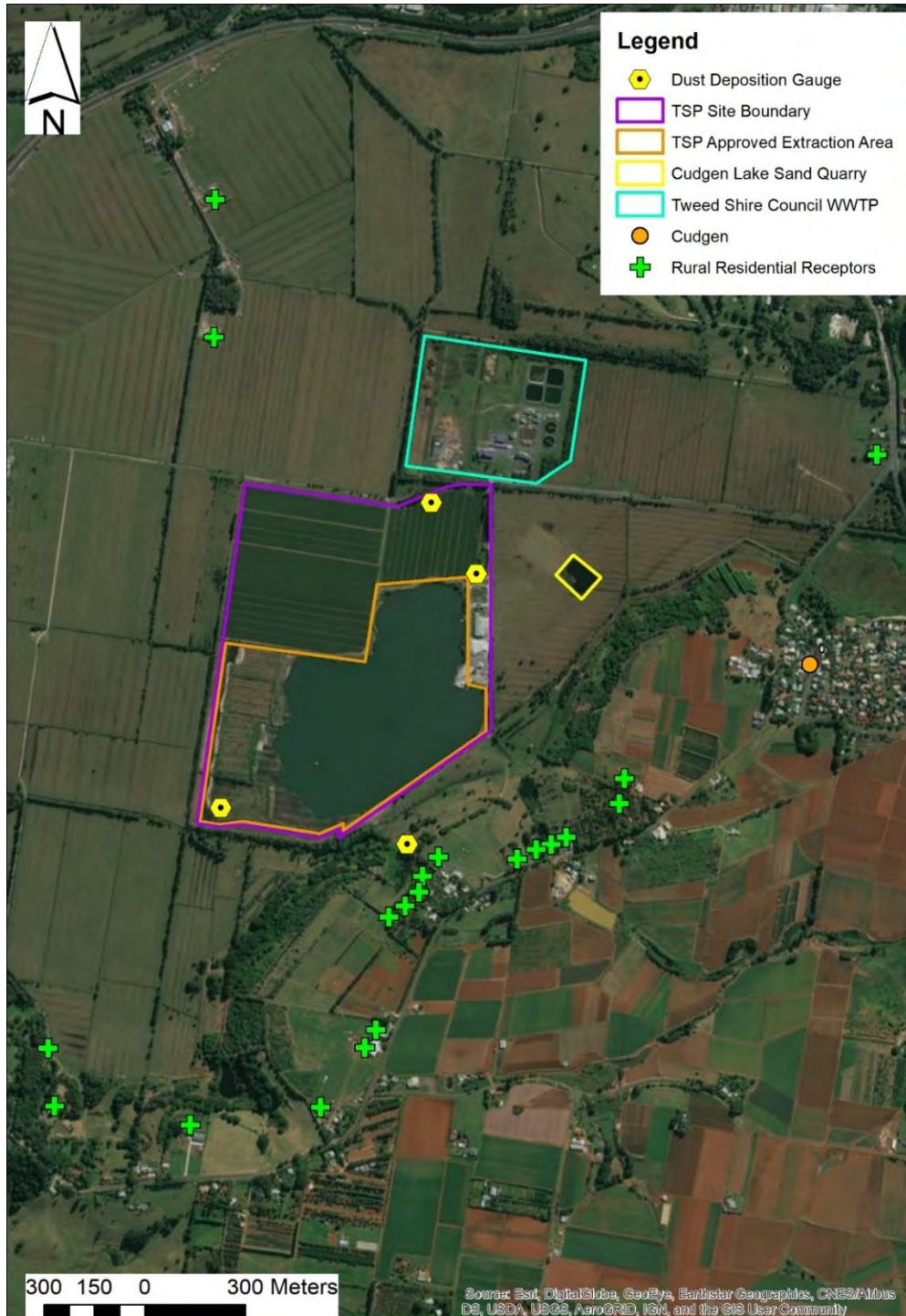


Figure 3 Tweed Sand Plant dust deposition monitoring locations

6.4 Monitoring frequency

The required frequency of air quality monitoring at Tweed Sand Plant is shown in Table 1. It is the responsibility of the Site Manager to ensure that monitoring is conducted in accordance with the relevant frequencies.

Table 1 Frequency of monitoring

Parameter	Frequency	Data Averaging Period
Dust Deposition	Monthly	Monthly

6.5 Reporting of monitoring data

Air quality and meteorological monitoring data is regularly reviewed by the Site Manager and staff to assist with the appropriate management of operations. Results are reviewed on a monthly basis by the Site Manager to assess the success or otherwise of dust control measures at the site.

In the event of any air quality incidents or non-compliance with air quality criteria, the reporting protocols for incidents and non-compliance detailed in Section 5.2 of the site's Environmental Management Strategy (Gilbert & Sutherland, March 2019) will be followed. The protocol requires that the Site Manager shall investigate the reason for the non-compliance or incident as soon as possible and implement corrective actions on a case-specific basis. Air quality response actions will generally proceed through a number of stages as detailed below:

- Verification of non-compliance through data analysis, additional monitoring and detailed site investigations. Establishment of additional air monitoring sites includes conducting short-term campaigns using continuous monitoring equipment,
- Further investigations to identify probable and/or critical causes for non-compliance and identify possible solutions.
- Implementation of corrective actions such as amending operating and/or management procedures to reduce dust emissions from the site.

An annual summary of the air quality monitoring results will be undertaken and provided to the Secretary as a section in the Annual Review, a condition of Tweed Sand Plant's Development Consent. In addition, Hanson will periodically publish on its website the results of Tweed Sand Plant's air quality monitoring in accordance with the *NSW Protection of the Environment Legislation Amendment Act 2011*. The annual summary provided as part of the Annual Review, will include a statement on the performance of Tweed Sand Plant and effectiveness of dust controls through comparison with relevant air quality criteria. The annual summary will include results of any additional monitoring conducted during the reporting period.

6.6 Responses to complaints

Complaints received relating to dust from the operation of Tweed Sand Plant shall be logged and acted on by the Site Manager or delegate. The complaints response process is detailed in Section 5.3 of the site's Environmental Management Strategy (Gilbert & Sutherland, March 2019).

Further to this, as detailed in Section 6.1 of this AQMP, if a valid complaint in regard to air quality is received, additional air quality monitoring may be undertaken as part of the complaint investigation.

7. RESPONSIBILITIES

The relevant staff members responsible for dust management practices at Tweed Sand Plant are detailed in Table 2.

Table 2 Responsibilities of Tweed Sand Plant staff members

Position	Responsibilities
Site Manager or delegate	<ul style="list-style-type: none"> • Training staff in the use of the AQMP • Daily checking of the air quality and meteorological monitoring system to plan operations • Limiting or ceasing operations if excessive dust is identified that cannot be controlled by watering • Regular inspections of the site and dust generating activities • Ensuring the maintenance activities in Section 5.3 are conducted • Ensuring all complaints are recorded and investigated, and that corrective action is taken • Prepare annual review report
Front-end loader operator and dozer operator	<ul style="list-style-type: none"> • Undertake staff training as run by the Site Manager • When operating vehicles, conduct visual monitoring of dust and report as required • Communicating with Site Manager to determine the watering requirements based on activities • Notifying the Site Manager if excessive dust is identified that is not controlled by watering
Contractors	<ul style="list-style-type: none"> • Undertake site induction • Adhering to site speed limits and designated haul road routes • Notify Site Manager if excessive dust is identified and report on the condition of the site haul road • Pass through shaker grid when exiting site • Ensure load is covered

8. TRAINING

All employees with responsibilities under this Air Quality Management Plan shall be trained in its contents and use. Training will occur when new employees start work and refresher training will occur every three years.

Regular meetings will also be held with all employees to reinforce dust management awareness and the procedures and work practices to minimise dust generation. Contractors working on site will undergo site induction and training that will refer to this AQMP and the dust control measures and practices contained within.

9. REVIEW AND REVISION

9.1 Continuous improvement

Continuous improvement of this AQMP will be achieved through the ongoing evaluation of dust management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

Continuous improvement will be delivered through an annual review by the Site Manager and will:

- review air quality monitoring data against relevant air quality criteria
- identify areas for improvement of dust management and performance
- determine the cause/s of any non-conformances
- develop and implement a plan of action to address any non-conformances
- document any changes in procedures resulting from process improvement.

9.2 Revision

In accordance with Condition 4 under Schedule 5 of the Notice of Modification for Tweed Sand Plant, the AQMP will be reviewed by the Tweed Sand Plant Site Manager within 3 months post submission of the Annual Review. The AQMP will be amended where appropriate to ensure that the plan is effective in achieving its purpose and objectives. Following any revision, a revised AQMP will need to be provided within 6 weeks post submission of the Annual Review to the Secretary for approval.

ATTACHMENT A – DPE APPROVAL



Mr Murray Graham
Development Manager
Hanson Construction Materials Pty Ltd
PO Box 1636
Toombul QLD 4012

Murray
Dear Mr Graham,

**Tweed Sand Quarry (DA 152-6-2005)
Approval of Experts**

I refer to your email dated 10 September 2018, seeking the approval of various experts to prepare management plans for the Tweed Sand Quarry, including:

- Andrew Vernon and Simon Welchman of Katestone Environment, to prepare the Air Quality Management Plan;
- Erin Holton and Chris Anderson of Gilbert Sutherland, to prepare the Soil and Water Management Plan; and
- Glyn Cowie of SLR, to prepare the Noise Management Plan.

The Secretary has approved the appointment of these experts.

Should you have any enquiries in relation to this matter, please contact Genevieve Seed.

Yours sincerely,

Howard Reed 13.9.18
Director
Resource Assessments
as nominee of the Secretary



Andrew Vernon <andrew.vernon@katestone.com.au>

RE: Tweed Sand Plant MOD1 - Preparation of Air Quality Management Plan

1 message

Geff Cramb <Geff.Cramb@epa.nsw.gov.au>

Thu, Oct 18, 2018 at 8:14 AM

To: "andrew.vernon@katestone.com.au" <andrew.vernon@katestone.com.au>

Good Morning Andrew

The EPA is content with the scope for the air quality management plan (Schedule 3, Condition 6).

There is no need for the EPA to review the draft of the air quality management plan prior to its submission to DPE for approval.

Regards

Geff

Geff Cramb

Operations Officer – Environment Management Unit

North Coast, NSW Environment Protection Authority

+61 2 6640 2510

Mon	Tues	Wed	Thurs	Fri
✓	✓	✓	✓	x

geff.cramb@epa.nsw.gov.au www.epa.nsw.gov.au [@EPA_NSW](https://twitter.com/EPA_NSW)

Report pollution and environmental incidents 131 555 (NSW only) or +61 2 9995 5555



----- Original message -----

From: Andrew Vernon <andrew.vernon@katestone.com.au>

Date: 11/10/18 10:16 am (GMT+10:30)

To: Geff Cramb <Geff.Cramb@epa.nsw.gov.au>

Subject: Tweed Sand Plant MOD1 - Preparation of Air Quality Management Plan

Dear Geff,

I have been passed your details from Erin Holton of Gilbert & Sutherland. As you may be aware, Hanson Construction Materials recently received the Notice of Modification in relation to their MOD 1 application (attached) to increase the rate of sand extraction at their Tweed Sand Plant site in Cudgen. The conditions of the Notice requires the preparation/update of various management plans for the site and that various agencies, including EPA, be consulted during the process of preparing those plans.

Katestone has been commissioned to prepare an Air Quality Management Plan for the site in accordance with the following MOD1 Conditions;

- Air Quality Management Plan – Schedule 3, Condition 6 with reference to Schedule 5 (Environmental Management, Reporting and Auditing)

Can you please confirm whether EPA is content with the scope for the air quality management plan (Schedule 3, Condition 6) or whether additional information will be required. Can you also please confirm whether EPA would like to review a draft of the air quality management plan prior to its submission to DPE for approval.

With respect to timeframes, the air quality management plan is due for submission to DPE on 20 November 2018 and any consultation with EPA will need to be completed prior to this date.

I look forward to hearing from you.

Kind regards,

Andrew.

Andrew Vernon

SENIOR AIR QUALITY CONSULTANT

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Andrew Vernon <andrew.vernon@katestone.com.au>

RE: Tweed Sand Plant MOD1 - Preparation of Air Quality Management Plan

1 message

Colleen Forbes <CForbes@tweed.nsw.gov.au>
To: Andrew Vernon <andrew.vernon@katestone.com.au>

Mon, Oct 29, 2018 at 9:04 AM

Dear Andrew,

With reference to the Air Quality Management Plan (AQMP) for the Tweed Sand Quarry, Council officers have reviewed **Schedule 3 Condition 6 of DA152-6-2005 MOD1**. Please be advised that TSC is satisfied with the scope of the Mod 1 requirements. No additional information is considered necessary.

Please also be advised that TSC does not require a copy of the draft AQMP for review prior to its submission to the Department.

Upon approval of the updated AQMP, please send through a copy for Council's records.

Regards,

Colleen

Colleen Forbes
Team Leader Development Assessment



p (02) 6670 2596

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From: Andrew Vernon [mailto:andrew.vernon@katestone.com.au]
Sent: Thursday, 11 October 2018 10:11 AM
To: Colleen Forbes
Subject: Tweed Sand Plant MOD1 - Preparation of Air Quality Management Plan

Dear Colleen,

I have been passed your details from Erin Holton of Gilbert & Sutherland. As you would be aware, Hanson Construction Materials recently received the Notice of Modification in relation to their MOD 1 application to increase the rate of sand extraction at their Tweed Sand Plant site in Cudgen. The conditions of the Notice requires the preparation/update of various management plans for the site and that various agencies, including TSC, be consulted during the process of preparing those plans.

Katestone has been commissioned to prepare an Air Quality Management Plan for the site in accordance with the following Conditions;

- Air Quality Management Plan – Schedule 3, Condition 6 with reference to Schedule 5 (Environmental Management, Reporting and Auditing)

Can you please confirm whether TSC is content with the scope for the air quality management plan (Schedule 3, Condition 6) or whether additional information will be required. Can you also please confirm whether TSC would like to review a draft of the air quality management plan prior to its submission to DPE for approval.

With respect to timeframes, the air quality management plan is due for submission to DPE on 20 November 2018 and any consultation with TSC will need to be completed prior to this date.

I look forward to hearing from you.

Kind regards,

Andrew.

Andrew Vernon

SENIOR AIR QUALITY CONSULTANT

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11/2/2018

Katestone Environmental Pty Ltd Mail - RE: Tweed Sand Plant MOD1 - Preparation of Air Quality Management Plan

All official correspondence requiring a formal written response should be addressed to the General Manager, PO Box 816, Murwillumbah, 2484; or emailed to tsc@tweed.nsw.gov.au; or faxed to 02 6670 2429.

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