Council Reference: 18//1168455
Your Reference:

TWEED SHIRE COUNCIL

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Please address all communications to the General Manager

ABN: 90 178 732 496

15 June 2017

NSW Department of Planning & Environment
lauren.evans@planning.nsw.gov.au

Dear Lauren

Proposed Extractive Industry (Construction Sand) – Carbrook Sands Quarry Project, Lot 18 DP 1168455 & Lot 57 DP 755701 Pacific Highway, Chinderah (Tweed LGA)

I refer to the Department's e-mail of 24 May 2017 in which Council were asked to provide input to the Secretary's Environmental Assessment Requirements (SEAR's).

Please see following Council's recommendations to the SEAR's:

A. Strategic land suitability and long-term impact assessment

Strategic land-use suitability and long-term impact assessment of the proposed development during and after its predicted life-cycle, addressing the following considerations:

- Impacts of land fragmentation and alienation of current and future activity as prime and regionally significant farmland on the local sugar industry and economy;
- Impacts of fragmentation and alienation of the subject site and adjacent lands, on existing and future agricultural capability to grow food and fibre, as per state, regional and local strategic directions and variation criteria; [1]
- Opportunity costs resulting from permanent loss of, sterilisation or underutilisation of the land from any future productive activities and/or development, including opportunities gained from locational proximity to Tweed Heads Regional City and Kingscliff, and potential land use conflicts and risks to deliver of strategic objectives of the North Coast Regional Plan 2036.

Consultation with local and regional stakeholders is required, including but not limited to local sugar growing associations, local and regional agricultural associations and national, state and regional agencies and organisations involved in regulation of agricultural production, trade and investment including Department of Primary Industries, Department of Planning and Environment, Department of State and Regional Development, Department of Trade and Investment and Regional Development Australia.

[1] Tweed LEP 2014 and North Coast Regional Plan 2036

B. Visual Impact Assessment

Background

A Scenic Landscape Strategy is currently being prepared by Council which seeks to identify and protect views and viewing sites of high scenic significance in the Tweed Shire, through accessibility data analyses and spatial modelling and community consultation.

The subject land is located in the foreground and mid-ground of view fields of the following identified significant viewing sites and highly trafficked and elevated regional and local routes:

- Terranora Road – southbound views within a 1500m distance,
- Cudgen Road – north and east bound views within a 2000m distance,
- Pacific Highway – north and south-bound within an immediate (0-100m) distance, and
- Tweed Coast Road – north and south-bound within a 1000m distance.

Community feedback identified highly valued landscape characteristics within these view fields including the combination of the iconic Tweed River and Tweed Valley cane fields in the foreground, bounded by coastal bushland with the Pacific Ocean providing background framing of the scene. Comments also noted extractive industries as significant visual detractors.

Council's initial assessment considered that the proposed development would "have a significant and likely long-term detrimental impact on the scenic landscape of the Tweed", given the high accessibility and high sensitivity of the elevated positions of viewing situations, "which cannot be ameliorated through such means as vegetated landscaping, screening or similar." [2]

Council notes that the Town Planning Report associated with the DA makes one reference to visual impact. "Table 6 - Summary of Agency Responses" notes visual impact and loss of prime agricultural land as concerns raised by Tweed Shire Council. No further discussion on visual impact is provided in the report.

Key criteria for a Visual Impact Assessment and Management Plan

1. **VIA authors** are recommended to have suitable skills, training and professional experience, including:
    a. Skills – associated with evaluating landscape aesthetics typical of licensed landscape architect or similarly trained professional.
    b. Training – certified as having completed training in VIA, Context Sensitive solution, public engagement
    c. Experience - in the type and scope of the proposed projects, in particular in relation to projects along transportation corridors:
        - Developing a VIA and management plan;
        - Conducting public consultation process that establishes visual quality goals or visual preferences of affected viewers; and
        - Providing technical assistance for implementing visual quality requirements during final design and construction.

[2] TSC Comments Proposed Extractive Industry Lot 18 DP 1168455 Chinderah, 2016

2. Methodology

As part of the Scenic Landscape Strategy currently underway, Council is reviewing the strengths and limitations of best practice visual management systems and evaluations undertaken to date, in order to update previous studies conducted and develop a consistent scenic landscape assessment methodology for developing a visual impact assessment and management plan in response to a proposed project.

Previous studies conducted in the Tweed Shire of note[3]:

a. Scenic Evaluation Study prepared by the Catherine Brouwer, 1995.

   This study identified all land in the Tweed Shire through landscape characterisations and evaluated Scenic Management Zones. The subject site was identified at the commencement of the identified scenic route of Tweed Valley Way and as part of Scenic Management Zone A – assigned to "those areas where the highest visual quality and sensitivity coincide", and where "maximum protection of their visual landscape values and features".

   VIA requirements provided by Brouwer include:

   - Illustrating the nature and visibility of the proposal from both within the site and from significant viewpoints outside the site; and
   - Demonstrating that the proposal does not detract from and will contribute to the significant landscape characteristics of the site.

b. A Visual Management System (VMS) Tweed Pilot by the Department of Planning Comprehensive Coastal Assessment CCA 12 in March 2004. The VMS maps the site as part High (category 4) overall visual quality rating, however the Visual Assessment for Landscape Units '11 – Chinderah Village' and '11a – Chinderah Industrial' show a low visual quality ranking of 2 and 1, respectively.

   The VMS does not provide Management Prescriptions for Landscape Units identified as Sugar Cane, Coastal Agricultural Fats and Urban Development, which are relevant to the site.

***Recommended Option*: *"Guidelines for the Visual Impact Assessment of Highway Projects - January 2015"* prepared by the U.S. Department of Transportation**[4].

Council has reviewed and considers this methodology provides the most rigorous process for developing a VIA, engaging with affected viewer groups on visual preferences (as indicators of quality), and developing project responsive management and mitigation strategy. Given the visual impacts are significant to major routes and highways, Council considers the 'Standard VIA' as the appropriate level of assessment for the particular project proposed.

Alternatively, the *"Visual Management System Tweed Pilot 2004"* may be followed.

This would require updating the Visual Quality Analysis and applying the Landscape Management evaluation methodology to the subject site and landscape unit, in order to evaluate the appropriate management strategy to maintain the visual values against options: Preservation, Conservation, Modification or Restoration.

[3] http://www.yoursaytweed.com.au/scenic-landscape-strategy

[4] https://www.environment.fhwa.dot.gov/guidebook/documents/VIA_Guidelines_for_Highway_Projects.asp

3. **Required Visual Impact Assessment Outputs**

- Identified Landscape units, viewsheds and viewing situations which the subject site falls within, using mappings and spatial datasets, and narrative descriptions.
- Affected environment and affected population (viewer groups).
- Established set of community-defined visual quality goals for the subject landscape unit and viewsheds.
- Defined visual features and resources which should be protected, rehabilitated, or enhanced, as derived from the visual quality goals.
- Evaluation of the proposed project against aesthetic goals, focussing on whether the proposed project will assist the community in attaining or maintaining these goals (ie. adverse or beneficial impacts).
- Recommendation of designs and measures developed specifically to mitigate the identified and anticipated visual impacts, including the cumulative impact when considered in context with existing extractive industries in the locality.

C. Legislative Review

The application should undertake a statutory review of all applicable planning instruments including (but not limited to) Part 5A of the EP&Act (significant effect on threatened species), Far North Coast Regional Strategy, North Coast Regional Plan 2036, SEPP's (Hazardous & Offensive Development, Coastal Protection, Mining Petroleum Production and Extractive Industries, State & Regional Developments, Infrastructure, Rural Land), Tweed LEP 2014, Tweed DCP (Section A3, A5 and its associated Design Specifications, B9 Tweed Coast Strategy), Tweed Comprehensive Koala Plan of Management.

D. Detailed Flora & Fauna Assessment

Issue	Detail	Ecological Feature	Comment
Impact on an existing watercourse and associated riparian and floodplain habitat values	An existing watercourse traversing the subject site is aligned within the proposed dredge pond footprint and as such would result in removal.	The watercourse drains to the Tweed River located approximately 270 m north of the subject site. The watercourse supports a narrow unit of floodplain vegetation potentially candidate Endangered Ecological Community Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions listed under the *Threatened Species Conservation Act 1995*	• In order to continue to convey runoff from land upstream within the sub-catchment the existing channel may have to be realigned. Advice from Council flood engineers would need to be sought to confirm likely drainage options. • An opportunity may exist to improve conditions if an alternative alignment is required i.e. through reconstruction of a more naturalised channel coupled with a compensatory package for the loss of any EEC and long term protection of any such channel under a formal mechanism.

Issue	Detail	Ecological Feature	Comment
			• A detailed flora and fauna assessment will be required to inform assessment of the future proposal
		A single record of the listed Black-necked Stork (*Ephippiorhynchus asiaticus* – Endangered TSC Act) has been made 350 m to the west of the site (Lot 6 DP830659). The site provides potential roosting and foraging opportunities for the species	• A detailed flora and fauna assessment will be required to inform assessment of the future proposal
Impact on existing vegetation to facilitate access	To enable access within the unformed Crown road reserve from Altona Rd or the alternative access from the Pacific Motorway vegetation removal may be required	Vegetation within and adjacent to the proposed access route/s may be representative of candidate EEC Swamp oak floodplain forest	• An assessment would be required to be undertaken to determine the type of vegetation and extent of impact. It is noted that the existing informal access road from the Chinderah roundabout traverses Tweed Byron Land Council Aboriginal Land. Consultation with the local community would be required.
Acid Sulfate Soil Hazard	The site is identified as comprising Class 2 and Class 3 acid sulfate soils. Extraction is likely to intercept acid sulfate soils	Receiving waterways i.e. Tweed River	• The excavation of actual and potential acid sulfate soils and management should be addressed in a site based acid sulfate soil investigation and management plan.
Soil and Water Quality impacts	The proposal has the potential to result in detrimental impact on water quality discharged from the site, groundwater conditions and onsite dredge pond water management issues.	Receiving waterways and groundwater	• Appropriate groundwater investigations should be undertaken, appropriate water quality parameters imposed and water and soil plans of management and monitoring should be developed
Long term management of dredge ponds	The long term land use of the dredge ponds and surrounding buffers is unknown		• Details of progressive remediation, post quarry closure use, management arrangements should be provided

E. Traffic Assessment

Traffic Assessment including a traffic assessment and access plan, dealing with legalities and approvals required to access Crown and Public Road Reserves, all proposed road works, evidence of consultation and or agreement with other impacted parties, impacts on intersection capacity, and calculations to assist in the application of Council's s94 Tweed Road Contribution Plan.

F. Hydraulic Report

Hydraulic report on flooding and stormwater drainageand the impacts of relocated surface drains.

G. Flood Impact Assessment

A flood impact assessment taking into account Council's flood study and risk management plan findings, including all areas of fill, bunding, fencing and other potential obstructions to flow.

H. Sediment and Erosion Control Management Plan

Sediment and Erosion Control (Permanent and Construction).

I. Services Report

Services report - if services such as water / sewer / electrical / Telstra… etc.…are required for the extractive industry.

J. Acid Sulfate Soil Management Plan

Acid sulfate soil (separation and reinterment), hydrology and groundwater draw down.

K. Dewatering Management Plan

Dewatering Management Plan if required (although it looks from the submission that this may not required).

L. Noise Impact Assessment

Noise (construction and operation).

M. Dust Management Plan

Dust mitigation processes.

N. Operational Management Plan

Amenity, hours of operation.

O. Buffer Management Plan

Buffers (agriculture, residential and commercial premises).

P. Water Quality Impact Assessment

Water quality impacts of any discharges through drain to River.

Q. Contamination Assessment

Contamination to address SEPP55

R. Rehabilitation Management Plan

Final use / rehabilitation.

S. Aboriginal Cultural Heritage Assessment

The subject proposal is not within the TSC draft Aboriginal cultural heritage mapping layer. As such no further specific information is required at this time.

It is however noted that the inclusion of the Section 5.9 of the attached Request for environmental assessment requirements is supported, being:

> *"5.9 Aboriginal Cultural Heritage*
>
> *In accordance with OEH and Tweed Shire Council's Policies, any Development Application would need to be accompanied by an Aboriginal Cultural Heritage Due Diligence Assessment. If that Assessment identified the existence of significant Aboriginal values on the site, it would be necessary to prepare a detailed Cultural Heritage Assessment, potentially including ground disturbance investigations, together with an Aboriginal Cultural Heritage Management Plan."*

Applicants are also reminded of the ACH requirements of the National Parks and Wildlife Act with regards harm.

Should you have any further enquiries please contact the undersigned.

Yours faithfully

Denise Galle
TEAM LEADER DEVELOPMENT ASSESSMENT

Lauren Evans

From: kirstyn.goulding@crownland.nsw.gov.au on behalf of Lands Ministerials <lands.ministerials@industry.nsw.gov.au>
Sent: Wednesday, 14 June 2017 9:25 AM
To: Alexander Grierson
Subject: Carbrook Sands Quarry Project - response
Attachments: CRVplot89467.pdf; DP7482.pdf; DP611021.pdf; Gaz 29-10-2004.pdf

Hi Alex

Please find following, and attached, the response to the annexures provided by you to the Department of Industry (DoI) - Lands & Forestry:-

The relevant district office of DoI Lands & Forestry has reviewed the proposal and provides the following comment:

- The proposal (including annexure 3) incorrectly describes roads south of the development as Crown roads (marked by a red line on the attached diagram - CRVplot89467). One of these roads is proposed to be constructed to service the development. Investigations show that the roads marked by the red line on the attachment were transferred to Council control (as per attached gazette notice and DPs). As such, consent from the Crown is not required for the construction of this road.
- There is a Crown public road that adjoins the western boundary of Lot 57 DP 755701, which is held under Enclosure Permit (shown by green hatching on above mentioned attachment) by the current owner of Lot 57. It is noted that this proposal includes a proposed 10 metre buffer between the development and this Crown road.
- Any proposed use of this road, associated with the development, would necessitate its transfer to Council control, pursuant to section 151 of the *Roads Act 1993*. In addition, DoI Lands & Forestry is required to advise that the proponent may not:
  - Encroach on the Crown road
  - Remove any vegetation from the Crown road
  - Stockpile materials, equipment or machinery on the Crown road
  - Use the Crown road for access purposes
  - Direct storm water discharges to the Crown road
  - Use the Crown road as an Asset Protection Zone.

If you have any questions or require further information please contact us.

Thank you
Kirstyn

Lands Ministerial Unit
NSW Department of Industry - Lands
Level 4, 437 Hunter Street, NEWCASTLE NSW 2300
E: lands.ministerials@industry.nsw.gov.au W: www.industry.nsw.gov.au

Team telephone numbers: Rebecca Johnson, Principal Project Officer, 4920 5040; Kirstyn Goulding, Administration Officer - Customer Liaison, 4920 5058; Kim Fitzpatrick, Senior Project Officer 4925 4103

Department of Primary Industries

OUT17/22554

7 June 2017

Alexander Grierson
Planning Officer
Resource Assessments
Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Email: alexander.grierson@planning.nsw.gov.au

Dear Alexander

Carbrook Sands Quarry Project (EAR ID 1156) - Lot 18 DP 1168455 & Lot 57 DP 755701 Pacific Highway, Chinderah (Tweed LGA)

Thank you for the opportunity to provide Secretary Environmental Assessment Requirements (SEAR) for the above proposal as per your correspondence dated 24 May 2017.

The NSW Department of Primary Industries (NSW DPI) Agriculture is committed to the protection and growth of agricultural industries, and the land and resources upon which these industries depend. The subject land, as noted, is identified as Regionally Significant Farmland, under the Northern Rivers Farmland Protection Project dated 2005. This is considered a highly important resource for agriculture on the NSW North Coast.

NSW DPI Agriculture provides SEARs (Attachment 1) and a range of publications to assist consent authorities, community and proponents in addressing the recommended SEARs (Attachment 2).

Additional considerations around potential impacts associated with acid sulfate soil interference, changes to drainage and any changes to water flow during flood events are also requested.

Should you require clarification on any of the information contained in this response, please contact me on 02 6626 1215.

Yours sincerely

Selina Stillman
Resource Management Officer

Attachment 1: Assessment Requirements

Issue and desired outcome	Detail / Requirement
Site Suitable for development	• Detail that the quarry is consistent with strategic plans and zone requirements • Complete a Landuse Conflict Risk Assessment (LUCRA) to identify potential landuse conflict, in particular relating to separation distances and management practices to minimise odour, dust and noise from sensitive receptors. A LUCRA is described in the DPI Land Use Conflict Risk Assessment Guide. • Include a map to scale showing the above operational and infrastructure details including separation distances from sensitive receptors.
Consideration for impacts to agricultural resources and land	• Describe the current and potential *Important Agriculture Land* on the proposed development site and surrounding locality including the land capability and agricultural productivity. • Demonstrate that all significant impacts on current and potential agricultural developments and resources can be reasonably avoided or adequately mitigated. • Consider possible cumulative effects to agricultural enterprises and landholders. • Detail the expected life span of the proposed development
Bushfire risk identified and managed	• Risk assessment level and mitigation plan developed to address bush fire risk.
Suitable and secure water supply	• Estimated water demand and water availability should be clearly outlined in the proposal. The source of water and any sanitisation methods to be detailed in the application. • Outline any impacts to water use from agriculture and mitigation measures if required.
Surface & Groundwater protected	• Proposed development design, operation and by-product management should be undertaken to avoid nutrient and sediment build up and minimise erosion, off site surface water movement and groundwater accession. • The proposal should detail how design and operation will be undertaken for by-product management in accordance with best practice to prevent excess build-up of nutrients and salts in the soil profile and increase the risk of leaching. A monitoring program should be developed.
Biosecurity Standards met	• Include a biosecurity (pests and weeds) risk assessment outlining the likely plant, animal and community risks. • Develop a biosecurity response plan to deal with identified risks as well as contingency plans for any failures. Including monitoring and mitigation measures in weed and pest management plans.
Suitable traffic movements	• Consideration of the route for movements needs to be taken into account so that impacts on sensitive receptors are minimised (eg noise, dust, volume of traffic). This should include consideration of Travelling Stock Reserves1 (TSR) and the movement of livestock or farm vehicles along / across the affected roads
Visual amenity achieved	• Amenity impacts are assessed and any necessary response to mitigate visual impacts is described and illustrated.

Issue and desired outcome	Detail / Requirement
Land stewardship met	• Develop Rehabilitation and Decommissioning/Closure Plans that describes the design criteria of the final landuse and landform along with the expected timeline for the rehabilitation program. • Outline monitoring and mitigation measures to be adopted for rehabilitation remedial actions.
Adequate consultation with community	• Consult with relevant agencies such as on the design, construction and operation of the proposed infrastructure. • Consult with the owners / managers of affected and adjoining neighbours and agricultural operations in a timely and appropriate manner about; the proposal, the likely impacts and suitable mitigation measures or compensation. • Establish a complaints register that includes reporting and investigating procedures and timelines, and liaison with Council in relation to complaint issues.
Contingency and Environmental Management Plan developed	• Contingency plans should be developed to enable the operation to deal with emergency situations. Commitment to the preparation of an Emergency Management plan that outlines procedures and responsibilities for responding to bushfire threats and possible mass mortality events which might result from extreme climatic conditions, routine or emergency animal disease outbreaks.

Attachment 2: Guidelines for assessment

Title	Location
Land Use Conflict Risk Assessment Guide	www.dpi.nsw.gov.au/content/agriculture/resources/lup/development-assessment/lucra
Agricultural Issues for Extractive industry Development	http://www.dpi.nsw.gov.au/content/agriculture/resources/lup/development-assessment/extractive-industries

Planning & Environment
GPO Box 39
SYDNEY
NSW 2001

alexander.grierson@planning.nsw.gov.au

Attention: Alexander Grierson

Notice Number	1552989
Date	09-Jun-2017

RE: Carbrook Sands Quarry Project

I refer to your request for the Environment Protection Authority's (EPA) requirements for the environmental assessment (EA) in regard to the above proposal received by EPA on 24 May 2017. The EPA notes that the proposal involves:

- an extractive activity for provision of construction sand;
- a resource estimate of 10,889,405 metres cubed (16,143,048 tonnes);
- extraction of approximately 300,000 tonnes per annum;
- Quarry life is estimated at 53 years; and,
- sand to be extracted by dredging and screened/processed and stored onsite.

The EPA has considered the details of the proposal as provided by DAC Planning Pty Ltd and has identified the information it requires to issue its general terms of approval in Attachment A. In summary, the EPA's key information requirements for the proposal include an adequate assessment of:

1. Air quality impacts, particularly relating to dust management at the site and from access road;
2. Noise impacts;
3. Soil and water management; and,
4. Site rehabilitation

In carrying out the assessment, the proponent should refer to the relevant guidelines as listed in Attachment B and any relevant industry codes of practice and best practice management guidelines.

Please note that this response does not cover biodiversity or Aboriginal cultural heritage issues, which are the responsibility of the Office of Environment and Heritage.

The Proponent should be made aware that any commitments made in the EA may be formalised as approval conditions and may also be placed as formal licence conditions.

The Proponent should be made aware that, consistent with provisions under Part 9.4 of the *Protection of the Environment Operations Act 1997* ("the Act") the EPA may require the provision of a financial assurance and/or assurances. The amount and form of the assurance(s) would be determined by the EPA and required as a condition of an Environment Protection Licence ("EPL").

In addition, as a requirement of an EPL, the EPA will require the Proponent to prepare, test and implement a Pollution Incident Response Management Plan and/or Plans in accordance with Section 153A of the Act.

Yours sincerely

.....

Geff Cramb

Regional Officer

North - North Coast

(by Delegation)

ATTACHMENT A: EIS REQUIREMENTS FOR

Carbrook Sands Quarry Project, Chinderah

How to use these requirements

The EPA requirements have been structured in accordance with the DIPNR EIS Guidelines, as follows. It is suggested that the EIS follow the same structure:

A. Executive summary

B. The proposal

C. The location

D. Identification and prioritisation of issues

E. The environmental issues

F. List of approvals and licences

G. Compilation of mitigation measures

H. Justification for the proposal

A Executive summary

The executive summary should include a brief discussion of the extent to which the proposal achieves identified environmental outcomes.

B The proposal

1. Objectives of the proposal

- The objectives of the proposal should be clearly stated and refer to:
  a) the size and type of the operation, the nature of the processes and the products, by-products and wastes produced
  b) a life cycle approach to the production, use or disposal of products
  c) the anticipated level of performance in meeting required environmental standards and cleaner production principles
  d) the staging and timing of the proposal and any plans for future expansion
  e) the proposal's relationship to any other industry or facility.

2. Description of the proposal

General

- Outline the production process including:
  a) the environmental "mass balance" for the process – quantify in-flow and out-flow of materials, any points of discharge to the environment and their respective destinations (sewer, stormwater, atmosphere, recycling, landfill etc)
  b) any life-cycle strategies for the products.
- Outline cleaner production actions, including:
  a) measures to minimise waste (typically through addressing source reduction)
  b) proposals for use or recycling of by-products
  c) proposed disposal methods for solid and liquid waste
  d) air management systems including all potential sources of air emissions, measures to minimise dust generated, proposals to re-use or treat emissions, emission levels relative to relevant standards in regulations, discharge points
  e) water management system including all potential sources of water pollution, details of proposals for re-use, treatment etc, emission levels of any wastewater discharged, discharge points, summary of options explored to avoid a discharge, reduce its frequency or reduce its impacts, and rationale for selection of option to discharge.
  f) soil contamination treatment and prevention systems.
- Outline construction works including:

a) actions to address any existing soil contamination

b) any earthworks or site clearing; re-use and disposal of cleared material, including details of stockpiling of top soil and spoil on-site and associted erosion and sediment controls.

c) construction timetable and staging; hours of construction; proposed construction methods

d) environment protection measures, including

- noise mitigation measures,
- dust control measures and details of water supply for dust suppression eg details of a water re-use pond and
- erosion and sediment control measures in accordance with *Managing Urban Stormwater Soils and Construction: Volume 1 and Volume 2 E Mines and Quarries.*

- Include a site diagram showing the site layout and location of environmental controls.

Air

- Identify all sources or potential sources of air emissions from the development.
  Note: emissions can be classed as either:
  - *point (e.g. emissions from stack or vent) or*
  - *fugitive (from wind erosion, leakages or spillages, associated with loading or unloading, conveyors, storage facilities, plant and yard operation, vehicle movements (dust from road, exhausts, loss from load), land clearing and construction works).*
- Provide details of the project that are essential for predicting and assessing air impacts including:

a) the quantities and physio-chemical parameters (e.g. concentration, moisture content, bulk density, particle sizes etc) of materials to be used, transported, produced or stored

b) an outline of procedures for handling, transport, production and storage

c) the management of solid, liquid and gaseous waste streams with potential to generate emissions to air.

Noise and vibration

- Identify all noise sources or potential sources from the development (including both construction and operation phases). Detail all potentially noisy activities including ancillary activities such as transport of goods and raw materials.
- Specify the times of operation for all phases of the development and for all noise producing activities.
- For projects with a significant potential traffic noise impact provide details of road alignment (include gradients, road surface, topography, bridges, culverts etc), and land use along the proposed road and measurement locations – diagrams should be to a scale sufficient to delineate individual residential blocks.

Water

- Provide details of the project that are essential for predicting and assessing impacts to waters including:

a) the quantity and physio-chemical properties of all potential water pollutants and the risks they pose to the environment and human health, including the risks they pose to Water Quality Objectives in the ambient waters (as defined on http://www.environment.nsw.gov.au/ieo/index.htm, using technical criteria derived from *the Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, ANZECC 2000)

b) the management of discharges with potential for water impacts

c) drainage works and associated infrastructure; land-forming and excavations; working capacity of structures; and water resource requirements of the proposal.

- Outline site layout, demonstrating efforts to avoid proximity to water resources (especially for activities with significant potential impacts e.g. effluent ponds) and showing potential areas of modification of contours, drainage etc.
- Outline how total water cycle considerations are to be addressed showing total water balances for the development (with the objective of minimising demands and impacts on water resources). Include water requirements (quantity, quality and source(s)) and proposed storm and wastewater disposal, including type, volumes, proposed treatment and management methods and re-use options.

Waste and chemicals

Provide details of the quantity and type of both liquid waste and non-liquid waste generated, handled, processed or disposed of at the premises. Waste must be classified according to the *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-liquid Wastes* (NSW EPA, 1999).

- Provide details of liquid waste and non-liquid waste management at the facility, including:
  a) the transportation, assessment and handling of waste arriving at or generated at the site
  b) any stockpiling of wastes or recovered materials at the site
  c) any waste processing related to the facility, including reuse, recycling, reprocessing (including composting) or treatment both on- and off-site
  d) the method for disposing of all wastes or recovered materials at the facility
  e) the emissions arising from the handling, storage, processing and reprocessing of waste at the facility
  f) the proposed controls for managing the environmental impacts of these activities.
- Provide details of spoil disposal with particular attention to:
  a) the quantity of spoil material likely to be generated
  b) proposed strategies for the handling, stockpiling, reuse/recycling and disposal of spoil
  c) the need to maximise reuse of spoil material in the construction industry
  d) identification of the history of spoil material and whether there is any likelihood of contaminated material, and if so, measures for the management of any contaminated material
  e) designation of transportation routes for transport of spoil.
- Provide details of procedures for the assessment, handling, storage, transport and disposal of all hazardous and dangerous materials used, stored, processed or disposed of at the site, in addition to the requirements for liquid and non-liquid wastes.

- Provide details of the type and quantity of any chemical substances to be used or stored and describe arrangements for their safe use and storage.

- Reference should be made to the guidelines: Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes (NSW EPA, 1999).

Ecologically Sustainable Development (ESD)

- Demonstrate that the planning process and any subsequent development incorporates objectives and mechanisms for achieving ESD, including:
  a) an assessment of a range of options available for use of the resource, including the benefits of each option to future generations
  b) proper valuation and pricing of environmental resources
  c) identification of who will bear the environmental costs of the proposal.

3. Rehabilitation

- Outline considerations of site maintenance, and proposed plans for the final condition of the site (ensuring its suitability for future uses). Details for the storage of topsoil and appropriate erosion and sediment control to manage the storage of topsoil are to be included.

4. Consideration of alternatives and justification for the proposal

- Consider the environmental consequences of adopting alternatives, including alternative:
  a) sites and site layouts
  b) access modes and routes
  c) materials handling and production processes
  d) waste and water management
  e) impact mitigation measures
  f) energy sources
- Selection of the preferred option should be justified in terms of:
  a) ability to satisfy the objectives of the proposal
  b) relative environmental and other costs of each alternative
  c) acceptability of environmental impacts and contribution to identified environmental objectives
  d) acceptability of any environmental risks or uncertainties
  e) reliability of proposed environmental impact mitigation measures
  f) efficient use (including maximising re-use) of land, raw materials, energy and other resources.

C The location

1. General

In preparing the site description the proponent should consider:

- Using map(s) showing the locality of the proposed development in a regional and local context. Local context maps should be based on 1:25000 topographic plans. Photographs of the site's key attributes may provide useful documentation;
- The area subject to development should be clearly identified on an appropriately scaled plan. This includes all ancillary works such as buildings and other structures, parking areas, loading/processing/treatment areas, access roads, and material stockpiling areas;
- The applicability or otherwise of Local Environmental Plans (LEP), Regional Environmental Plans (REP) and State Environmental Planning Policies (SEPP);
- Provide an overview of the affected environment to place the proposal in its local and regional environmental context including:
  a) meteorological data (e.g. rainfall, temperature and evaporation, wind speed and direction)
  b) topography (landform element, slope type, gradient and length)
  c) surrounding land uses (potential synergies and conflicts)
  d) geomorphology (rates of landform change and current erosion and deposition processes)
  e) soil types and properties (including erodibility; engineering and structural properties; dispersibility; permeability; presence of acid sulfate soils and potential acid sulfate soils)
  f) ecological information (water system habitat, vegetation, fauna)
  g) availability of services and the accessibility of the site for passenger and freight transport.

2. Air

- Describe the topography and surrounding land uses. Provide details of the exact locations of dwellings, schools and hospitals. Where appropriate provide a perspective view of the study area such as the terrain file used in dispersion models.
- Describe surrounding buildings that may effect plume dispersion.
- Provide and analyse site representative data on following meteorological parameters:
  a) temperature and humidity
  b) rainfall, evaporation and cloud cover
  c) wind speed and direction
  d) atmospheric stability class
  e) mixing height (the height that emissions will be ultimately mixed in the atmosphere)
  f) katabatic air drainage
  g) air re-circulation.

3. Noise and vibration

- Identify any noise sensitive locations likely to be affected by activities at the site, such as residential properties, schools, churches, and hospitals. Typically the location of any noise sensitive locations in relation to the site should be included on a map of the locality.
- Identify the land use zoning of the site and the immediate vicinity and the potentially affected areas.

4. Water

- Describe the catchment including proximity of the development to any waterways and provide an assessment of their sensitivity/significance from a public health, ecological and/or economic perspective. The Water Quality and River Flow Objectives on the website: http://www.environment.nsw.gov.au/ieo/index.htm should be used to identify the agreed environmental values and human uses for any affected waterways. This will help with the description of the local and regional area.

5. Soil Contamination Issues

- Provide details of site history – if earthworks are proposed, this needs to be considered with regard to possible soil contamination, for example if the site was previously a landfill site or if irrigation of effluent has occurred.

D Identification and prioritisation of issues / scoping of impact assessment

- Provide an overview of the methodology used to identify and prioritise issues. The methodology should take into account:
  a) relevant NSW government guidelines
  b) industry guidelines
  c) EISs for similar projects
  d) relevant research and reference material
  e) relevant preliminary studies or reports for the proposal
  f) consultation with stakeholders.
- Provide a summary of the outcomes of the process including:
  a) all issues identified including local, regional and global impacts (e.g. increased/ decreased greenhouse emissions)
  b) key issues which will require a full analysis (including comprehensive baseline assessment)
  c) issues not needing full analysis though they may be addressed in the mitigation strategy

d) justification for the level of analysis proposed (the capacity of the proposal to give rise to high concentrations of pollution compared with the ambient environment or environmental outcomes is an important factor in setting the level of assessment).

E The environmental issues

1. General

- The potential impacts identified in the scoping study need to be assessed to determine their significance, particularly in terms of achieving environmental outcomes, and minimising environmental pollution.
- Identify gaps in information and data relevant to significant impacts of the proposal and any actions proposed to fill those information gaps so as to enable development of appropriate management and mitigation measures. This is in accordance with ESD requirements.

Note: The level of detail should match the level of importance of the issue in decision making which is dependent on the environmental risk.

Describe baseline conditions

- Provide a description of existing environmental conditions for any potential impacts.

Assess impacts

- For any potential impacts relevant for the assessment of the proposal provide a detailed analysis of the impacts of the proposal on the environment including the cumulative impact of the proposal on the receiving environment especially where there are sensitive receivers.
- Describe the methodology used and assumptions made in undertaking this analysis (including any modelling or monitoring undertaken) and indicate the level of confidence in the predicted outcomes and the resilience of the environment to cope with the predicted impacts.
- The analysis should also make linkages between different areas of assessment where necessary to enable a full assessment of environmental impacts e.g. assessment of impacts on air quality will often need to draw on the analysis of traffic, health, social, soil and/or ecological systems impacts; etc.
- The assessment needs to consider impacts at all phases of the project cycle including: exploration (if relevant or significant), construction, routine operation, start-up operations, upset operations and decommissioning if relevant.
- The level of assessment should be commensurate with the risk to the environment.

Describe management and mitigation measures

- Describe any mitigation measures and management options proposed to prevent, control, abate or mitigate identified environmental impacts associated with the proposal and to reduce risks to human health and prevent the degradation of the environment. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

- Proponents are expected to implement a 'reasonable level of performance' to minimise environmental impacts. The proponent must indicate how the proposal meets reasonable levels of performance. For example, reference technology based criteria if available, or identify good practice for this type of activity or development. A 'reasonable level of performance' involves adopting and implementing technology and management practices to achieve certain pollutant emissions levels in economically viable operations. Technology-based criteria evolve gradually over time as technologies and practices change.
- Use environmental impacts as key criteria in selecting between alternative sites, designs and technologies, and to avoid options having the highest environmental impacts.
- Outline any proposed approach (such as an Environmental Management Plan) that will demonstrate how commitments made in the EIS will be implemented. Areas that should be described include:

  a) operational procedures to manage environmental impacts

  b) monitoring procedures

  c) training programs

  d) community consultation

  e) complaint mechanisms including site contacts

  f) strategies to use monitoring information to improve performance

  g) strategies to achieve acceptable environmental impacts and to respond in event of exceedences.

2. Air

Describe baseline conditions

Provide a description of existing air quality and meteorology, using existing information and site representative ambient monitoring data.

Assess impacts

- Identify all pollutants of concern and estimate emissions by quantity (and size for particles), source and discharge point.
- Estimate the resulting ground level concentrations of all pollutants. Where necessary (e.g. potentially significant impacts and complex terrain effects), use an appropriate dispersion model to estimate ambient pollutant concentrations. Discuss choice of model and parameters with the EPA.
- Describe the effects and significance of pollutant concentration on the environment, human health, amenity and regional ambient air quality standards or goals.
- Reference should be made to *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW* (EPA 2016); *Approved Methods for the Sampling and Analysis of Air pollutants in NSW* (EPA, 2007). *Assessment and Management of Odour from Stationary Sources in NSW* (DEC, 2006)*; Technical Notes: Assessment and Management of Odour from Stationary Sources in NSW (DEC, 2006); Load Calculation Protocol for use by holders of NSW Environment Protection Licences when calculating Assessable Pollutant Loads* (DECC, 2009).

Describe management and mitigation measures

- Outline specifications of pollution control equipment (including manufacturer's performance guarantees where available) and management protocols for both point and fugitive emissions. Where possible, this should include cleaner production processes.
- detailed measures to address all the principal sources of dust e.g. extraction, processing (handling/loading/crushing), stockpiling and storage and road transport. Dust control measures that represent both proactive and reactive management. Details of infrastructure to enable dust suppression and justification that there is adequate water supply to enable dust suppression during the periods.
- Discussion of whether the preparation of a dust monitoring program is warranted. A dust monitoring program would outline: key performance indicator(s) that are quantifiable, measurable and auditable; monitoring method(s); location, frequency and duration of monitoring; record keeping; and, evaluation of the 24-hour average PM10 levels at sensitive receptors.

3. Noise and vibration

Any residences that surround the proposed site could be subject to unacceptable noise impacts if not managed appropriately.

A Noise Impact Assessment (NIA) for the proposal must be conducted by an appropriately qualified acoustics consultant. The NIA must be conducted in accordance with the State Government's *Industrial Noise Policy* and address the potential impacts of the quarry operations on any nearby residents including the following:

Describe baseline conditions

- Determine the existing background (LA90) and ambient (LAeq) noise levels in accordance with the *NSW Industrial Noise Policy*.
- Determine the existing road traffic noise levels in accordance with the *NSW Environmental Criteria for Road Traffic Noise*, where road traffic noise impacts may occur.
- The noise impact assessment report should provide details of all monitoring of existing ambient noise levels including:
  a) details of equipment used for the measurements
  b) a brief description of where the equipment was positioned
  c) a statement justifying the choice of monitoring site, including the procedure used to choose the site, having regards to the definition of 'noise sensitive locations(s)' and 'most affected locations(s)' described in Section 3.1.2 of the *NSW Industrial Noise Policy*
  d) details of the exact location of the monitoring site and a description of land uses in surrounding areas
  e) a description of the dominant and background noise sources at the site

f) day, evening and night assessment background levels for each day of the monitoring period

g) the final Rating Background Level (RBL) value

h) graphs of the measured noise levels for each day should be provided

i) a record of periods of affected data (due to adverse weather and extraneous noise), methods used to exclude invalid data and a statement indicating the need for any re-monitoring under Step 1 in Section B1.3 of the *NSW Industrial Noise Policy*

j) determination of LAeq noise levels from existing industry.

Assess impacts

- Determine the project specific noise levels for the site. For each identified potentially affected receiver, this should include:

  a) determination of the intrusive criterion for each identified potentially affected receiver

  b) selection and justification of the appropriate amenity category for each identified potentially affected receiver

  c) determination of the amenity criterion for each receiver

  d) determination of the appropriate sleep disturbance limit.

- Maximum noise levels during night-time period (10pm-7am) should be assessed to analyse possible affects on sleep. Where LA1(1min) noise levels from the site are less than 15 dB above the background LA90 noise level, sleep disturbance impacts are unlikely. Where this is not the case, further analysis is required. Additional guidance is provided in Appendix B of the *NSW Road Noise Policy*.

- Determine expected noise level and noise character (e.g. tonality, impulsiveness, vibration, etc) likely to be generated from noise sources during:

  a) site establishment

  b) construction

  c) operational phases

  d) transport including traffic noise generated by the proposal

  e) other services.

  Note: The noise impact assessment report should include noise source data for each source in 1/1 or 1/3 octave band frequencies including methods for references used to determine noise source levels. Noise source levels and characteristics can be sourced from direct measurement of similar activities or from literature (if full references are provided).

- Determine the noise levels likely to be received at the most sensitive locations (these may vary for different activities at each phase of the development). Potential impacts should be determined for any identified significant adverse meteorological conditions. Predicted noise levels under calm conditions may also aid in quantifying the extent of impact where this is not the most adverse condition.

- The noise impact assessment report should include:

  a) a plan showing the assumed location of each noise source for each prediction scenario

  b) a list of the number and type of noise sources used in each prediction scenario to simulate all potential significant operating conditions on the site

c) any assumptions made in the predictions in terms of source heights, directivity effects, shielding from topography, buildings or barriers, etc

d) methods used to predict noise impacts including identification of any noise models used. Where modelling approaches other than the use of the ENM or SoundPlan computer models are adopted, the approach should be appropriately justified and validated

e) an assessment of appropriate weather conditions for the noise predictions including reference to any weather data used to justify the assumed conditions

f) the predicted noise impacts from each noise source as well as the combined noise level for each prediction scenario under any identified significant adverse weather conditions as well as calm conditions where appropriate

g) for developments where a significant level of noise impact is likely to occur, noise contours for the key prediction scenarios should be derived

h) an assessment of the need to include modification factors as detailed in Section 4 of the *NSW Industrial Noise Policy*.

- Discuss the findings from the predictive modelling and, where relevant noise criteria have not been met, recommend additional mitigation measures.
- The noise impact assessment report should include details of any mitigation proposed including the attenuation that will be achieved and the revised noise impact predictions following mitigation.
- Where relevant noise/vibration criteria cannot be met after application of all feasible and cost effective mitigation measures the residual level of noise impact needs to be quantified by identifying:

  a) locations where the noise level exceeds the criteria and extent of exceedence

  b) numbers of people (or areas) affected

  c) times when criteria will be exceeded

  d) likely impact on activities (speech, sleep, relaxation, listening, etc)

  e) change on ambient conditions

  f) the result of any community consultation or negotiated agreement.
- For the assessment of existing and future traffic noise, details of data for the road should be included such as assumed traffic volume; percentage heavy vehicles by time of day; and details of the calculation process. These details should be consistent with any traffic study carried out in the EIS.
- Evaluate predicted Construction Noise in accordance with the *Interim Construction Noise Guideline*.
- Where blasting is intended an assessment in accordance with the *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration* (ANZECC, 1990) should be undertaken. The following details of the blast design should be included in the noise assessment:

  a) bench height, burden spacing, spacing burden ratio

  b) blast hole diameter, inclination and spacing

  c) type of explosive, maximum instantaneous charge, initiation, blast block size, blast frequency.

Describe management and mitigation measures

- Determine the most appropriate noise mitigation measures and expected noise reduction including both noise controls and management of impacts for both construction and operational noise. This will include

selecting quiet equipment and construction methods, noise barriers or acoustic screens, location of stockpiles, temporary offices, compounds and vehicle routes, scheduling of activities, etc.

- For traffic noise impacts, provide a description of the ameliorative measures considered (if required), reasons for inclusion or exclusion, and procedures for calculation of noise levels including ameliorative measures. Also include, where necessary, a discussion of any potential problems associated with the proposed ameliorative measures, such as overshadowing effects from barriers. Appropriate ameliorative measures may include:

  a) use of alternative transportation modes, alternative routes, or other methods of avoiding the new road usage

  b) control of traffic (eg: limiting times of access or speed limitations)

  c) resurfacing of the road using a quiet surface

  d) use of (additional) noise barriers or bunds

  e) treatment of the façade to reduce internal noise levels buildings where the night-time criteria is a major concern

  f) more stringent limits for noise emission from vehicles (i.e. using specially designed 'quite' trucks and/or trucks to use air bag suspension

  g) driver education

  h) appropriate truck routes

  i) limit usage of exhaust breaks

  j) use of premium muffles on trucks

  k) reducing speed limits for trucks

  l) ongoing community liaison and monitoring of complaints

  m) phasing in the increased road use.

4. Water

Describe baseline conditions

- Describe existing surface and groundwater quality and levels – an assessment needs to be undertaken for any water resource likely to be affected by the proposal and for all conditions (e.g. a wet weather sampling program is needed if runoff events may cause impacts).

  Note: Methods of sampling and analysis need to conform with an accepted standard (e.g. Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC 2004) *or be approved and analyses undertaken by accredited laboratories).*

- Provide site drainage details and surface runoff yield.
- State the ambient Water Quality and River Flow Objectives for the receiving waters. These refer to the community's agreed environmental values and human uses endorsed by the Government as goals for the ambient waters. These environmental values are published on the website: http://www.environment.nsw.gov.au/ieo/index.htm. The EIS should state the environmental values listed for the catchment and waterway type relevant to your proposal. NB: A consolidated and approved list of environmental values are not available for groundwater resources. Where groundwater may be affected the EIS should identify appropriate groundwater environmental values and justify the choice.
- State the indicators and associated trigger values or criteria for the identified environmental values. This information should be sourced from the ANZECC 2000 *Guidelines for Fresh and Marine Water Quality* (http://www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html) (Note that, as at 2004, the NSW Water Quality Objectives booklets and website contain technical criteria derived from the 1992 version of the ANZECC Guidelines. The Water Quality Objectives remain as Government Policy, reflecting the community's environmental values and long-term goals, but the technical criteria are replaced by the more recent ANZECC 2000 Guidelines). NB: While specific guidelines for groundwater are not available, the ANCECC 2000 Guidelines endorse the application of the trigger values and decision trees as a tool to assess risk to environmental values in groundwater.
- State any locally specific objectives, criteria or targets, which have been endorsed by the government e.g. the Healthy Rivers Commission Inquiries or the NSW Salinity Strategy (DLWC, 2000) (http://www.environment.nsw.gov.au/salinity/government/nswstrategy.htm).
- Where site specific studies are proposed to revise the trigger values supporting the ambient Water Quality and River Flow Objectives, and the results are to be used for regulatory purposes (e.g. to assess whether a licensed discharge impacts on water quality objectives), then prior agreement from the EPA on the approach and study design must be obtained.
- Describe the state of the receiving waters and relate this to the relevant Water Quality and River Flow Objectives (i.e. are Water Quality and River Flow Objectives being achieved?). Proponents are generally only expected to source available data and information. However, proponents of large or high risk developments may be required to collect some ambient water quality / river flow / groundwater data to enable a suitable level of impact assessment. Issues to include in the description of the receiving waters could include:

  a) lake or estuary flushing characteristics

  b) specific human uses (e.g. exact location of drinking water offtake)

  c) sensitive ecosystems or species conservation values

  d) a description of the condition of the local catchment e.g. erosion levels, soils, vegetation cover, etc

e) an outline of baseline groundwater information, including, but not restricted to, depth to watertable, flow direction and gradient, groundwater quality, reliance on groundwater by surrounding users and by the environment

f) historic river flow data where available for the catchment.

Assess impacts

- No proposal should breach clause 120 of the *Protection of the Environment Operations Act* 1997 (i.e. pollution of waters is prohibited unless undertaken in accordance with relevant regulations).
- Identify and estimate the quantity of all pollutants that may be introduced into the water cycle by source and discharge point including residual discharges after mitigation measures are implemented.
- Include a rationale, along with relevant calculations, supporting the prediction of the discharges.
- Describe the effects and significance of any pollutant loads on the receiving environment. This should include impacts of residual discharges through modelling, monitoring or both, depending on the scale of the proposal. Determine changes to hydrology (including drainage patterns, surface runoff yield, flow regimes, wetland hydrologic regimes and groundwater).
- Describe water quality impacts resulting from changes to hydrologic flow regimes (such as nutrient enrichment or turbidity resulting from changes in frequency and magnitude of stream flow).
- Identify any potential impacts on quality or quantity of groundwater describing their source.
- Identify potential impacts associated with geomorphological activities with potential to increase surface water and sediment runoff or to reduce surface runoff and sediment transport. Also consider possible impacts such as bed lowering, bank lowering, instream siltation, floodplain erosion and floodplain siltation.
- Identify impacts associated with the disturbance of acid sulfate soils and potential acid sulfate soils.
- Containment of spills and leaks shall be in accordance with EPA's guidelines section 'Bunding and Spill Management' at http://www.epa.nsw.gov.au/mao/bundingspill.htm and the most recent versions of the Australian Standards referred to in the Guidelines. Containment should be designed for no-discharge.
- The significance of the impacts listed above should be predicted. When doing this it is important to predict the ambient water quality and river flow outcomes associated with the proposal and to demonstrate whether these are acceptable in terms of achieving protection of the Water Quality and River Flow Objectives. In particular the following questions should be answered:

  a) will the proposal protect Water Quality and River Flow Objectives where they are currently achieved in the ambient waters; and

  b) will the proposal contribute towards the achievement of Water Quality and River Flow Objectives over time, where they are not currently achieved in the ambient waters.

- Consult with the EPA as soon as possible if a mixing zone is proposed (a mixing zone could exist where effluent is discharged into a receiving water body, where the quality of the water being discharged does not immediately meet water quality objectives. The mixing zone could result in dilution, assimilation and decay of the effluent to allow water quality objectives to be met further downstream, at the edge of the mixing zone). The EPA will advise the proponent under what conditions a mixing zone will and will not be acceptable, as well as the information and modelling requirements for assessment.

  Note: The assessment of water quality impacts needs to be undertaken in a total catchment management context to provide a wide perspective on development impacts, in particular cumulative impacts.

- Where a licensed discharge is proposed, provide the rationale as to why it cannot be avoided through application of a reasonable level of performance, using available technology, management practice and industry guidelines.
- Where a licensed discharge is proposed, provide the rationale as to why it represents the best environmental outcome and what measures can be taken to reduce its environmental impact.
- Reference should be made to *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004), *Guidelines for Fresh and Marine Water Quality* ANZECC 2000).

Describe management and mitigation measures

A Soil and Water Management Plan should be developed which outlines all management and mitigation measures relating to stormwater management and erosion control. The Soil and Water Management Plan should:

- Outline stormwater management to control pollutants at the source and contain them within the site. Also describe measures for maintaining and monitoring any stormwater controls.
- Outline erosion and sediment control measures directed at minimising disturbance of land, minimising water flow through the site and filtering, trapping or detaining sediment. Also include measures to maintain and monitor controls as well as rehabilitation strategies.
- Describe waste water treatment measures that are appropriate to the type and volume of waste water and are based on a hierarchy of avoiding generation of waste water; capturing all contaminated water (including stormwater) on the site; reusing/recycling waste water; and treating any unavoidable discharge from the site to meet specified water quality requirements.
- Describe the size and location of the sediment ponds for each stage of the development of the quarry.The sediment basins must meet the design and operational standards of *Managing Urban Stormwater Soils and construction: Volume 1 and Volume 2 E. Mines and quarries*. This document requires that at a minimum 90 percentile five-day rainfall event (standard: greater thatn three years) be used to determine basin sizing for quarries. Detail calculations of sediment basin size. Describe proposed measures for managing sediment basins.
- Outline pollution control measures relating to storage of materials, possibility of accidental spills (e.g. preparation of contingency plans), appropriate disposal methods, and generation of leachate.
- Describe hydrological impact mitigation measures including:
  a) site selection (avoiding sites prone to flooding and waterlogging, actively eroding or affected by deposition)
  b) minimising runoff
  c) minimising reductions or modifications to flow regimes
  d) avoiding modifications to groundwater.
- Describe groundwater impact mitigation measures including:
  a) site selection
  b) retention of native vegetation and revegetation
  c) artificial recharge
  d) providing surface storages with impervious linings
  e) monitoring program.

- Describe geomorphological impact mitigation measures including:
  a) site selection
  b) erosion and sediment controls
  c) minimising instream works
  d) treating existing accelerated erosion and deposition
  e) monitoring program.
- Any proposed monitoring should be undertaken in accordance with the *Approved Methods for the Sampling and Analysis of Water Pollutants in NSW* (DEC 2004).

5. Soils and contamination

Describe baseline conditions

- Provide any details (in addition to those provided in the location description - Section C) that are needed to describe the existing situation in terms of soil types and properties and soil contamination.

Assess impacts

- Identify any likely impacts resulting from the construction or operation of the proposal, including the likelihood of:
  a) disturbing any existing contaminated soil
  b) contamination of soil by operation of the activity
  c) subsidence or instability
  d) soil erosion
  e) disturbing acid sulfate or potential acid sulfate soils.
- Reference should be made to *Contaminated Sites – Guidelines for Consultants Reporting on Contaminated Sites* (OEH, 2011)*; Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* (EPA, 2015).

Describe management and mitigation measures

- Describe and assess the effectiveness or adequacy of any soil management and mitigation measures during construction and operation of the proposal including:
  a) erosion and sediment control measures
  b) proposals for site remediation – see *Managing Land Contamination, Planning Guidelines SEPP 55 – Remediation of Land* (Department of Urban Affairs and Planning and Environment Protection Authority, 1998)
  c) proposals for the management of Acid Sulfate Soil soils – see *Acid Sulfate Soil Manual* (Acid Sulfate Soil Advisory Committee 1998) and *Acid Sulfate Soils Assessment Guidelines* (Acid Sulfate Soil Advisory Committee 1998).

6. Waste and chemicals

Describe baseline conditions

- Describe any existing waste or chemicals operations related to the proposal.

Assess impacts

- Assess the adequacy of proposed measures to minimise natural resource consumption and minimise impacts from the handling, transporting, storage, processing and reprocessing of waste and/or chemicals.
- Reference should be made to: the EPA's *Waste Classification Guidelines 2014 (as in force from time to time)*

Describe management and mitigation measures

- Outline measures to minimise the consumption of natural resources.
- Outline measures to avoid the generation of waste and promote the re-use and recycling and reprocessing of any waste.

7. Cumulative impacts

- Identify the extent that the receiving environment is already stressed by existing development and background levels of emissions to which this proposal will contribute.
- Assess the impact of the proposal against the long term air, noise and water quality objectives for the area or region.
- Identify infrastructure requirements flowing from the proposal (e.g. water and sewerage services, transport infrastructure upgrades).
- Assess likely impacts from such additional infrastructure and measures reasonably available to the proponent to contain such requirements or mitigate their impacts (e.g. travel demand management strategies).

F. List of approvals and licences

- Identify all approvals and licences required under environment protection legislation including details of all scheduled activities, types of ancillary activities and types of discharges (to air, land, water).

G. Compilation of mitigation measures

- Outline how the proposal and its environmental protection measures would be implemented and managed in an integrated manner so as to demonstrate that the proposal is capable of complying with statutory obligations under EPA licences or approvals (e.g. outline of an environmental management plan).

- The mitigation strategy should include the environmental management and cleaner production principles which would be followed when planning, designing, establishing and operating the proposal. It should include two sections, one setting out the program for managing the proposal and the other outlining the monitoring program with a feedback loop to the management program.

H. Justification for the Proposal

- Reasons should be included which justify undertaking the proposal in the manner proposed, having regard to the potential environmental impacts.

ATTACHMENT B: GUIDANCE MATERIAL

Title	Web address
Relevant Legislation	
Contaminated Land Management Act 1997	http://www.legislation.nsw.gov.au/#/view/act/1997/140
Environmentally Hazardous Chemicals Act 1985	http://www.legislation.nsw.gov.au/#/view/act/1985/14
Environmental Planning and Assessment Act 1979	http://www.legislation.nsw.gov.au/#/view/act/1979/203
Protection of the Environment Operations Act 1997	http://www.legislation.nsw.gov.au/#/view/act/1997/156
Water Management Act 2000	http://www.legislation.nsw.gov.au/#/view/act/2000/92
Licensing	
Guide to Licensing	www.epa.nsw.gov.au/licensing/licenceguide.htm
Air Issues	
Air Quality	
Approved methods for modelling and assessment of air pollutants in NSW (2016)	http://www.epa.nsw.gov.au/air/appmethods.htm
POEO (Clean Air) Regulation 2010	http://www.legislation.nsw.gov.au/#/view/regulation/2010/428
Noise and Vibration	
Interim Construction Noise Guideline (DECC, 2009)	http://www.epa.nsw.gov.au/noise/constructnoise.htm
Assessing Vibration: a technical guideline (DEC, 2006)	http://www.epa.nsw.gov.au/noise/vibrationguide.htm
Industrial Noise Policy Application Notes	http://www.epa.nsw.gov.au/noise/applicnotesindustnoise.htm
Environmental Criteria for Road Traffic Noise (EPA, 1999)	http://www.epa.nsw.gov.au/resources/noise/roadnoise.pdf
Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects (DECC, 2007)	http://www.epa.nsw.gov.au/noise/railinfranoise.htm
Environmental assessment requirements for rail traffic-generating developments	http://www.epa.nsw.gov.au/noise/railnoise.htm

Human Health Risk Assessment	
Environmental Health Risk Assessment: Guidelines for assessing human health risks from environmental hazards (enHealth, 2012)	http://www.eh.org.au/documents/item/916
Waste, Chemicals and Hazardous Materials and Radiation	
Waste	
Environmental Guidelines: Solid Waste Landfills (EPA, 2016)	http://www.epa.nsw.gov.au/waste/landfill-sites.htm
Draft Environmental Guidelines - Industrial Waste Landfilling (April 1998)	http://www.epa.nsw.gov.au/resources/waste/envguidlns/industrialfill.pdf
EPA's Waste Classification Guidelines 2014	http://www.epa.nsw.gov.au/wasteregulation/classify-guidelines.htm
Resource recovery orders and exemptions	http://www.epa.nsw.gov.au/wasteregulation/orders-exemptions.htm
European Union's Waste Incineration Directive 2000	http://ec.europa.eu/environment/archives/air/stationary/wid/legislation.htm
EPA's Energy from Waste Policy Statement	http://www.epa.nsw.gov.au/wastestrategy/energy-from-waste.htm
NSW Waste Avoidance and Resource Recovery Strategy 2014-2021	http://www.epa.nsw.gov.au/wastestrategy/warr.htm
Chemicals subject to Chemical Control Orders	
Chemical Control Orders (regulated through the EHC Act)	http://www.epa.nsw.gov.au/pesticides/CCOs.htm
National Protocol - Approval/Licensing of Trials of Technologies for the Treatment/Disposal of Schedule X Wastes - July 1994	Available in libraries
National Protocol for Approval/Licensing of Commercial Scale Facilities for the Treatment/Disposal of Schedule X Wastes - July 1994	Available in libraries
Water and Soils	
Acid sulphate soils	
Coastal acid sulfate soils guidance material	http://www.environment.nsw.gov.au/acidsulfatesoil/ and http://www.epa.nsw.gov.au/mao/acidsulfatesoils.htm
Acid Sulfate Soils Planning Maps	http://www.environment.nsw.gov.au/acidsulfatesoil/riskmaps.htm
Contaminated Sites Assessment and Remediation	

Managing land contamination: Planning Guidelines – SEPP 55 Remediation of Land	http://www.epa.nsw.gov.au/clm/planning.htm
Guidelines for Consultants Reporting on Contaminated Sites (EPA, 2000)	http://www.epa.nsw.gov.au/resources/clm/20110650consultantsglines.pdf
Guidelines for the NSW Site Auditor Scheme - 2nd edition (DEC, 2006)	http://www.epa.nsw.gov.au/resources/clm/auditorglines06121.pdf
Sampling Design Guidelines (EPA, 1995)	http://www.epa.nsw.gov.au/resources/clm/95059sampgdlne.pdf
National Environment Protection (Assessment of Site Contamination) Measure 1999 (or update)	http://www.scew.gov.au/nepms/assessment-site-contamination
Soils – general	
Managing land and soil	http://www.environment.nsw.gov.au/soils/landandsoil.htm
Managing urban stormwater for the protection of soils	http://www.environment.nsw.gov.au/stormwater/publications.htm
Landslide risk management guidelines	http://australiangeomechanics.org/admin/wp-content/uploads/2010/11/LRM2000-Concepts.pdf
Site Investigations for Urban Salinity (DLWC, 2002)	http://www.environment.nsw.gov.au/resources/salinity/booklet3siteinvestigationsforurbansalinity.pdf
Local Government Salinity Initiative Booklets	http://www.environment.nsw.gov.au/salinity/solutions/urban.htm
Water	
Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	http://www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html
Applying Goals for Ambient Water Quality Guidance for Operations Officers – Mixing Zones	Contact the EPA on 131555
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf

Planning & Environment
Resources & Geoscience

5th June 2017

Alexander Grierson
Planning Officer
Resource Assessments
Department of Planning & Environment
GPO Box 39
Sydney NSW 2001

Emailed: alexander.grierson@planning.nsw.gov.au

Your Reference: EAR ID No. 1156
Our Reference: OUT17/22112

Dear Mr Grierson,

Re: Request for Secretary's Environmental Assessment Requirements Proposal – Carbrook Sands Quarry Project – EAR ID No.1156

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

The building and construction industries in NSW require ongoing replacement of supplies as sources are exhausted. The development of new quarries, subject to environmental assessment, helps to ensure a continued supply of material for a range of building and construction uses in NSW. The resource in the subject area represents a regionally important source of sand for the Tweed area.

It is in the best interests of both the proponent and the community to fully assess the resources which are to be extracted. This means that a thorough geological assessment should be undertaken to determine the nature, quality and extent of the resource. Failure to undertake such an assessment could lead to operational problems and possibly even failure of the proposal.

Sand is not a prescribed mineral under the *Mining Act 1992*. Therefore, the Department has no statutory role in authorising or regulating the extraction of this commodity, apart from its role under the *Work Health and Safety Act 2011* and associated regulations and the *Work Health and Safety (Mine and Petroleum Sites) Act 2013* and associated regulations, for ensuring the safe operation of mines and quarries. However, the Department is the principal government authority responsible for assessing the State's resources of construction materials and for advising State and local government on their planning and management.

All environmental reports (EIS or similar) accompanying Development Applications for extractive industry lodged under the *Environmental Planning & Assessment Act 1979* should include a resource assessment **(as detailed in Attachment A)** which:

- **Documents the size and quality of the resource and demonstrates that both have been adequately assessed; and**

- **Documents the methods used to assess the resource and its suitability for the intended applications.**

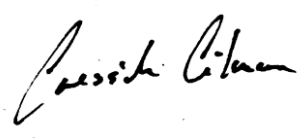
The above information should be summarised in the EIS, with full documentation appended. If deemed commercial-in-confidence, the resource assessment summary included in the EIS should commit to providing DRE with full resource assessment documentation separately. Applications to modify, expand, extend or intensify an existing consent that has already been adequately reported using the above protocol in publicly available documents, may restrict detailed documentation to the additional resources to be used, if accompanied by a summary of past resource assessments and of past production.

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

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

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

Yours sincerely



Cressida Gilmore
Team Leader Land Use

Encl. Attachments "A"

ATTACHMENT A

NSW Department of Planning & Environment
RESOURCES & GEOSCIENCE DIVISION

ENVIRONMENTAL and WORK HEALTH & SAFETY ASSESSMENT REQUIREMENTS FOR CONSTRUCTION MATERIAL QUARRY PROPOSALS

It is in the best interests of both the proponent and the community to fully assess the resources which are to be extracted. This means that a thorough geological assessment should be undertaken to determine the nature, quality and extent of the resource. Failure to undertake such an assessment could lead to operational problems and possibly even failure of the proposal.

The following issues need to be addressed when preparing an environmental assessment (EA) or environmental impact statement (EIS) for a proposed construction materials (extractive materials) quarry:

Resource Assessment

1. A summary of the regional and local geology including information on the stratigraphic unit or units within which the resource is located.

2. The amount of material to be extracted and the method or methods used to determine the size of the resource (e.g. drilling, trenching, geophysical methods). Plans and cross-sections summarising this data, at a standard scale, showing location of drillholes and/or trenches, and the area proposed for extraction, should be included in the EA or EIS. Relevant supporting documentation such as drill logs should be included or appended. Major resource proposals should be subject to extensive drilling programs to identify the nature and extent of the resource.

3. Characteristics of the material or materials to be produced:
   a) For structural clay/shale extraction proposals, ceramic properties such as plasticity, drying characteristics (e.g. dry green strength, linear drying shrinkage), and firing characteristics (e.g. shrinkage, water absorption, fired colour) should be described.
   b) For sand extraction proposals, properties such as composition, grainsize, grading, clay content and contaminants should be indicated. The inclusion of indicative grading curves for all anticipated products as well as the overall deposit is recommended.
   c) For hard rock aggregate proposals, information should be provided on properties such as grainsize and mineralogy, nature and extent of weathering or alteration, and amount and type of deleterious minerals, if any.
   d) For other proposals, properties relevant to the range of intended uses for the particular material should be indicated.

Details of tests carried out to determine the characteristics of the material should be included or appended. Such tests should be undertaken by NATA registered testing laboratories.

4. An assessment of the quality of the material and its suitability for the anticipated range of applications should be given.

5. The amount of material anticipated to be produced annually should be indicated. If the proposal includes a staged extraction sequence, details of the staging sequence needs to be provided. The intended life of the operation should be indicated.

6. If the proposal is an extension to an existing operation, details of history and past production should be provided.

7. An assessment of alternative sources to the proposal and the availability of these sources. The impact of not proceeding with the proposal should be addressed.

8. Justification for the proposal in terms of the local and, if appropriate, the regional context.

9. Information on the location and size of markets to be supplied from the site.

10. Route(s) used to transport quarry products to market.

11. Disposal of waste products and the location and size of stockpiles.

12. Assessment of noise, vibration, dust and visual impacts, and proposed measures to minimise these impacts.

13. Proposed rehabilitation procedures during, and after completion of, extraction operations, and proposed final use of site.

14. Assessment of the ecological sustainability of the proposal.

Health and Safety Issues

In relation to the health and safety of mining and quarrying operations, the following must be addressed:

1. All mining operations are to comply with the following legislation:
    a. *Work Health and Safety Act 2011*
    b. *Work Health and Safety Regulation 2011*
    c. *Work Health and Safety (Mine and Petroleum Sites) Act 2013*
    d. *Work Health and Safety (Mine and Petroleum Sites) Regulation 2014*
    e. *Explosives Act 2003*
    f. *Explosives Regulation 2013*.

2. The mine holder must appoint a mine operator and notify the Department in writing as required by clause 7 of the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014* before commencing any mining operations.

3. Other duties and notification and reporting requirements exist under the WHS laws and duty holders must ensure they understand and comply with these requirements.

Mineral Ownership

The *Mining Act 1992* applies to those commodities prescribed by the regulations of the Act (Schedule 2, *Mining Regulation 2016*). Most construction materials are not prescribed minerals under the *Mining Act 1992*. In general terms, this means these materials are owned by the Crown where they occur on Crown land and by the landowner in the case of freehold land. A Mining Title is not required for their extraction although a Crown Lands licence is required where they occur on Crown land.

Construction materials such as s*and (other than marine aggregate), loam, river gravel, and coarse aggregate materials such as basalt, sandstone, and granite* are not prescribed minerals under the *Mining Act 1992*. Therefore, NSW Department of Planning & Environment has no statutory responsibility for authorising or regulating the extraction of these commodities, apart from its role under the WHS laws with respect to the safe operation of mines and quarries. However, the Department is the principal government authority responsible for assessing the State's resources of construction materials and for advising State and local government on their planning and management.

Some commodities, notably *structural clay (ie clay for brick, tile and pipe manufacture), dimension stone (except for sandstone), quartzite, kaolin, limestone and marine aggregate* are prescribed minerals under the *Mining Act 1992*. Minerals which are prescribed as minerals under the terms of the Mining Act may, in some cases belong either to the Crown or to an individual, depending on a number of factors including the date on which the mineral was proclaimed and the date of alienation of the land.

The proponent needs to determine whether the material is privately owned or Crown mineral (publicly owned). If it is privately owned, then either a mining lease or mining (mineral owner) lease would be required. If it is a Crown mineral, an application for a mining lease will have to be lodged.

If you are unsure whether a mining title is required for your proposal you should contact NSW Department of Planning & Environment, Resources & Geoscience Division.

NSW GOVERNMENT | Office of Environment & Heritage

Our Ref: DOC17/294231
Your Ref: EAR ID No.1156

Department of Planning and Environment
GPO Box 39
Sydney NSW 2001

Attention: Mr Alexander Grierson

Dear Mr Grierson

Re: Request for OEH Environmental Assessment Requirements – Proposed Extractive Industry (Construction Sand), Chinderah, Tweed Local Government Area (EAR ID. No.1156)

Thank you for your email of 24 May 2017 seeking input from the Office of Environment and Heritage (OEH) into the Secretary's Environmental Assessment Requirements (SEARs) for the Sand Extraction Industry proposal at Chinderah. I appreciate the opportunity to provide advice.

The OEH notes that the proposal will be assessed as State Significant Development under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Environmental Impact Statement (EIS) SEARs provided by the OEH are limited to Aboriginal cultural heritage, biodiversity, OEH estate, historic heritage, acid sulphate soils, flooding, stormwater and coastal erosion.

We also note the presence of several threatened species and endangered ecological communities in the locality that may be directly or indirectly affected by the construction and/or operation of the proposed development. The proposed development will involve disturbance of acid sulfate soils and possible changes to groundwater and flooding regimes, which may have indirect impacts on biodiversity values in the locality unless appropriate mitigation measures can be applied.

The proponent should ensure that the EIS will be sufficiently comprehensive to enable unambiguous determination of the extent of the direct and indirect impact(s) of the proposal.

The full lists of OEH's standard requirements that may need to be addressed in the EIS are provided in **Attachment A**. The OEH does not have any project-specific requirements for this proposal. In preparing the EIS, the proponent should refer to the relevant guidance material listed in **Attachment B.**

Locked Bag 914 Coffs Harbour NSW 2450
Federation House, Level 8, 24 Moonee Street
Coffs Harbour NSW 2450
Tel: (02) 6659 8200 Fax: (02) 6651 5356
ABN 30 841 387 271
www.environment.nsw.gov.au

If you have any further questions about this issue, Mr Don Owner, Regional Operations Officer, Regional Operations, OEH, can be contacted on 6659 8233 or at don.owner@environment.nsw.gov.au.

Yours sincerely

9 June 2017

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

Contact officer: DON OWNER
6659 8233

Enclosures:

Attachment A – OEH Standard Environmental Assessment Requirements (EAR ID No.1156)
Attachment B – Guidance material (EAR ID No.1156)

Attachment A – OEH Standard Environmental Assessment Requirements (EAR ID No.1156)

Biodiversity
1. Biodiversity impacts related to the proposed project are to be assessed and documented in accordance with the Framework for Biodiversity Assessment, unless otherwise agreed by OEH, by a person accredited in accordance with s142B(1)(c) of the *Threatened Species Conservation Act 1995*.
Aboriginal cultural heritage
2. The EIS must identify and describe the Aboriginal cultural heritage values that exist across the whole area that will be affected by the project and document these in the EIS. This may include the need for surface survey and test excavation. The identification of cultural heritage values should be guided by the *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW* (DECCW, 2011) and consultation with OEH regional officers.
3. Where Aboriginal cultural heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the EIS.
4. Impacts on Aboriginal cultural heritage values are to be assessed and documented in the EIS. The EIS must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the EIS must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH.
Historic heritage
5. The EIS must provide a heritage assessment including but not limited to an assessment of impacts to *State and local heritage* including conservation areas, natural heritage areas, places of Aboriginal heritage value, buildings, works, relics, gardens, landscapes, views, trees should be assessed. Where impacts to State or locally significant heritage items are identified, the assessment shall: a. outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures) generally consistent with the NSW Heritage Manual (1996), b. be undertaken by a suitably qualified heritage consultant(s) (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria), c. include a statement of heritage impact for all heritage items (including significance assessment), d. consider impacts including, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, landscape and vistas, and architectural noise treatment (as relevant), and e. where potential archaeological impacts have been identified develop an appropriate archaeological assessment methodology, including research design, to guide physical archaeological test excavations (terrestrial and maritime as relevant) and include the results of these test excavations.

Water and soils

6. The EIS must map the following features relevant to water and soils including:
   a. Acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Planning Map).
   b. Rivers, streams, wetlands, estuaries (as described in Appendix 2 of the Framework for Biodiversity Assessment).
   c. Groundwater.
   d. Groundwater dependent ecosystems.
   e. Proposed intake and discharge locations.

7. The EIS must describe background conditions for any water resource likely to be affected by the project, including:
   a. Existing surface and groundwater.
   b. Hydrology, including volume, frequency and quality of discharges at proposed intake and discharge locations.
   c. Water Quality Objectives (as endorsed by the NSW Government http://www.environment.nsw.gov.au/ieo/index.htm) including groundwater as appropriate that represent the community's uses and values for the receiving waters.
   d. Indicators and trigger values/criteria for the environmental values identified at (c) in accordance with the ANZECC (2000) Guidelines for Fresh and Marine Water Quality and/or local objectives, criteria or targets endorsed by the NSW Government.

8. The EIS must assess the impacts of the project on water quality, including:
   a. The nature and degree of impact on receiving waters for both surface and groundwater, demonstrating how the project protects the Water Quality Objectives where they are currently being achieved, and contributes towards achievement of the Water Quality Objectives over time where they are currently not being achieved. This should include an assessment of the mitigating effects of proposed stormwater and wastewater management during and after construction.
   b. Identification of proposed monitoring of water quality.

9. The EIS must assess the impact of the project on hydrology, including:
   a. Water balance including quantity, quality and source.
   b. Effects to downstream rivers, wetlands, estuaries, marine waters and floodplain areas.
   c. Effects to downstream water-dependent fauna and flora including groundwater dependent ecosystems.
   d. Impacts to natural processes and functions within rivers, wetlands, estuaries and floodplains that affect river system and landscape health such as nutrient flow, aquatic connectivity and access to habitat for spawning and refuge (e.g. river benches).
   e. Changes to environmental water availability, both regulated/licensed and unregulated/rules-based sources of such water.
   f. Mitigating effects of proposed stormwater and wastewater management during and after construction on hydrological attributes such as volumes, flow rates, management methods and re-use options.
   g. Identification of proposed monitoring of hydrological attributes.

Flooding and coastal erosion

10. The EIS must map the following features relevant to flooding as described in the Floodplain Development Manual 2005 (NSW Government 2005) including:
    a. Flood prone land
    b. Flood planning area, the area below the flood planning level.
    c. Hydraulic categorisation (floodways and flood storage areas).
11. The EIS must describe flood assessment and modelling undertaken in determining the design flood levels for events, including a minimum of the 1 in 10 year, 1 in 100 year flood levels and the probable maximum flood, or an equivalent extreme event.
12. The EIS must model the effect of the proposed project (including fill) on the flood behaviour under the following scenarios:
    a. Current flood behaviour for a range of design events as identified in 8) above. The 1 in 200 and 1 in 500 year flood events as proxies for assessing sensitivity to an increase in rainfall intensity of flood producing rainfall events due to climate change.
13. Modelling in the EIS must consider and document:
    a. The impact on existing flood behaviour for a full range of flood events including up to the probable maximum flood.
    b. Impacts of the development on flood behaviour resulting in detrimental changes in potential flood affection of other developments or land. This may include redirection of flow, flow velocities, flood levels, hazards and hydraulic categories.
    c. Relevant provisions of the NSW Floodplain Development Manual 2005.
14. The EIS must assess the impacts on the proposed project on flood behaviour, including:
    a. Whether there will be detrimental increases in the potential flood affectation of other properties, assets and infrastructure.
    b. Consistency with Council floodplain risk management plans.
    c. Compatibility with the flood hazard of the land.
    d. Compatibility with the hydraulic functions of flow conveyance in floodways and storage in flood storage areas of the land.
    e. Whether there will be adverse effect to beneficial inundation of the floodplain environment, on, adjacent to or downstream of the site.
    f. Whether there will be direct or indirect increase in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.
    g. Any impacts the development may have upon existing community emergency management arrangements for flooding. These matters are to be discussed with the SES and Council.
    h. Whether the proposal incorporates specific measures to manage risk to life from flood. These matters are to be discussed with the SES and Council.
    i. Emergency management, evacuation and access, and contingency measures for the development considering the full range or flood risk (based upon the probable maximum flood or an equivalent extreme flood event). These matters are to be discussed with and have the support of Council and the SES.
    j. Any impacts the development may have on the social and economic costs to the community as consequence of flooding.

Attachment B – Guidance material (EAR ID No.1156)

Title	Web address
Relevant Legislation	
Coastal Protection Act 1979	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+13+1979+cd+0+N
Commonwealth Environment Protection and Biodiversity Conservation Act 1999	http://www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/
Environmental Planning and Assessment Act 1979	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N
Fisheries Management Act 1994	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+38+1994+cd+0+N
Marine Parks Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+64+1997+cd+0+N
National Parks and Wildlife Act 1974	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N
Protection of the Environment Operations Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N
Threatened Species Conservation Act 1995	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+101+1995+cd+0+N
Water Management Act 2000	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N
Wilderness Act 1987	http://www.legislation.nsw.gov.au/viewtop/inforce/act+196+1987+FIRST+0+N
Biodiversity	
NSW Biodiversity Offsets Policy for Major Projects (OEH, 2013)	http://www.environment.nsw.gov.au/resources/biodiversity/140672biopolicy.pdf
Framework for Biodiversity Assessment (OEH, 2013)	http://www.environment.nsw.gov.au/resources/biodiversity/140675fba.pdf
Fisheries NSW policies and guidelines	http://www.dpi.nsw.gov.au/fisheries/habitat/publications/policies,-guidelines-and-manuals/fish-habitat-conservation
List of national parks	http://www.environment.nsw.gov.au/NationalParks/parksearchatoz.aspx
Revocation, recategorisation and road adjustment policy (OEH, 2012)	http://www.environment.nsw.gov.au/policies/RevocationOfLandPolicy.htm
Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/parks/policyRevocations.pdf
Heritage	
The Burra Charter (The Australia ICOMOS charter for places of cultural significance)	http://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf
Statements of Heritage Impact 2002 (HO & DUAP)	http://www.environment.nsw.gov.au/resources/heritagebranch/heritage/hmstatementsofhi.pdf

Title	Web address
NSW Heritage Manual (DUAP) (scroll through alphabetical list to 'N')	http://www.environment.nsw.gov.au/Heritage/publications/index.htm#M-O
Aboriginal Cultural Heritage	
Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/cultureheritage/commconsultation/09781ACHconsultreq.pdf
Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/cultureheritage/10783FinalArchCoP.pdf
Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH 2011)	http://www.environment.nsw.gov.au/resources/cultureheritage/20110263ACHguide.pdf
Aboriginal Site Recording Form	http://www.environment.nsw.gov.au/resources/parks/SiteCardMainV1_1.pdf
Aboriginal Site Impact Recording Form	http://www.environment.nsw.gov.au/resources/cultureheritage/120558asirf.pdf
Aboriginal Heritage Information Management System (AHIMS) Registrar	http://www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm
Care Agreement Application form	http://www.environment.nsw.gov.au/resources/cultureheritage/20110914TransferObject.pdf
Water and Soils	
Acid sulphate soils	
Acid Sulfate Soils Planning Maps via 'The NSW Natural Resource Atlas'	www.nratlas.nsw.gov.au/
Acid Sulfate Soils Manual (Stone et al. 1998)	Manual available for purchase from: http://www.landcom.com.au/whats-new/the-blue-book.aspx Chapters 1 and 2 are on DPI's Guidelines Register at: Chapter 1 Acid Sulfate Soils Planning Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Planning%20Guidelines.pdf Chapter 2 Acid Sulfate Soils Assessment Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Assessment%20Guidelines.pdf
Acid Sulfate Soils Laboratory Methods Guidelines (Ahern et al. 2004)	http://www.advancedenvironmentalmanagement.com/Reports/Savannah/Appendix%2015.pdf This replaces Chapter 4 of the Acid Sulfate Soils Manual above.
Flooding and Coastal Erosion	
Reforms to coastal erosion management	http://www.environment.nsw.gov.au/coasts/coastalerosionmgmt.htm
Floodplain development manual	http://www.environment.nsw.gov.au/floodplains/manual.htm
Guidelines for Preparing Coastal Zone Management Plans	Guidelines for Preparing Coastal Zone Management Plans http://www.environment.nsw.gov.au/resources/coasts/130224CZMPGuide.pdf
NSW Climate Impact Profile	NSW Climate Impact Profile
Climate Change Impacts and Risk Management	Climate Change Impacts and Risk Management: A Guide for Business and Government, AGIC Guidelines for Climate Change Adaptation
Water	
Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm

Title	Web address
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	www.environment.gov.au/water/publications/quality/australian-and-new-zealand-guidelines-fresh-marine-water-quality-volume-1
Applying Goals for Ambient Water Quality Guidance for Operations Officers – Mixing Zones	http://deccnet/water/resources/AWQGuidance7.pdf
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf

File No: NTH17/00003
Your Ref:

Department of Planning and Environment
Resource Assessments
Planning Services
GPO Box 39
SYDNEY NSW 2001

Attention: Alexander Grierson

Dear Sir / Madam,

EAR ID No.1156 - Carbrook Sands Quarry Project, Chinderah

I refer to your email of 24 May 2017 requesting input from Roads and Maritime Services in relation to the Secretary's Environmental Assessment Requirements (EAR ID. 1156) for Carbrook Sands Quarry Project.

Roles and Responsibilities

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

Pacific Motorway is a classified (State) road (a freeway) under the *Roads Act 1993* (Roads Act). Roads and Maritime Services is the Roads Authority for freeways in accordance with Section 7 of the Roads Act. Any proposed works on a freeway require the consent of Roads and Maritime.

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

Roads and Maritime Response

Roads and Maritime has reviewed the referred information and provides the following comments to assist the consent authority in determining the requirements;

- Attached is a copy of Roads and Maritime's previous response to DAC Planning Pty Ltd dated 31 January 2017 and a subsequent email of 15 March 2017 detailing Roads and Maritime's requirements for further consideration in any Environmental Impact Statement (EIS).

- The proposed transport route will use Altona Drive, Crescent Street and Tweed Coast Road, Cudgen. Any Traffic Impact Assessment prepared as part of the EIS will need to consider existing and approved development in the area when undertaking intersection analysis. This should include, but not be limited to, consideration of traffic associated with the proposed staging of Neumann's Sand Quarry (Project Approval 05_103 dated 16 June 2009).

Advice to the Consent Authority

If you have any further enquiries regarding the above comments please do not hesitate to contact Liz Smith, Manager Land Use Assessment on (02) 6640 1362 or via email at: development.northern@rms.nsw.gov.au

Yours faithfully

For Monica Sirol
Network & Safety Manager, Northern Region
16/06/2017

File No: NTH17/00003

DAC Planning Pty Ltd
Suite 7, Corporate House
8 Corporation Circuit
TWEED HEADS SOUTH NSW 2486

Attention: Darryl Anderson – Director/Principal Town Planner

Dear Sir/Madam,

Pre-DA Advice, Proposed Extractive Industry, Lot 18 DP1168455 & Lot 57 DP755701, Pacific Highway, Chinderah

I refer to your email of 21 December 2016 requesting comment from Roads and Maritime Services in relation to the abovementioned development proposal.

Roles and Responsibilities

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

Pacific Motorway (HW10) is a classified (State) road. In accordance with Section 7 of the *Roads Act 1993* (the Act) Roads and Maritime Services is the Roads Authority for this road.

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

It is emphasised that the comments provided below are based on the current proposal and the information provided at this time. They are not to be interpreted as binding upon Roads and Maritime and may change following formal assessment of any development application referred by the relevant consent authority.

Roads and Maritime Response

Roads and Maritime has reviewed the information forwarded for consideration and provides the following comments to assist in the preparation of an Environmental Impact Statement:

1. No direct access to the Pacific Motorway or Chinderah Interchange will be permitted. Access must be obtained via the local road network and Tweed Coast Road.

2. Any future Environmental Impact Statement must be accompanied by a Transport and Traffic Impact Assessment (TIA) to identify likely traffic impacts and subsequent road upgrade requirements. Roads and Maritime would like the following issues to be included in any TIA:

    a. The total impact of existing and proposed development on the road network with consideration for a 10 year horizon.

    b. The volume and distribution of traffic generated by the proposed development, noting the gross load limit of 14.5 tonnes on Cudgen Road and Clothiers Creek Road.

c. Peak hour turn movements at key intersections including Chinderah Interchange with Tweed Coast Road, Tweed Coast Road and Crescent Street, and Crescent Street and Altona Road.

d. Intersection sight distances at key intersections along the primary haul route.

e. Details of any proposed improvements to affected intersections, with consideration for the current Austroads Guidelines, Australian Standards and Roads and Maritime Supplements.

f. Detail of servicing and parking arrangements.

g. Traffic Management for construction and operational phases of the proposed development.

h. Impact on public transport (public and school bus routes) and consideration for alternative transport modes such as walking and cycling.

i. Impacts of road traffic noise and dust generated along the primary haulage route.

j. Details of proposed screening to minimise the visual impact of the development from the Pacific Motorway, including proximity of boundary fencing to the proposed excavation.

k. Consideration for Clause 16(1) of the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 regarding impacts on school zones and residential areas, consideration of the preparation of a Code of Conduct for haulage operators and details of any road safety assessment of key haulage route/s.

   Where road safety concerns are identified at a specific location along the identified haulage route/s, Roads and Maritime suggests that the Traffic Impact Assessment be supported by a targeted Road Safety Audit undertaken by suitably qualified persons.

3. The Pacific Motorway and the subject properties are identified in the Tweed Valley Flood Study 2009 as being subject to flooding. The applicant would be required to undertake two-dimensional hydraulic modelling to demonstrate that all stages of construction and operation (including stockpiling, bunding, etc.) will not impact peak flood depths or velocities on the Pacific Motorway in all events up to and including the Probable Maximum Flood event.

4. The subject properties are dissected by a drainage channel. Stormwater drainage on the Pacific Motorway is directed into this channel and any proposal must demonstrate that it will not impact the downstream capacity of this network or the ability of the Pacific Motorway to effectively drain water.

5. A 30m dewatered pit in sand may have an extensive groundwater drawdown zone which may induce settlement. Thorough geotechnical investigations to support design and construction should be undertaken in accordance with the *RMS Technical Direction – Excavation adjacent to RMS infrastructure.*

   A dewatering management plan is to be provided, including details of any contingencies to maintain stability if relevant dewatering systems fail.

6. It is further recommended that any Environmental Management Plan prepared as part of any EIS identify potential impacts of construction and operation on the Pacific Motorway and Chinderah Heavy Vehicle Inspection Station. This should include, but not be limited to, visual screening, dust, noise and odour control.

If you have any further enquiries regarding the above comments please contact, Liz Smith, Manager Land Use Assessment on (02) 6640 1362 or via email at: development.northern@rms.nsw.gov.au

Yours faithfully

for Monica Sirol
Network & Safety Manager, Northern Region
31 January 2017