

JOINT REGIONAL PLANNING PANEL (Southern Region)

SUPPLEMENTARY MEMO

JRPP No	2015STH002
DA Number	18/2015
Local Government Area	Shellharbour
Proposed Development	Extension of Dunmore Sand Extraction, Emplacement of Potential Acid Sulfate Soils & Rehabilitation
Location	Lot 21 DP 653009, 44 Buckleys Road Dunmore
Date	1 July 2016
Report by	Victoria Nicholson, Senior Development Assessment Officer

Application 2015STH002 was report to the Joint Regional Planning Panel 17 March 2016. The matter was deferred for the applicant to provide additional information.

The Panel's decision at this meeting and how the matters arising have been addressed are detailed in the table below. The table also includes recommendations in response to the matters raised, including changes to the draft schedule of conditions that formed part of the assessment report to the Panel meeting. These are provided in Attachment 1 to this supplementary report.

This report relies on the additional information dated 28.04.2016, 1.07.2016 and plans dated 2.06.2016. The letter was submitted with the plans however has since been updated. Attachment 2 includes the plans and information requested after Council's assessment of the information dated 28.04.0216.

Panel decision	Response	Recommendation
<p>That the application be deferred for the applicant to provide additional information that provides specific details of the noise mitigation measures required to meet the PSNL noise limits outlined in the EPA letter dated 9 June 2015.</p>	<p>The additional information submitted is satisfactory and provides specific details of the noise mitigation measures required to meet the Project Specific Noise Limits (PSNL) limits.</p> <p>The information outlines the projected noise levels associated with the project, highlights the anticipated exceedances with the PSNL and the noise attenuation measures necessary to reduce noise levels to ensure compliance with the PSNL.</p>	<p>Condition no. 1 Plans</p> <ul style="list-style-type: none"> Change the condition to include the additional information submitted 16.06 and 01.07.2016 <p>Condition no.1 Plans</p> <ul style="list-style-type: none"> Retain the <i>Noise and Vibration Assessment</i> dated 18.12.2014 as part of the approved documentation. <p>Condition no. 8 Noise</p> <ul style="list-style-type: none"> Change to the recommended condition to include the additional information. <p>New conditions relating to the construction and design of the noise barrier wall.</p> <ul style="list-style-type: none"> These are numbered 16-18 in the conditions of Attachment 1 following this table.
<p>The information is to identify the actual measures or combination measures, location, height and width or any mounds or acoustic barriers and any impacts on retained vegetation and visual impacts.</p>	<p>Information has been provided that discusses mitigation measures. The preferred mitigation option is a 4m high noise wall to reduce the noise levels during sand extraction and site rehabilitation stages. Additional measures will be required during the site rehabilitation stage to achieve compliance with the PSNL, for example, treatment of the machinery.</p> <p>Conceptual details of the wall location, height, separation distances from vegetation and excavation pit have been provided on plan. Two options have been proposed for the noise barrier construction design. The applicant advises that both options will not impact on the volume of sand to be mined.</p> <p>The height of the existing trees along the perimeter of the site that are to remain have</p>	<p>Condition no. 9 Visual Impact</p> <ul style="list-style-type: none"> Deletion of this condition.

Panel decision	Response	Recommendation
	heights that exceed the height of a noise barrier. The height, habit and density of the existing trees will adequately screen the wall from public places and from neighbouring residences.	
The information is to be provided within four weeks of the date of the decision.	The applicant submitted the supplementary information 29 April 2016; refer separate attachment. This was assessed by Council officers as being deficient and further information was requested from the applicant on 9 May 2016. This additional information was submitted 16.06.2016; refer attachment 2.	
A supplementary report is to be prepared and will be considered via an electronic meeting of the JRPP.	Supplementary report submitted to the JRPP secretariat 1 July 2016.	To approve the proposed development subject to the amended schedule of conditions provided in Attachment 1 of this supplementary report.
That Condition 4 be revised to require that a biodiversity offset strategy be submitted that specifies the details of either a Bio-banking Agreement or an alternative method to protect the biodiversity offset site, such as a Property Vegetation Plan or a Voluntary Conservation Agreement.	<p>Condition no. 4 Biodiversity – recommended condition in JRPP Planning Report</p> <p>The impacts associated with the clearing of native vegetation must be addressed in accordance with one of the recommendations contained within Table 8 of the Biodiversity Offset Strategy Report No. AA005925 (Hyder, 3 July 2015). Prior to any works commencing, an offset mechanism must be prepared by an accredited BioBanking assessor in accordance with the Office of Environment and Heritage's (OEH) Biobanking Assessment Methodology and in consultation with OEH and the property land owner.</p> <p>The adopted biodiversity offset measure must be implemented when the site preparation and establishment works for the sand extraction proposal commence.</p>	<p>Condition no. 4 Biodiversity</p> <ul style="list-style-type: none"> • Change the condition in response to Panel decision. <p>Prior to any works commencing, a biodiversity offset management plan must be prepared in consultation with the Office of Environment and Heritage and the land owner and be submitted and approved by Council. The biodiversity offset management plan must specify the details of a Bio-banking Agreement or alternatively another method is to be prepared to protect the biodiversity offset site, such as a Property Vegetation Plan or a Voluntary Conservation Agreement.</p> <p>The adopted biodiversity offset measure must be implemented when the site preparation and establishment works for the sand extraction proposal commence.</p>

Attachment 1 – Amended Draft Schedule of Conditions

1 Development in Accordance with Plans

The development must be in accordance with the following approved Development Application plans and documents as endorsed by Council's stamp except as modified by conditions of this consent.

Name of Plan	Prepared By	Report No.	Drawing Date
Environmental Impact Statement - Volumes 1 & 2, including Mitigation Measures of Section 11	Hyder Consulting Pty Ltd	-	12.01.2015 (front cover dated December 2014)
Biodiversity Offset Strategy	Hyder Consulting Pty Ltd	AA005925	03.07.2015
Acid Sulfate Soil Management Plan	Environmental Earth Sciences	115047 Version 1	26.06.2015
Noise and Vibration Assessment	Wilkson Murray	13222 Version B	18.12.2014
Biodiversity Assessment	Hyder Consulting Pty Ltd	AA005925	16.12.2014
Letter titled 'Dunmore Sand extraction proposal – response to JRPP' (4 pages) and supporting Noise Wall Plans	Wilkson Murray	A13222Ltr01072016	01.07.2016
	Arcadis	AA005925 S0001-S0005 Issue A	03.06.2016

2 NSW Department of Primary Industries – Fisheries NSW

The development must comply with the advice and conditions of the Department of Primary Industries – Fisheries NSW, as contained in their letter with reference OUT15/11 dated 19 February 2015, consisting of two (2) pages, and forms part of this Notice of Determination.

The Ground Water Monitoring and Management Plan must be to the satisfaction of Fisheries NSW prior to any works commencing.

3 NSW Department of Primary Industries – NSW Office of Water

The net loss to the aquifer system from the proposed sand mining has been estimated at 15.0 to 17.5 megalitres per annum.

Based on the above, the following will be required under the *Water Management Act 2000*:

- Water Access Licence (WAL) - for the incidental water extraction, and
- Water Supply Works and/or Use approval - for the operation.

To apply for the necessary approvals, the following steps must be completed:

1. Apply for a Zero Share Water Access Licence (WAL) under section 61 (1)(b) of the *Water Management Act 2000*. An application form and guide are attached. The fee for this application fee is \$268.70.
2. Apply for a Water Supply Works and/or Use approval under section 92 of the *Water Management Act 2000*. In support of this application, a full hydrogeological report will also be required to be submitted. An "Application for approval for water supply works, and/or water use" is attached. The fee for this application is \$1,286.30.

3. Once the Zero Share WAL has been registered and issued by Land & Property Information (LPI), you will need to purchase water from an existing licence holder within the same water source and transfer the required groundwater entitlement (17.5 ML) into the zero share account.
4. The transfer is undertaken through a s71Q (assignment of shares) or a s71M (full transfer) dealing under the *Water Management Act 2000*.

The required licences must be applied for, and obtained, prior to any works commencing.

4 Biodiversity

Prior to any works commencing, a biodiversity offset management plan must be prepared in consultation with the Office of Environment and Heritage and the land owner and be submitted and approved by Council. The biodiversity offset management plan must specify the details of a Bio-banking Agreement or alternatively another method is to be prepared to protect the biodiversity offset site, such as a Property Vegetation Plan or a Voluntary Conservation Agreement.

The adopted biodiversity offset measure must be implemented when the site preparation and establishment works for the sand extraction proposal commence.

5 Odour

An odour assessment report must be prepared by a suitably qualified professional prior to the commencement of any works. The assessment is to identify and characterise any potential odour impacts, including from the oxidation of potential acid sulfate soils. The odour assessment report must outline any necessary odour management provisions and when these mitigation measures are to be implemented.

6 Construction Environmental Management Plan

A construction environmental management plan (CEMP) must be prepared by a suitably qualified environmental scientist/engineer prior to the commencement of any works. The CEMP must be prepared in accordance with any relevant industry guidelines or standards that apply to specific areas of management to be addressed under the CEMP. The plan must clearly detail how all relevant environmental management and monitoring procedures and safeguards outlined within the Environmental Impact Statement (Hyder, 2015) will be implemented and monitored for adequacy and maintained for the duration of the development. The CEMP must be implemented for the life of the development.

7 Operational Environmental Management Plan

An Operational Environmental Management Plan (OEMP) must be prepared by a suitably qualified environmental scientist/engineer prior to the commencement of any works. The OEMP must be prepared in accordance with any relevant industry guidelines or standards that apply to specific areas of management to be addressed under the OEMP. The plan must clearly detail how all relevant environmental management and monitoring procedures and safeguards outlined within the Environmental Impact Statement (Hyder, January 2015) will be implemented and monitored for adequacy and maintained for the duration of operational activity. The OEMP must be implemented for the duration of the operation.

8 Noise

A. Operational Noise Management Plan

An Operational Noise Management Plan (ONMP) must be prepared by a suitably qualified acoustic consultant prior to any works commencing. The ONMP is to be prepared in accordance with all relevant industry standards and guidelines.

All potential noise impacts are to be identified and it is to be demonstrated how the project specific noise levels specified in the table below will be met through the implementation of suitable acoustic attenuation measures.

The mitigation measures to be included in the ONMP must include all recommendations detailed in the documentation and plans prepared by Wilkinson/Murray that form part of condition no. 1 including at receiver treatment, limiting operational hours to those agreed to with residents, engineered at source noise mitigation on project plant/vehicles. The ONMP must also include a complaint response procedure developed in consultation with identified affected residences.

PrNoise in dBA(A)

Locality	Location	Noise Limits dB(A)
		Day
		L_{Aeq} (15 minute)
R1, R2, R3, R7 & R8	1, 21 & 51 Dunmore Road, Dunmore and isolated residences on Swamp and James Road	45 dB(A)
R4	21 Buckleys Road Shell Cove	42 dB(A)
R5	North East receivers along Augusta Parkway Shell Cove	41 dB(A)
R6	Killalea State Camp Site	50 dB(A) $L_{Aeq, 1hr}$ when in use

The ONMP must be implemented for the life of the development.

B. Traffic Noise Management Strategy

A Traffic Noise Management Strategy (TNMS) for the purpose of managing noise associated with the construction, operational and rehabilitation stages must be developed by an appropriately qualified consultant prior to any works commencing. The TNMS shall ensure that feasible and reasonable noise management strategies for the vehicle movements associated with the facility are identified and applied, and includes but not necessarily limited to the following:

- driver training to ensure that noisy practices such as the use of compression engine brakes are not unnecessarily used near sensitive receptors,
- best noise practice in the selection and maintenance of vehicle fleets,
- due consideration of installing broadband reversing alarms on all mobile plant (including transport vehicles) instead of tonal alarms,
- movement scheduling where practicable to reduce impacts during sensitive times of the day, for example before 10am on weekends,
- communication and management strategies for non-licensee/proponent owned and operated vehicles to ensure the provision of TNMS are implemented,
- a system of audited management practices that identifies non-conformances, initiates and monitors corrective and preventative action (including breaches of noise minimisation procedures) and assesses the implementation and improvement of the TNMS, and
- specific procedures to minimise impacts at identified sensitive areas, and clauses in conditions of employment, or in contracts, of drivers that require adherence to the noise minimisation procedures.

9 Groundwater Monitoring and Management Plan

A Groundwater Monitoring and Management Plan (GMMP) must be prepared by a suitably qualified environmental scientist prior to the commencement of any works. The GMMP is to clearly outline the objectives of the monitoring program, identify all risks and potential impacts to groundwater resources and detail how such impacts will be appropriately monitored and managed. The plan shall incorporate all relevant environmental management information contained within the Environmental Impact Statement (Hyder, January 2015), and recommendations contained in the Hydrogeological Assessment (Earth Environmental Sciences, September 2014).

The GMMP must be implemented for the operational life of the development.

10 Survey

Prior to the commencement of works, a survey plan of the boundaries of the sand extraction area shall be prepared by a registered surveyor.

These boundaries are to be clearly marked at all times in a permanent manner that allows operating personnel, staff and inspecting officers to clearly identify those limits.

11 Vegetation – Levee Bank & Drainage Channel

The levee bank, bed of the realigned channel and the riparian corridor of the realigned channel must be planted out with local endemic species. Evidence of stock provenance shall be provided.

12 Protection of Trees on Site

The existing screening vegetation along the western and northern boundaries that provide a visual buffer of the site from public places and from residences on Dunmore Road are to be retained. Prior to any works commencing, the trees must be enclosed with temporary protective fencing to prevent any excavation activities, storage or the disposal of materials within the fenced area. The protective fence must:

- a. be located a minimum of 2.5m from the base of the tree,
- b. have a minimum height of 1.5m, and
- c. be clearly marked at all times with the use of high visibility plastic hazard tape.

The tree protection fencing must be maintained intact throughout the site preparation and establishment period of the development.

13 Operating Hours

The operational hours of the sand extraction proposal are:

- 7.30am-4pm weekdays
- 8am-4pm weekends

No works on public holidays.

14 Soil and Water Management Plan (SWMP)

Prior to works commencing, a Soil and Water Management Plan must be prepared by a suitably qualified consultant. The SWMP must clearly identify site features, constraints and soil types together with the nature of the proposed land disturbing activities and also specifies the type and location of erosion and sediment control measures. In addition rehabilitation techniques that are necessary to deal with such activities should be referred to.

The SWMP must take into account the requirements of Landcom's publication *Managing Urban Stormwater - Soils and Construction (2004)* thus ensuring the following objectives are achieved, namely:

- a. minimise the area of soils exposed at any one time,
- b. conserve topsoil for reuse on site,
- c. identify and protect proposed stockpile locations,
- d. preserve existing vegetation and identify revegetation techniques and materials,
- e. control surface water flows through the development site on a manner that:
 - i. diverts clean run-off around disturbed areas
 - ii. minimises slope gradient and flow distance within disturbed areas
 - iii. ensures surface run-off occurs at non-erodible velocities
 - iv. ensures disturbed areas are promptly rehabilitated.
- f. trap sediment on site to prevent off site damage. Hay bales are not to be used as sediment control devices. To ensure regular monitoring and maintenance of erosion and sediment control measures and rehabilitation works until the site is stabilized (includes landscaping),
- g. specifies measures to control dust generated as a result of activities on site,
- h. temporary sediment ponds must be fenced where the batter slope exceeds 1 vertical to 5 horizontal,
- i. design scour protection for the 10 year ARI event at all inlet and outlet structures, and
- j. including measures to prevent the tracking of sediment off the site.

The measures required in the Soil and Water Management Plan must be implemented prior to the commencement of works.

The soil and water management controls must be maintained at all times during each stage of the development and checked for adequacy daily. The controls must not be removed until the development is completed and the disturbed areas have been stabilised.

15 Construction Certificate & PCA Notification ***Environmental Planning & Assessment Act 1979 Section 81A***

Before any site works for the noise barrier wall commence the person having the benefit of the development consent must:

- a. obtain a Construction Certificate from Shellharbour City Council or other accredited certifier, and
- b. appoint a Principal Certifying Authority.

16 Structural Details

Details of the structural engineer's design for all reinforced concrete footings for the noise barrier must be provided to the Certifying Authority prior to commencing work on the noise barrier.

Council records indicate that acid sulfate soils may be present in this area. The engineer's design must make specific reference to acid sulfate soils as a consideration.

The engineer's design shall include the location of the noise barrier from the stand of vegetation. The location of the proposed noise barrier shall be generally in accordance with the approved plans of condition no. 1 to ensure the health of the trees are not compromised.

17 Occupation Certificate

An Occupation Certificate must be issued on completion of noise barrier wall.

18 Site Rehabilitation Plan – Option 1 - Wetland

Where the site rehabilitation option 1 – wetland is adopted, a wetland management plan must be prepared for the site by a suitably qualified professional to Council's satisfaction. This plan must be submitted to Council for assessment at least 3 months prior to this option being adopted.

19 Final Site Rehabilitation Plan

A final site rehabilitation plan must be submitted to, and approved by, Shellharbour City Council prior to the commencement of rehabilitation works. Council's approval of this Plan is to be sought at least 3 months prior to when the stockpile site will no longer be required to ensure there is minimal delay in carrying out the final site rehabilitation works. Council's requirements for the Plan are to be sought prior to the preparation of the Plan. Any maintenance period should be a minimum of 36 months.

The final site rehabilitation plan shall:

- a. be site specific,
- b. identify the proposed end use and landform of the land use once rehabilitated,
- c. consider any relevant management requirements and provisions of the DRWDD site rehabilitation plan, and
- d. consider the Biodiversity Offset Management Plan to be prepared for the development site.

If the final rehabilitated landscape is proposed to incorporate any wetland or waterway environments, a wetland management plan must be prepared for the site.

- The Wetland Management Plan must be prepared by a suitably qualified professional to Council's satisfaction and implemented for a period of 3 years after Practical Completion of the wetlands.
- Annual reports documenting implementation measures and containing all monitoring results are to be submitted to Council during this phase. Council may request site visits as required.
- Approaching hand over, a site meeting with Council must be arranged by the proponent. The objective of the meeting will be to identify any outstanding actions that require rectification by the proponent before hand over.

The final site rehabilitation plan must be implanted to the satisfaction of Council.

20 NSW Department of Primary Industries – Fisheries NSW



Department of Primary Industries

Our Ref: OUT15/11
Your Ref: DA No 18/2015

19 February 2015

Victoria Nicholson
Senior Development Assessment Officer
Shellharbour City Council
Locked Bag 155
SHELLHARBOUR CITY CENTRE NSW 2529

Dear Ms Nicholson

**Re: Designated IDA 18/2015 Extension of Dunmore Sand Extraction,
Potential Acid Sulphate Soil Disposal and Rehabilitation Works
Lot 21 DP635009 – 44 Buckleys Road Dunmore**

I refer to your letter dated 23 January 2015 (INW15/4588) and accompanying information seeking comments from Fisheries NSW, a division of NSW Department of Primary Industries, on the above proposal.

Fisheries NSW is responsible for ensuring that fish stocks are conserved and that there is “no net loss” of key fish habitats upon which they depend. To achieve this, the Department ensures that developments and land use planning complies with the requirements of the *Fisheries Management Act 1994* (namely the aquatic habitat protection and threatened species conservation provisions in Parts 7 and 7A of the Act respectively) and the associated *Policy and Guidelines for Aquatic Habitat Management and Fish Conservation (1999)*. In addition the Department is responsible for ensuring the sustainable management of commercial and recreational fishing and aquaculture within NSW.

Fisheries NSW has reviewed the proposal prepared for Shellharbour City Council (SCC) by Hyder Consulting dated December 2014 and supporting documentation. We understand that there will be no direct impact upon important fish habitats including seagrass, mangrove and saltmarsh communities.

The subject site is situated adjacent to Rocklow Creek and SEPP 14 Wetland No. 374a, draining to the Minnamurra Estuary. The potential impacts on these waterways resulting from the discharge of sediment laden waters, particularly during high rainfall events, as well as groundwater drawdown and creek realignment is of interest to this Department.

The REF has identified that the site area is ‘subject to frequent flooding’ and that the proposal represents a ‘high risk of impact to the quality and quantity of surface and ground water’. The proposal includes provisions for surface water quality monitoring (Volume 2, Appendix C, Part 6, p7) to be conducted on a quarterly basis. It is Fisheries NSW policy that all developments should aim to achieve no net impacts on receiving waterways. The proposed water quality monitoring and management measures regime will not provide adequate information to verify that there is no

significant impact upon adjacent waterways because high rainfall events are not likely to coincide with the sampling dates.

The EIS suggests that groundwater will be drawn down by 3m in the vicinity of the dredging works. The Department is concerned that this may pose a risk to nearby wetland habitats.

Based on the information provided, Fisheries NSW does not object to the extension of the Sand Extraction works, subject to the following conditions being included in any approval of the planning proposal:

1. All works conform to and are consistent with the Environmental Impact Statement (EIS) by Hyder Consulting dated December 2014;
2. A surface water quality management and monitoring plan is to be developed and submitted to Fisheries NSW for approval prior to any works taking place. The plan must include sampling and testing regimes for the construction and operational phases and include provisions for sampling of water quality during discharge events;
3. A copy of the draft Ground Water Monitoring and Management Plan is to be submitted to Fisheries NSW for comment prior to any works taking place;
4. The draft design plans for the realignment of the western diversion channel including stormwater dissipation devices and water quality improvement devices are to be submitted to Fisheries NSW for approval prior to any works taking place.
5. Environmental safeguards (e.g. silt curtains, sediment fences, booms etc.) are to be installed and maintained throughout the proposal in accordance with "*Managing Urban Stormwater: Soils and Construction*" (4th Edition Landcom, 2004, aka the Blue Book) to ensure that there is no escape of turbid plumes into the adjacent aquatic environment;
6. Spill kits suitable for the containment of fuel and oil spills must be kept on site;
7. Fisheries NSW (1800 043 536) is to be immediately notified of any fish kills in the vicinity of the works. In such cases, all works other than emergency response procedures are to cease until the issue is rectified and written approval to proceed is provided by Fisheries NSW.
8. Independent audits of the operation of the dredging operation are to be conducted after 12 months and thereafter at 3 yearly intervals. Audits are to be conducted by suitably qualified practitioners. A copy of each audit report is to be provided to Fisheries NSW within 3 months.

If you require any further information, please do not hesitate to contact me on (02) 4428 3406.

Yours sincerely



Jillian Reynolds
Regional Assessment Officer – South Coast
Aquatic Ecosystems

Attachment 2 – Additional information submitted 16 June & 1 July 2016



1 July 2016

WM Project Number: 13222
Our Ref: A13222Lbr01072016

Brad Searle
Arcadis
Level 5/141 Walker Street
NORTH SYDNEY NSW 2060

Dear Brad

Re: Dunmore Sand Extraction Proposal - Response to JRPP

Shellharbour City Council (SCC) is proposing to redevelop its Dunmore Sand Extraction facility at 44 Buckleys Road, Dunmore (the Proposal).

Wilkinson Murray conducted a detailed noise and vibration assessment report for the project (Wilkinson Murray Report No. 13222 Version B, dated December 2014).

The noise assessment identified that there could be possible exceedances of the Project Specific Noise Levels (PSNL – 45dBA, $L_{Aeq, 15min}$) for sand extraction and site rehabilitation at the closest residential receivers along Dunmore Road (See Figure 1).

The noise assessment considered the following noise mitigation options and recommended these should be considered at the detail design stage when more detailed information was known, namely:

- Negotiated agreements with potentially affected residences. Such agreement would address architectural treatment and noise barrier 'at receiver' (along residential boundary fence fronting the site); and/or
- Treatment of suction dredge (sand extraction); and/or
- Treatment of long armed excavator (site rehabilitation); and/or
- Barrier treatment of barge (i.e. to shield noise generated by plant on board); and/or
- Noise barrier 'at source' (along the northern boundary of the proposed extraction area).

To respond to Councils and the (Joint Regional Planning Panel) JRPP concerns, a more detailed noise modelling exercise has been conducted with more detailed topography and buildings in the model.

The predicted noise levels for sand extraction and Site Rehabilitation without noise mitigation is presented in Table 1.

As can be seen the predicted noise levels without noise mitigation exceeds the noise criteria at 3 residential receivers.

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ACOUSTICS AND AIR

Figure 1 Site and closest residential receivers.



Therefore, the location of the proposed noise barrier has been reviewed considering potential ancillary impacts from flooding, visual impact, loss of habitat and encroachment on mining area and resultant noise mitigation. Figure 2 shows the preferred location of the noise barrier.

Figure 2 Proposed noise barrier location.



An iterative approach was used and it was found that a 5.2m barrier would reduce noise levels from sand extraction and site rehabilitation to below the PSNL.

However when considering the most reasonable and feasible barrier it was found that a 4m noise barrier would reduce noise levels for sand extraction to within the PSNL however for site rehabilitation a negligible 1dB exceedance occurs at 1 Dunmore Rd and 5 Dunmore Rd (See Table 2).

Table 2 Noise Predictions for Sand Extraction and Site Rehabilitation with a 4 metre barrier

Location	Predicted $L_{Aeq, 15min}$ Noise level		Criteria	Complies with barrier? Yes/No
	Sand Extraction (dBA)	Site Rehabilitation (dBA)		
R1 - 1 Dunmore Rd	44.2	46.0	45	Yes/No
R1 - 5 Dunmore Rd	44.8	45.9		Yes/No
R1 - 7 Dunmore Rd	43.2	43.3		Yes/Yes
R1 - 9 Dunmore Rd	41.8	42.9		Yes/Yes
R1 - 11 Dunmore Rd	42.6	42.9		Yes/Yes
R1 - 19 Dunmore Rd	42.7	42.8		Yes/Yes
R1 - 21 Dunmore Rd	42.4	42.6		Yes/Yes
R1 - 23 Dunmore Rd	42.0	41.7		Yes/Yes

The exceedance of 1 dB for the site rehabilitation could be easily reduced if the long armed excavator were to have its source noise level reduced by 1dB by possibly increasing the transmission loss of the engine enclosure by cladding with wavebar, or similar.

The predicted noise levels for the site rehabilitation with the recommended mitigation, specifically a 4 m barrier and a long armed excavator with a 1 dB reduction in noise level, is presented in Table 3.

Table 3 Noise Predictions for Site Rehabilitation with a noise barrier and the long armed excavator noise level reduced by 1 dB.

Location	Predicted $L_{Aeq, 15min}$ Noise level with mitigation (dBA)	Criteria	Complies with mitigation? Yes/No
R1 - 1 Dunmore Rd	45	45	Yes
R1 - 5 Dunmore Rd	44.9		Yes
R1 - 7 Dunmore Rd	42.3		Yes
R1 - 9 Dunmore Rd	41.9		Yes
R1 - 11 Dunmore Rd	41.9		Yes
R1 - 19 Dunmore Rd	41.8		Yes
R1 - 21 Dunmore Rd	41.6		Yes
R1 - 23 Dunmore Rd	40.7		Yes

As shown in Table 3, the predicted noise levels during site rehabilitation, with the recommended mitigation, comply with the noise criterion.

The applicant has committed that a noise mitigation strategy will be developed for the Project and will be addressed when developing the Noise Management Plan (NMP). As such it was expected that the consent would include the noise limits and a noise management plan process. This process was preferred by the Applicant as it provided flexibility to confer with the stockholders and develop a noise mitigation strategy.

I trust this information is sufficient. Please contact us if you have any further queries.

Yours faithfully

WILKINSON MURRAY



Nic Hall
 Manager (Newcastle)







