Application to modify a development consent

NSW GOVERNMENT
Department of Planning

Date lodged: 14 / 12 / 12

DA modification no. DA293-08-00 MOD 9
(office use only)

1. Before you lodge

This form is to be used for applications to modify Part 4 development consents under section 96 or 96AA of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This form is also to be used for Part 4 development consents that are to be modified under section 75W of the Act.

Disclosure statement
Persons lodging modification applications are required to declare reportable political donations (including donations of or more than $1,000) made in the previous two years. For more details, including a disclosure form, go to **www.planning.nsw.gov.au/donations.**

Lodgement
Anyone wishing to lodge an application is recommended to call the Department of Planning to discuss their proposal and modification application requirements prior to lodging their application. You can lodge your completed form, together with attachments and fees at the relevant Department of Planning office listed below. Please lodge Part 4 modification applications with the Department of Planning head office or, for modification applications that are within the Kosciuszko ski resorts area, the Department's Alpine Resorts team.

NSW Department of Planning
Head Office
Ground Floor, 23–33 Bridge Street, Sydney NSW 2000
GPO Box 39 Sydney NSW 2001
Phone: 1300 305 695 Fax: (02) 9228 6555
Email: information@planning.nsw.gov.au

NSW Department of Planning
Alpine Resorts Team
Shop 5A, Snowy River Avenue
PO Box 36, Jindabyne NSW 2627
Phone: (02) 6456 1733 Fax: (02) 6456 1736
Email: alpineresorts@planning.nsw.gov.au

To minimise delay in receiving a decision about your application, please ensure you submit all relevant Information to the Department. When your application has been assessed, you will receive a notice of determination.

2. Applicant and contact details

Company/organisation/agency: Newcastle Port Corporation
ABN: 50825884846

☒ Mr ☐ Ms ☐ Mrs ☐ Dr ☐ Other

First name: Jackie
Family name: Spiteri

STREET ADDRESS

Unit/street no.: PO Box 663
Street name:

Suburb or town: Newcastle
State: NSW
Postcode: 2300

POSTAL ADDRESS (or mark 'as above')

as above

Suburb or town:
State:
Postcode:

Daytime telephone: 02 4985 8204
Fax: 0249250600
Mobile:

Email: jackie.b@newportcorp.com.au

3. Property description

Unit/street no. (or lot no. for Kosciuszko ski resorts)
Lot 221 DP 1116571

Street or property name

Suburb, town or locality
Mayfield

Postcode
2034

Local government area
Newcastle

Lot/DP or Lot/Section/DP or Lot/Strata no.
Please ensure that you put a slash (/) between lot, section, DP and strata numbers. If you have more than one piece of land, you will need to separate them with a comma e.g. 123/579, 162/2.

now known as Lot 33 DP 1116571

Note: You can find the lot, section, DP or strata number on a map of the land or on the title documents for the land, if title was provided after 30 October 1983. If you have documents older than this, you will need to contact the NSW Department of Lands for updated details. If the subject land is located within the Kosciuszko ski resorts area, DP and strata numbers do not apply.

4. Details of the original development consent

Briefly describe your approved development in the space below. If the development has been modified previously you must list all previous modifications and the relevant determination date(s).

For remediton of the Closure Area, demolition of structure and development of a multi purpose Terminal for containers and general cargo, associated road, rail and whaf infrastructure and dredging of the South Arm of the Hunter River.

Modifications:

1. on 29 June 2001 - DA-293-08-00-M1
2. on 13 August 2001 - DA 293-08-00-M2
3. on 15 February 2002 - DA 293-08-00-M3
4. on 16 September 2005 - MOD-77-7-2003-i
5. on 15 September 2005 - MOD-60-4-2005-i
6. on 21 August 2007 - MOD-64-7-2007-i
7. on 21 November 2008 - MOD-56-7-2008
8. on 30 March 2009 - MOD-06-02-2009

What was the original development application no.?
DA 293-08-00

What was the date consent was granted?
6 April 2001

What was the original application fee?
unknown

5. Type of modification

An application under section 96 of the EP&A Act is an application to modify a development consent. Modifications to a development consent can also be made under section 75W of the EP&A Act, or section 96AA for court granted consents.

There are five types of modification applications. Please tick the type of modification application that is being sought:

- ☐ Section 96(1) involving minor error, misdescription or miscalculation.
- ☐ Section 96(1A) involving minimal environmental impact, where the development as originally approved remains substantially the same.
- ☐ Section 96(2) other modification, where the development as originally approved remains substantially the same.
- ☐ Section 96AA modification of consent granted by the Land and Environment Court, where the

development as originally approved remains substantially the same.

☒ Section 75W modification, involving use of Part 3A processes to modify the Part 4 consent.

Note: If the proposed modification will lead to the consented development being not 'substantially the same' (except in the case of a proposed modification under section 75W) then you will need to submit a new development application.

6. Extent of modification

Will the modified development be substantially the same as the development that was originally approved?

No ☐➢ Please submit a new development application.

Yes ☒➢ Please provide evidence that the development will remain substantially the same. (If you need to attach additional pages, please list below the material attached).

Note: Question 6 does not apply to proposed modifications under section 75W.

7. Description of modification

- In the case of a section 96(1) application, indicate the nature of the minor error, misdescription or miscalculation in the space below.
- In the case of a section 96(1A), section 96(2) or section 96AA application describe the impact of the modification in the space below. A statement of environmental effects will need to accompany the application, which includes an assessment of the development as proposed to be modified in accordance with section 79C(1) of the EP&A Act. Provisions of the *Heritage Act 1977* may also apply for works to a heritage item or works adjoining a heritage item.
- In the case of a section 75W application under clause 8J(8) of the Environmental Planning and Assessment Regulation 2000, a development consent in force immediately before the commencement of Part 3A of the Act may be modified under section 75W as if the consent were an approval under that Part. However, approval from the Minister is required to lodge a section 75W application. **Applicants should contact the Department first if they are considering applying for a modification under section 75W**.

Regardless of the type of modification, please state below the specific conditions of consent to be modified, deleted or additional conditions request, and details of any other changes being sought.

Please see attached:

* NPC's Covering letter detailing this request;
* DPI's Letter dated 21 May 2012;
* Letter prepared by AECOM on behalf of NPC to request amendment to noise measuremnt criteria, dated 17 April 2012;
* Mayfield 4 Berth Noise Compliance Assessment - 01 August 2011;
* Mayfield 4 Berth Noise Compliance Assessment Modelling Report - 07 October 2011;
* EPA's issued Licence Variation (13181), dated 19 March 2012.

Note: If your proposal is within Kosciuszko ski resorts area, please attach a copy of the Interim Lease Variation Approval received from the Department of Environment and Climate Change to your application.

8. General terms of approval from State agencies

If the original development application was classified as integrated development and required approval from one or more State agencies, list them in the space below and their respective general terms of approval. Depending on the type of modification, it may be necessary to refer the modification application to the approval body.

EPA issued variation to EPL #13181 on 19 March 2012 (item 2 as attached).

9. Number of jobs to be created

Please indicate the number of jobs the proposed development will create. This should be expressed as a proportion of full time jobs over a full year, (e.g. a person employed full time for 6 months would equal 0.5 of a full time equivalent job; six contractors working on and off over 2 weeks equate to 2 people working full time for 2 weeks, which equals approximately 0.08 of an FTE job).

Construction jobs (full time equivalent)	0
Operational jobs (full time equivalent)	no change

10. Application fee

Part 15 of the Environmental Planning and Assessment Regulation 2000 sets out how to calculate the fees for an application for modification of a development consent. If your development needs to be advertised to the public you may also need to include an advertising fee.

Note: Advertising fees attract GST, all other fees do not.

Please contact the Department in order to calculate the fee for your modification application.

Estimated cost of the development	Original application fee	Total fees lodged
0	unknown	$5000

11. Political donation disclosure statement

Persons lodging modification applications are required to declare reportable political donations (including donations of or more than $1,000) made in the previous two years. Disclosure statements are to be submitted with your application.

Have you attached a disclosure statement to this application?

Yes ☐

No ☒

Note: For more details about political donation disclosure requirements, including a disclosure form, go to **www.planning.nsw.gov.au/donations**.

12. Owner's consent

The owner(s) of the land to be developed must sign the application. If you are not the owner of the land, you must have all the owners sign the application. If the land is Crown land, an authorised officer of the NSW Department of Lands must sign the application. **An original signature must be provided.**

As the owner(s) of the above property, I/we consent to this application:

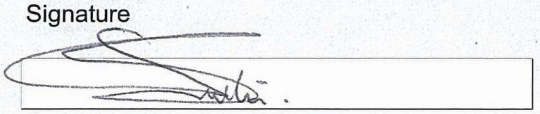
Signature	Signature
R Sorensen	
Name	Name
Ron Sorensen	
Date	Date
03 October 2012	

Note: For applications within the Kosciuszko ski resorts area, the approval of the lessee rather than the owner is required.

13. Applicant's signature

The applicant, or the applicant's agent, must sign the application. Only an original signature will be accepted (photocopies or faxed copies will not be accepted).

Signature



In what capacity are you signing if you are not the applicant

Environment Officer

Date

03 October 2012

Name, if you are not the applicant

Jackie Spiteri

14. Privacy policy

The information you provide in this application will enable the Department, and any relevant state agency, to assess your application under the *Environmental Planning and Assessment Act 1979* and other applicable state legislation. If the information is not provided, your application may not be accepted.

If your application is for designated development or advertised development, it will be made available for public inspection and copying during a submission period. Written notification of the application will also be provided to the neighbourhood. You have the right to access and have corrected any information provided in your application. Please ensure that the information is accurate and advise the Department of any changes.

NSW GOVERNMENT | Planning & Infrastructure

Contact: Ingrid Ilias
Phone: 02 9228 6411
Fax: 02 9228 6355
Email: ingrid.ilias@planning.nsw.gov.au

Our ref: 11/20338-2

Mr Ron Sorensen
General Manager Operations
Newcastle Port Corporation
PO Box 663
NEWCASTLE NSW 2300

Attention: Ms Jackie Braithwaite

Dear Mr Sorensen

Multi-Purpose Terminal, Mayfield (DA 293-08-00): No. 4 Hardstand Berth – Noise Criteria

I refer to your letter dated 17 April 2012 and your request to modify the noise criteria stipulated in condition 5.11 of the development consent.

Any modification of approval conditions requires the submission of a modification request and supporting justification under section 75W of the *Environmental Planning and Assessment Act 1979*. The Department has not received a modification request regarding the above project and therefore cannot revise conditions until a request has been received and appropriately assessed.

The Department notes that Environment Protection Licence (EPL) 13181 has been modified to remove conditions relating to noise limits and to remove the requirement to undertake a noise compliance assessment and associated report. In addition, the Department also notes that a variation to the EPL has been agreed to by the Environment Protection Authority to relocate a surface water quality monitoring point on the site.

While the EPL for the project has been modified, the Proponent is required to adhere to all the current conditions of development consent, as amended. This includes conditions 5.11, 5.12 and 8.1 to 8.4 inclusive.

If you have any questions or require clarification of the above matter, please contact Ms Ingrid Ilias on the above contact details.

Yours sincerely

21/5/12

Kylie Seretis
Manager Ports and Rail
Infrastructure Projects

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17 Warabrook Boulevarde
Warabrook NSW 2304
PO Box 73
Hunter Region MC NSW 2310
Australia
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ABN 20 093 846 925

17 April 2012

Jackie Braithwaite
Newcastle Port Corporation
Cnr Scott & Newcomen Streets
PO BOX 663
Newcastle
NSW 2300

Dear Jackie,

Mayfield No. 4 Berth - EPL No 13181 - Noise Criteria

In June 2011 AECOM were commissioned by Newcastle Port Corporation (NPC) to carry out annual noise compliance measurements at Mayfield No. 4 Berth, as required by their Environmental Protection Licence No. 13181. During the course of carrying out the compliance measurements it was noted that the criteria specified in the EPL are not in accordance with the Industrial Noise Policy (INP). As a result, NPC has requested a review and, if appropriate, amendment to these existing criteria.

Section L6 of the EPL specifies noise limits at several nearby sensitive receivers. These are reproduced in Table 1.

Table 1 Noise limits as specified in EPL 13181, Section L6

Location	Day 7:00 am to 10pm	Night 10:00 pm to 7:00 am
	$L_{A90(15\ minute)}$	$L_{A90(15\ minute)}$
1. 52 Arthur Street	49	38
2. Mayfield East Public School	47	37
3. 21 Crebert Street	49	39
4. Newcastle TAFE	44	38
5. 1 Arthur Street	48	33

The assessment descriptor for both daytime and night time is specified in terms of an $L_{A90\ (15\ minute)}$ as opposed to the more conventional $L_{Aeq\ (15\ minute)}$.

The L_{A90} descriptor is the noise level which is exceeded 90% of the time and is considered representative of the background noise level. The L_{Aeq} parameter is the equivalent continuous sound level which, when occurring over the same period of time, would result in a receiver receiving the same amount of sound energy.

Section 2.3 of the INP states the following:

"The L_{Aeq}, descriptor applies for both the intrusiveness criterion ($L_{Aeq,\ 15\ minute}$) and the amenity criterion ($L_{Aeq,\ period}$). In this policy, the equivalent continuous (energy average) level (A-weighted) of the industrial source is of interest (not necessarily that of the total noise environment). In certain circumstances other noise descriptors may be more appropriate for measurement/assessment or compliance purposes, depending on the characteristics of the noise source.

For example, where the noise emissions from the source of interest are constant (e.g. fan noise) and the ambient noise level has a degree of variability (for example, due to traffic), the L_{A90} descriptor may adequately describe the noise source and be much easier to measure/assess. In these cases, it may be preferable to replace the L_{Aeq} descriptor

If the descriptor chosen for measurement is not the L_{Aeq}, reasons for the variation should be presented in the noise assessment report."

The noise emissions related to operations at Mayfield No. 4 Berth are not considered to fall within these circumstances. There are various operational sources of noise which can operate concurrently or independently and on an inconsistent basis.

AECOM

Attended measurements made at the receiver locations between 1.25 am and 3.30 am on 30 June 2011, when a ship was being unloaded on Mayfield No. 4 Berth, indicated that the noise impact from Mayfield No. 4 Berth operations could not be distinguished from extraneous noise (traffic and other industrial noise sources). The $L_{Aeq\ (15\ minutes)}$ levels measured were consistently above the levels specified in Section L6 of EPL 13181 for extended periods of time. The background noise levels (L_{A90}) (i.e. in the absence of other extraneous noise) were not controlled by a constant noise impact from Mayfield No. 4 Berth operations. Therefore the use of this descriptor is not considered suitable for impact assessment purposes. At all of the receiver locations noise from the unloading activities at Mayfield No. 4 Berth was inaudible.

Following review of the EPL and measurements made on site, and with consideration of the INP, it is considered that the criteria specified in Section L6 of EPL 13181 should be presented as L_{Aeq} criteria. This is backed up by the fact that neither the old Environmental Noise Control Manual (ENCM) nor the Office of Environment and Heritage (OEH) INP require compliance measurements to be undertaken using an L_{A90} descriptor.

NPC request that the Department of Planning and Infrastructure review, and if appropriate, revise the noise criteria in Condition 5.11 of DA 293-08-00-M1.

Yours faithfully

Peter Sanderson
Principal Engineer - Acoustics
peter.sanderson@aecom.com

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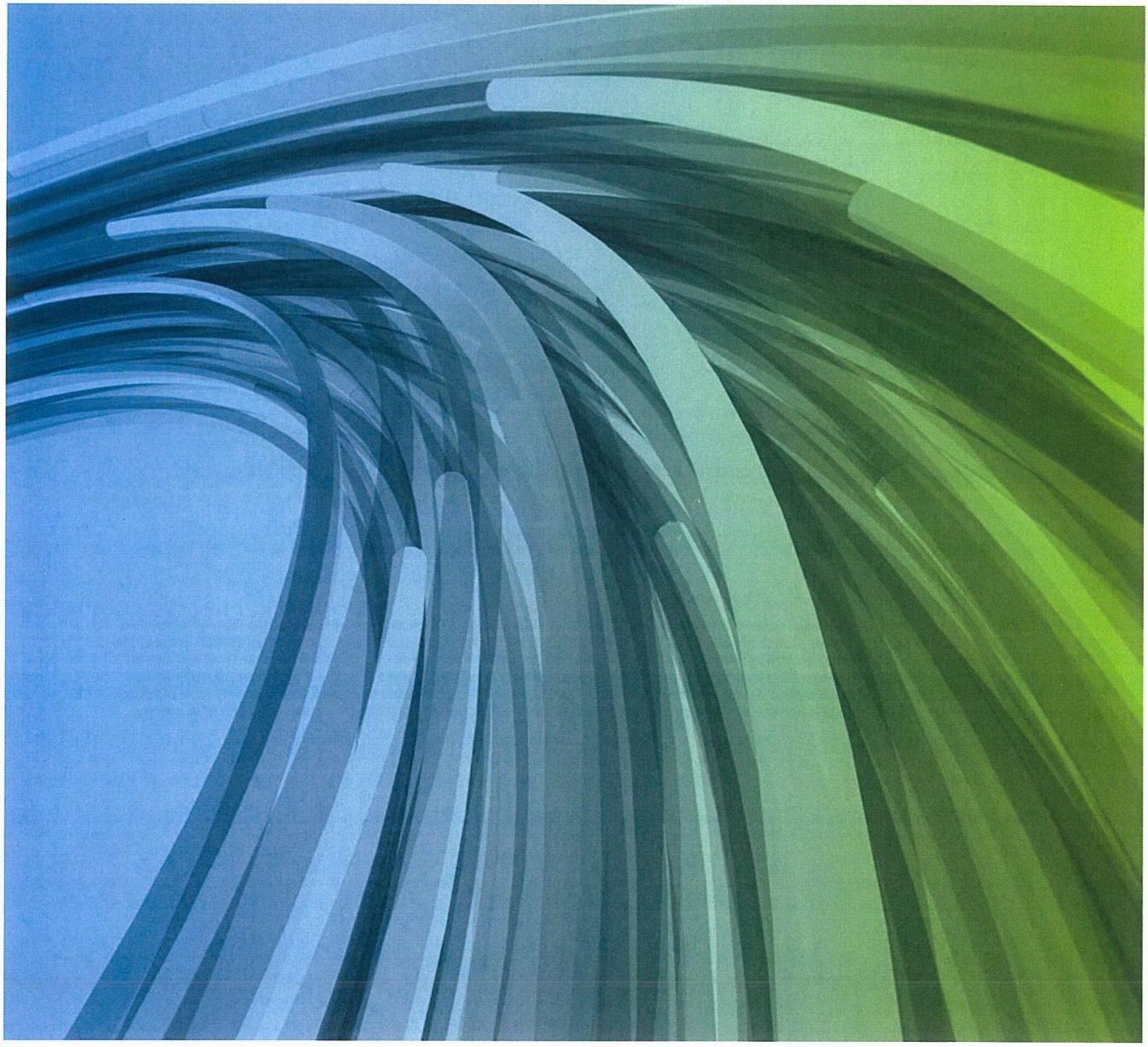
AECOM

Newcastle Port Corporation
1 August 2011
Document No. 60097621.ACOU.REP01.01

Mayfield No. 4 Berth

Annual Operational Noise Compliance Assessment



Mayfield No. 4 Berth

Annual Operational Noise Compliance Assessment

Prepared for

Newcastle Port Corporation

Prepared by

AECOM Australia Pty Ltd
17 Warabrook Boulevarde, Warabrook NSW 2304, PO Box 73, Hunter Region MC NSW 2310, Australia
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ABN 20 093 846 925

1 August 2011

AECOM in Australia and New Zealand is certified to the latest version of ISO9001 and ISO14001.

Quality Information

Document Mayfield No. 4 Berth

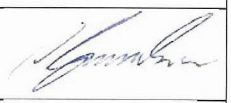
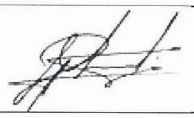
Ref

Date 1 August 2011

Prepared by Peter Sanderson

Reviewed by Michael Allan

Revision History

Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
00	30-June-2011	Draft for Client Review	Peter Sanderson Principal Acoustic Engineer	
01	1-August-2011	Final	Patrick Martinez Associate Director	

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1.0 Introduction

Newcastle Port Corporation commissioned AECOM Pty Ltd (AECOM) to carry out noise compliance measurements during operations at the multipurpose goods terminal, located at Mayfield No 4 Berth in Newcastle, NSW.

The operations at Mayfield No. 4 Berth are one part of the overall Multi Purpose Terminal operations at the former BHP Steelworks Main Site. It is understood that the acoustic impact of the construction and operation of the Mayfield No. 4 Berth site has been previously assessed as part of an Environmental Impact Statement (EIS) submitted in 2000. The full EIS documentation has not been reviewed as part of this assessment. A summary of the EIS documentation prepared by the Department of Urban Affairs and Planning has been reviewed. The noise limits presented in the Environmental Protection Licence (EPL) 13181 have been reviewed and form the basis of this operational noise compliance assessment from Mayfield No 4 Berth.

1.1 Environmental Protection Licence (EPL) 13181

As noted above the operational noise emissions from Mayfield No 4 Berth have to be assessed the noise limits presented in EPL 13181. EPL 13181 noise limits are reproduced below:

L6 Noise Limits

L6.1 Noise from the premises must not exceed the limits presented in the table below.

Location	*Day-time (7am to 10 pm) LA90(15 minute)*	*Night-time (10pm to 7am) LA90(15 minute)*
1. 52 Arthur Street	*49dB*	*38dB*
2. Mayfield East Public School	*47dB*	*37dB*
3. 21 Crebert Street	*49dB*	*39dB*
4. Newcastle TAFE	*44dB*	*38dB*
5. 1 Arthur Street	*48dB*	*33dB*

L6.2 The noise limits apply during day or night-time under winds up to 3 metres per second (measured at 10 metres above ground level) and Pasquill stability class from A to F.

L6.3 Noise from the premise is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of the dwelling where the dwelling is more than 30 metres from the boundary, to determine compliance with the noise limits in Condition L6.1 unless otherwise stated.

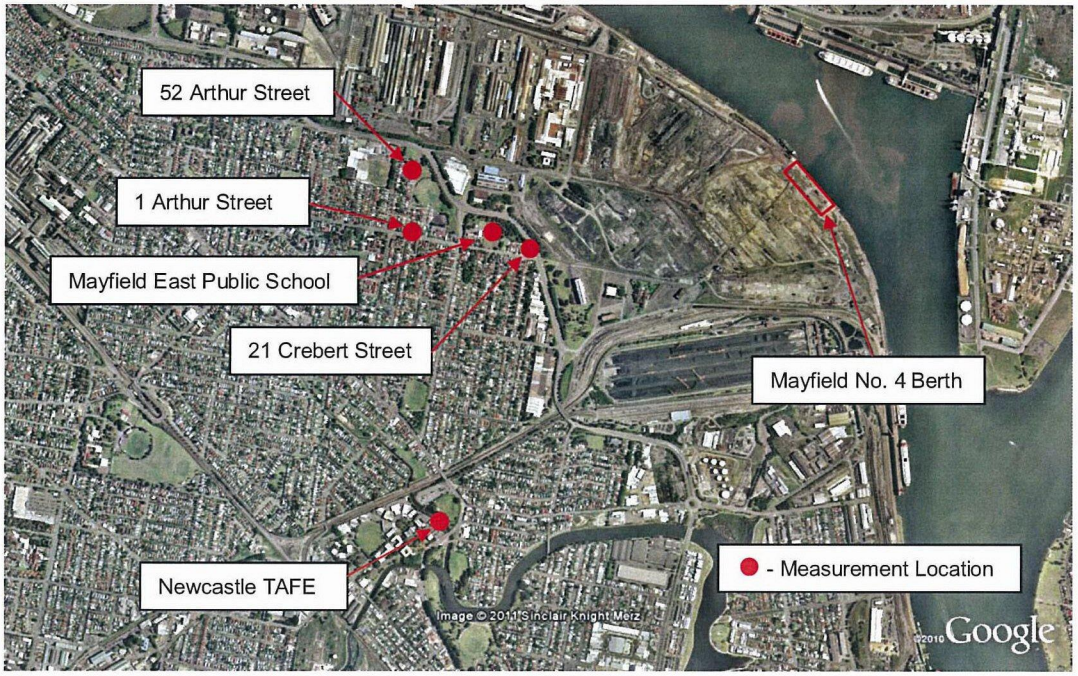
Where it can be demonstrated that direct measurement of noise from the premises is impractical, the DECCW may accept alternative means of determining compliance. See Chapter 11 of the NSW Industrial Noise Policy.

The modification factors presented in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise level where applicable.

1.2 Site Location

The location of Mayfield No 4 Berth, noise sensitive receivers and measurement positions are shown in Figure 1.

Figure 1 Site location and measurement locations (Image courtesy of Google Earth Pro)



2.0 Assessment Criteria

2.1 Noise management levels

The noise limits for each of the identified receivers is provided in Clause 5.11 of the Conditions of Approval. It is noted that these conditions were issued in April 2001 and the noise management levels are not specified in accordance with the NSW *Industrial Noise Policy* (INP).

The specified noise management levels require compliance with an $L_{A90(15\ minute)}$ value as opposed to the more standard $L_{Aeq(15\ min)}$ value. This is suspected to be a clerical error as neither the old Environmental Noise Control Manual (ENCM) nor the INP requires compliance measurements to be compared to an L_{A90} value. In addition, the Daytime period is defined as 7.00 am to 10.00 pm, which is also not in accordance with either the ENCM or INP. It would be expected that the daytime be defined as 7.00 am to 6 pm, the evening as 6.00 pm to 10.00 pm and the night time as 10.00 pm to 7.00 am, in accordance with the INP.

For assessment purposes the $L_{A90(15\ minute)}$ values shown in Table 1 are assumed to be $L_{Aeq(15\ minute)}$ values.

It should be noted that comparing $L_{Aeq(15\ minute)}$ values to $L_{A90(15\ minute)}$ values may make any exceedance seem worse than it actually is. The issue with the noise management level parameters is discussed further in section 3.1.2.

Further information on acoustic terminology used in this report is included in Appendix A.

Table 1 Maximum allowable noise contributions

Location	Day 7:00 am to 10pm	Night 10:00 pm to 7:00 am
	$L_{Aeq(15\ minute)}$	$L_{Aeq(15\ minute)}$
52 Arthur Street	49	38
Mayfield East Public School	47	37

Location	Day 7:00 am to 10pm	Night 10:00 pm to 7:00 am
	$L_{Aeq(15\ minute)}$	$L_{Aeq(15\ minute)}$
21 Crebert Street	49	39
Newcastle TAFE	44	38
1 Arthur Street	48	33

2.2 Tonality

The DECCW's (now OEH) Industrial Noise Policy (INP) provides additional guidance and criteria for assessing noise emission from sources defined (by procedures contained within the Policy) as 'tonal' in nature. Penalties of up to 5 dB(A) may be applied where the subject noise emission is tonal or with significant low frequency content at the receiver.

A penalty is applied when the level of a one-third octave band exceeds the level of each adjacent band by:

- 5 dB(A) or more if the frequency band containing the tone is above 400 Hz
- 8 dB(A) or more if the frequency band containing the tone is below 400 Hz and above 160 Hz inclusive
- 15 dB(A) or more if the frequency band containing the tone is below 160 Hz

It is not known at this stage if any of the operational plant on site is tonal at source. Tonal elements within the noise measurements made at the receiver locations have been considered.

2.3 Intermittent and low frequency noise

Section 4 of the INP requires that the potential for intermittent and a dominant low frequency noise component be assessed.

Previous experience has shown that standard operations at a bulk goods terminal are unlikely to be intermittent. Once begun operations are likely to be steady until complete. One potential source of intermittent noise is reversing alarms on trucks.

As with tonality it is not currently known if any of the plant on site at Mayfield No. 4 Berth has a low frequency component as defined by the INP. Low frequency elements within the noise measurements made at the receiver locations have been considered.

3.0 Measurement Methodology and Results

3.1 Compliance Measurements

3.1.1 Direct Measurement Results and Discussion

Compliance measurements have been made at night to try and minimise noise contribution from extraneous sources. As the night time criteria are more stringent, compliance during this period indicates compliance during the daytime.

NPC have advised that a bulk goods ship was being unloaded during the monitoring period and that this is typical of operations at Mayfield No. 4 Berth.

The attended measurement results are summarised in Table 2.

Table 2 Attended night time measurements 30/06/11

Location	Time of measurement	Weather Conditions	Monitored Noise Level $L_{Aeq\ (15\ mins)}$	Exceedance of night time noise management level dB(A)	Operators Comments
52 Arthur Street	1.25 – 1.40 am	Dry, cloudy and approx 14 degrees. Moderate easterly wind at 20-24 kph with gusts up to 30 kph.	53	14	Traffic noise audible throughout monitoring period. General industrial noise.
Mayfield East Public School	1.45 – 2.00 am		47	10	General industrial noise.
21 Crebert Street	2.03 – 2.18 am		62	23	Steady traffic noise throughout monitoring period. Occasional industrial noise.
Newcastle TAFE	2.47 – 3.02 am		57	19	Steady traffic noise throughout monitoring period.
1 Arthur Street	12.15 – 1.30 am		50	17	Some noise from passing cars.

The measured noise level at each sensitive receiver location exceeds the night time project noise management level for that location. However, it was noted during measurements that the predominant source of noise was traffic and general industrial noise from port area. It is not possible to predict the contribution from Mayfield No. 4 Berth in the measurement results shown in Table 2.

While the exact noise contribution from Mayfield No. 4 Berth cannot be calculated or estimated from this data it is certain that the exceedances shown in Table 2 are not entirely due to operations at Mayfield No. 4 Berth. Contribution from road traffic noise and other industrial sources both contribute to the measured noise levels.

The measurements at 52 Arthur Street, 21 Crebert Street and Newcastle TAFE were subject to significant contribution from passing traffic. Although some industrial noise was audible at these locations the road traffic noise was dominant and the source of the industrial noise could not be readily identified. It is noted that Industrial Drive lies between the site and the receivers and experiences high traffic flow at all times of the day and night.

The measurement at 1 Arthur Street was also influenced by noise from passing traffic.

The measurement at Mayfield East Public School exceeded the noise management level by 10 dB(A). As school criteria only applies while the building is in use this is considered to be insignificant.

While exceedance of the noise management level is noted at each receiver location, the influence of extraneous noise sources, in particular traffic from Industrial Drive and adjacent industrial sites, makes it impossible to determine the noise contribution from Mayfield No. 4 Berth by direct measurement.

Uncertainty with regard the noise parameters specified in the license conditions further complicates the assessment.

3.1.2 Recommendations for further work

It is recommended that the noise management levels specified in the Conditions be confirmed with OEH. The parameter currently specified to indicate compliance is suspected to be incorrect and it is considered likely that the specified $L_{A90\ (15\ minute)}$ should read $L_{Aeq(15\ minute)}$.

In addition, it is recommended that the compliance periods are also checked with OEH. Conditions for industrial noise compliance will ordinarily specify a Daytime, Evening and Night time period in accordance with the INP.

Depending on the response from OEH it may be necessary to establish new operational noise management levels for Mayfield No. 4 Berth.

As compliance could not be established by direct measurement (due to extraneous noise sources, as discussed in section 3.1.1) it is recommended that compliance be established by measurement of noise sources at site and construction of a suitable noise model.

4.0 Conclusion

The noise impact resulting from operation of Mayfield No. 4 Berth has been assessed at five noise sensitive receivers in accordance with the licence conditions (EPL 13181).

It is noted that the licence conditions for the site were issued in 2001 and are not in accordance with the NSW Industrial Noise Policy. The conditions specify daytime and evening noise management levels for the site in terms of the $L_{A90(15minute)}$ parameter. It is not usual to assess industrial noise impact using this parameter and it is considered likely that this is an error. The specified $L_{A90(15minute)}$ parameter has been assumed to be the more standard $L_{Aeq(15\ minute)}$ parameter.

Night time noise compliance measurements at each of the noise sensitive receivers have been made. Exceedances of the night time noise management levels of 10 – 23 dB(A) were noted. At most locations traffic noise was dominant. Industrial noise was audible at several locations but it was not clear if this originated from Mayfield No. 4 Berth or one of the adjacent sites.

It has not been possible to assess the impact of noise arising from operations at Mayfield No. 4 Berth due to influence from extraneous noise sources.

Recommendations for further work to clarify the noise management level parameters and assess the operational noise impact have been made.

Appendix A

Acoustic Terminology

Appendix A Acoustic Terminology

The following is a brief description of acoustic terminology that may have been used in this report.

Sound power level	The total sound emitted by a source
Sound pressure level	The amount of sound at a specified point
Decibel [dB]	The measurement unit of sound
A Weighted decibels [dB(A])	The A weighting is a frequency filter applied to measured noise levels to represent how humans hear sounds. The A-weighting filter emphasises frequencies in the speech range (between 1kHz and 4 kHz) which the human ear is most sensitive to, and places less emphasis on low frequencies at which the human ear is not so sensitive. When an overall sound level is A-weighted it is expressed in units of dB(A).
Decibel scale	The decibel scale is logarithmic in order to produce a better representation of the response of the human ear. A 3 dB increase in the sound pressure level corresponds to a doubling in the sound energy. A 10 dB increase in the sound pressure level corresponds to a perceived doubling in volume. Examples of decibel levels of common sounds are as follows:

0dB(A)	Threshold of human hearing
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110 dB(A)	Rock Concert
115dB(A)	Limit of sound permitted in industry
120dB(A)	747 take off at 250 metres

Frequency [f]	The repetition rate of the cycle measured in Hertz (Hz). The frequency corresponds to the pitch of the sound. A high frequency corresponds to a high pitched sound and a low frequency to a low pitched sound.
Equivalent continuous sound level [L_{eq}]	The constant sound level which, when occurring over the same period of time, would result in the receiver experiencing the same amount of sound energy.
L_{max}	The maximum sound pressure level measured over the measurement period
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L_{10}	The sound pressure level exceeded for 10% of the measurement period. For 10% of the measurement period it was louder than the L_{10}.
L_{90}	The sound pressure level exceeded for 90% of the measurement period. For 90% of the measurement period it was louder than the L_{90}.
Ambient noise	The all-encompassing noise at a point composed of sound from all sources near and far.

Background noise	The underlying level of noise present in the ambient noise when extraneous noise (such as transient traffic and dogs barking) is removed. The L_{90} sound pressure level is used to quantify background noise.
Traffic noise	The total noise resulting from road traffic. The L_{eq} sound pressure level is used to quantify traffic noise.
Day	The period from 0700 to 1800 h Monday to Saturday and 0800 to 1800 h Sundays and Public Holidays.
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Assessment background level [ABL]	The overall background level for each day, evening and night period for **each day** of the noise monitoring.
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Weighted sound reduction index [R_w]	A single figure representation of the air-borne sound insulation of a partition based upon the R values for each frequency measured in a laboratory environment.

*Definitions of a number of terms have been adapted from Australian Standard AS1633:1985 *"Acoustics – Glossary of terms and related symbols"*, the DECCW's NSW Industrial Noise Policy and the DECCW's Environmental Criteria for Road Traffic Noise.

AECOM

Newcastle Port Corporation
7 October 2011
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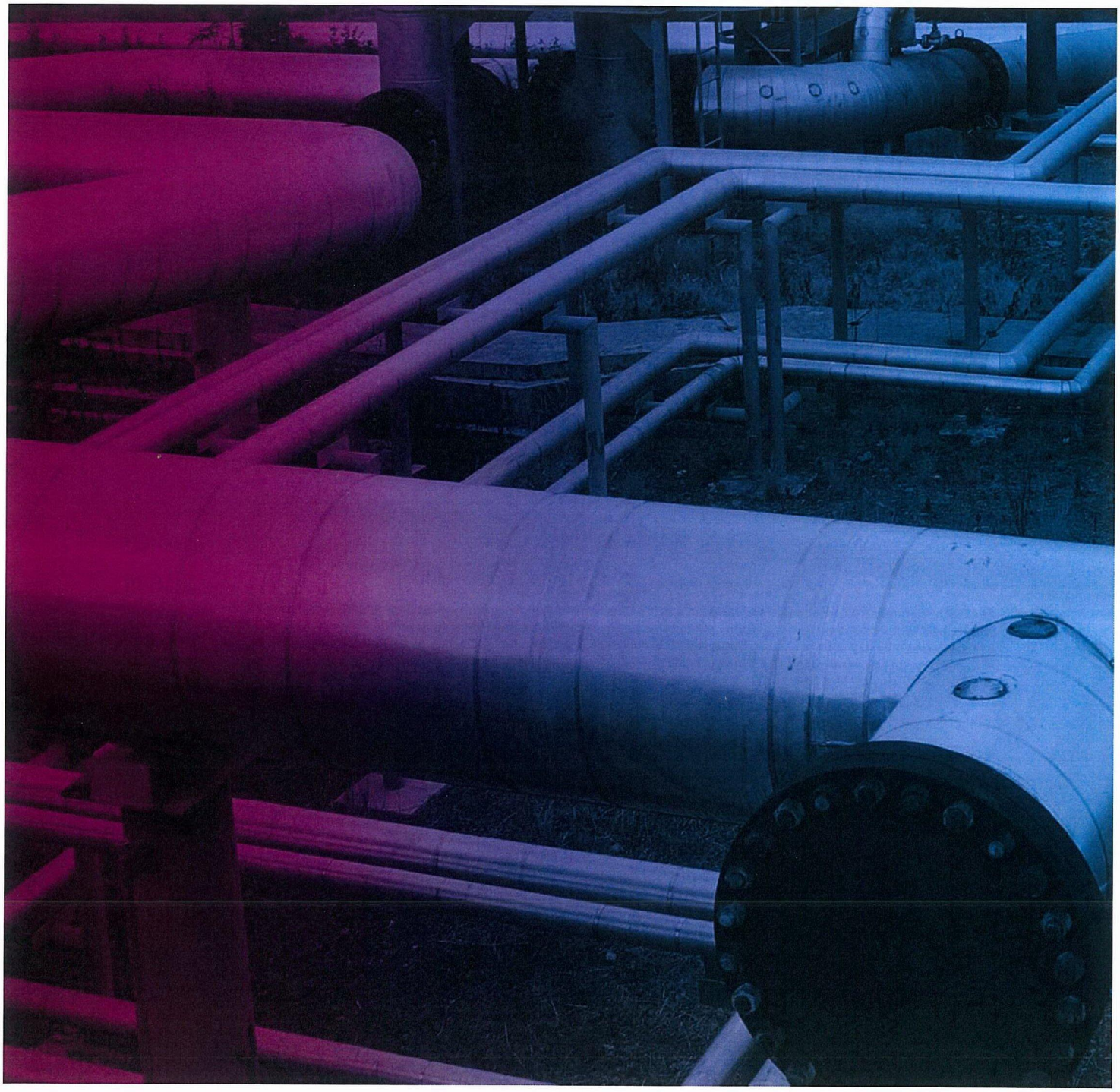
Mayfield No. 4 Berth

Operational Noise Compliance Assessment



Mayfield No. 4 Berth

Operational Noise Compliance Assessment

Prepared for

Newcastle Port Corporation

Prepared by

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AECOM in Australia and New Zealand is certified to the latest version of ISO9001 and ISO14001.

Quality Information

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Prepared by Angus Leslie

Reviewed by Peter Sanderson

Revision History

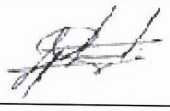
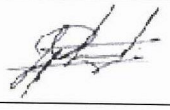
Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
0	30-Sep-2011	For client review	Patrick Martinez Associate Director - Acoustics	
1	07-Oct-2011	Final	Patrick Martinez Associate Director - Acoustics	

Table of Contents

1.0 Introduction

Newcastle Port Corporation commissioned AECOM to carry out noise compliance measurements for operations at the multipurpose goods terminal, located at Mayfield Berth No 4 in Newcastle, NSW.

The operations at Berth 4 are one part of the overall Multi Purpose Terminal operations at the former BHP Steelworks Main Site. It is understood that the acoustic impact of the construction and operation of the Mayfield Berth 4 site has been previously assessed as part of an Environmental Impact Statement (EIS) submitted in 2000.

AECOM understand that the facility operates under an existing Environmental Protection License (EPL 13181) which specifies noise limits at various sensitive receivers near the facility.

AECOM has recently undertaken an 'Annual Operational Noise Compliance Assessment' against the EPL 13181 requirements (reference: 60153568.ACOU.REP01.01, issued 1 August 2011). One of the findings from this assessment was:

'It has not been possible to assess the impact of noise arising from operations at Mayfield No. 4 Berth due to influence from extraneous noise sources.'

Based on this finding AECOM recommended additional work to identify compliance with the EPL 13181 requirements:

'.....it is recommended that compliance be established by measurement of noise sources at site and construction of a suitable noise model.'

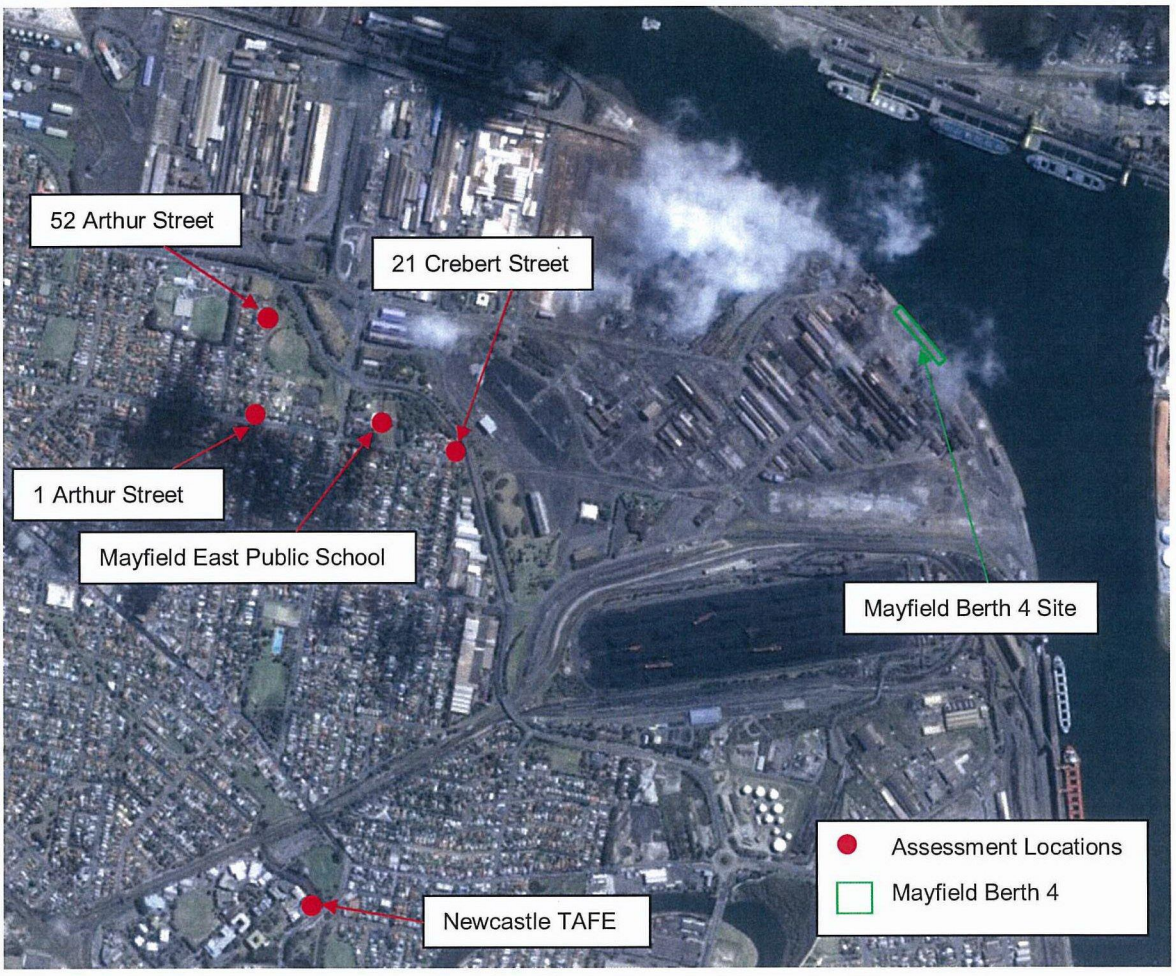
This report presents the on-site attended noise measurements undertaken to develop a computer noise model of the general operations at Mayfield Berth No 4. Noise modelling was recommended as it has been demonstrated that direct measurement of noise from the premises is impractical.

This method of noise compliance assessment is in accordance of the Chapter 11 of the NSW Industrial Noise Policy. A computer noise model of the general operations at Mayfield Berth No 4 has been developed to determine compliance of the operational noise level at assessment locations identified in EPL 13181. The assumptions of the worst case operational scenario have been presented, along with the predicted noise levels at the required assessment locations, to determine the compliance of the site operational noise emissions with the required EPL noise criterion.

1.1 Site Location

The location of Mayfield Berth No 4, and noise assessment locations identified in Environment Protection Licence (EPL) No. 13181 are shown Figure 1.

Figure 1 Site location and noise assessment locations



2.0 Assessment Criteria

2.1 Noise management levels

The noise management level for each of the identified receivers is provided in Section L6 Noise Limits of the EPL No. 13181. The specified noise management levels require compliance with an $L_{A90(15\ minute)}$ value as opposed to the more standard $L_{Aeq(15\ min)}$ value.

This is suspected to be a clerical error as neither the old Environmental Noise Control Manual (ENCM) nor the Office of Environment and Heritage (OEH) Industrial Noise Policy (INP) requires compliance measurements to be compared to an L_{A90} value.

For assessment purposes the $L_{A90(15\ minute)}$ values shown in Table 1 are assumed to be $L_{Aeq(15\ minute)}$ values.

It should be noted that comparing $L_{Aeq(15\ minute)}$ values to $L_{A90(15\ minute)}$ values may make any exceedance seem worse than it actually is. Further information on acoustic terminology used in this report is included in Appendix A.

EPL No. 13181 states the following in regards to required noise limits:

L6.1 *Noise from the premises must not exceed the limits presented in the table below.*

Table 1 EPL No. 13181 Noise limits

Location	Day 7:00 am to 10pm	Night 10:00 pm to 7:00 am
	$L_{Aeq(15\ minute)}$	$L_{Aeq(15\ minute)}$
1. 52 Arthur Street	49	38
2. Mayfield East Public School	47	37
3. 21 Crebert Street	49	39
4. Newcastle TAFE	44	38
5. 1 Arthur Street	48	33

L6.2 *The noise limits apply during day or night-time under wind up to 3 metres per second (measured at 10 metres above ground level) and Pasquill stability class from A to F.*

L6.3 *Noise from the premise is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of the dwelling where the dwelling is more than 30 metres from the boundary, to determine compliance with noise limits in Condition L6.1 unless otherwise stated.*

Where is can be demonstrated that direct measurement of noise from the premises is impractical the DECCW may accept alternative means of determine compliance. See Chapter 11 of the NSW Industrial Noise Policy.

The modification factors presented in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise level where applicable.

Accordingly, AECOM has assessed operational noise emissions from Mayfield Berth 4 during worst case operational scenarios to determine the predicted noise levels at assessment locations presented in Table 1 and Figure 1.

Modelling has been undertaken using SoundPLAN noise modelling software and the operational scenarios presented in Section 3.0 have been included in the models.

The sound power level inputs presented in Table 3 were used in the model, and were determined by the attended noise measurements made on site, results for which are presented in Table 2. The predicted noise levels for each operational scenario were then determined for each of the assessment locations and have been presented in Section 3.2 to determine compliance with EPL No. 13181.

3.0 Measurement Methodology and Results

3.1 Compliance Measurements

3.1.1 Direct Measurement Results and Discussion

Attended measurements of typical operations were undertaken on the Mayfield Berth 4 site in order to develop the computer noise model used for this noise compliance assessment.

Previous attended measurements were undertaken at the EPL No. 13181 receiver locations. At these locations exceedances of the noise management levels were noted at each receiver location, however the influence of extraneous noise sources, in particular traffic from Industrial Drive and adjacent industrial sites, made it impossible to determine the noise contribution from Mayfield Berth 4 by direct measurement. The INP provides guidance in Chapter 11 as to how to review the noise emissions of a site where the existing noise levels are already high.

Section 11.1.2 Notes on noise monitoring of the INP states:

Where existing noise levels are high.

When compliance is being measured it may be found that, in many cases, existing noise levels are higher than noise level from the source, making it difficult to separate out the source noise level. When this happens, it may not be feasible to measure compliance at the specified location, and other methods will be needed. In these cases, measurements may be taken closer to the source and then calculated back to the specified location."

Accordingly, on-site measurements of individual plant items and typical operations were undertaken on two occasions. Attended noise measurements were undertaken at Mayfield Berth 4 on 25 August 2011 between 12:30pm and 2:15pm and 10 September 2011 between 4:30pm and 7:30pm.

Discussions with NPC Mayfield Berth 4 personnel determined the typical operational scenarios at the wharf. Additional operational activities that were observed during each of the attended measurement occasions have also been included. Attended noise measurements were undertaken of all plant associated with these typical operations to then develop a SoundPLAN noise model to the predicted noise emissions of Mayfield Berth 4 operations at the EPL assessment locations.

Key attended measurement results are summarised in Table 2.

Table 2 Attended measurements at Mayfield Berth 4 on 25 August 2011 and 10 September 2011

Location	Time of measurement	Weather Conditions	Monitored Noise Level $L_{Aeq\ (15\ min)}$, dB(A)	Monitored Noise Level $L_{A90\ (15\ min)}$, dB(A)	Operators Comments
7t forklift operations	1:45pm, 25 August 2011	Clear, Average temperature 19 degrees, Wind direction N to NW	84	74	Measured at 4m from forklift
Container truck idling	12:47pm, 25 August 2011		76	75	Measured at 4m from truck
Container truck accelerating	12:50pm, 25 August 2011		79	75	Measured at 5m from truck
Container truck accelerating	12:44pm, 25 August 2011		78	72	Measured at 4m from truck
Ship in dock - Stern	1:03pm, 25 August 2011		68	67	Measured at 30m from ship
Ship in dock - Bow	1:40pm, 25 August 2011		63	62	Measured at 20m from ship
Ship in dock - Bow	1:40pm, 25 August 2011		64	64	Measured at 30m from ship

Location	Time of measurement	Weather Conditions	Monitored Noise Level $L_{Aeq\ (15\ min)}$, dB(A)	Monitored Noise Level $L_{A90\ (15\ min)}$, dB(A)	Operators Comments
Crane operations - Loaded	7:01pm, 10 September 2011	Clear, Average temperature 15 degrees, Wind direction W to NW	72	71	Measured at 20m from crane
Crane operations - Unloaded	6:54pm, 10 September 2011		72	71	Measured at 10m from crane
Container forklift operating with container	12:42pm, 25 August 2011	Clear, Average temperature 19 degrees, Wind direction N to NW	79	73	Measured at 8m from forklift
Truck being loaded/unloaded with forklift	12:43pm, 25 August 2011		79	77	Measured at 8m from forklift
Containers being placed onto dock	7:23pm, 10 September 2011	Clear, Average temperature 15 degrees, Wind direction W to NW	83	68	Measured at 10m from container

3.1.2 Modelled high activity operational scenarios

Based upon the attended measurements presented in Table 2 the normal operational scenarios were modelled for the EPL daytime (7:00am - 10:00pm) and night time (10:00pm - 7:00am) assessment periods.

The sound power levels that were used in the modelling of Mayfield Berth 4 operations are presented in Table 3 and are based upon the attended measurements undertaken at Mayfield Berth 4 on 25 August 2011 and 10 September 2011 and presented in Table 2.

In total three operational scenarios have been modelled. The assessment of each scenario considers a worst case 15 minute operational period. The assumptions made for modelling purposes with regards to the duration of operation during each 15 minute assessment period are presented in Table 4 to Table 6. These assumptions are based upon discussions with NPC Mayfield Berth 4 personnel and observations made during each of the attended measurement occasions.

All scenarios were modelled using a Pasquill stability class of D for the day-time assessment period and a Pasquill stability class of F for the night-time assessment period. A worst case source to receiver wind of 3m/s for both day-time and night-time periods was included as required by the EPL.

Table 3 Mayfield Berth 4 plant items sound power levels

Plant item/operation	Sound Power Level, dB(A)
Trucks being loaded/unloaded	102
Container forklifts operating	106
7 tonne forklift in operation	104
Ship in dock - Bow	105
Ship in dock - Stern	100
Crane operating with container load	106
Crane operating without container load	100
Containers hitting dock when being unloaded	113

Plant item/operation	Sound Power Level, dB(A)
Truck Idle	97
Truck accelerate	100

Table 4 Containers being loaded from ship onto wharf

Plant item/operation	Number of Items	Duration (minutes)
Trucks being loaded/unloaded	6	5
Container forklifts operating	2	15
Ship in dock - Bow	1	15
Ship in dock - Stern	1	15
Crane operating with container load	1	7.5
Crane operating without container load	1	7.5
Containers hitting dock when being unloaded	12 occurrences in 15 minute period	
Truck Idle	6	15
Truck accelerate	6	15 second acceleration period when on Berth 4

Table 5 Offloading of Ammonium Nitrate bags from ship

Plant item/operation	Number of Items	Duration (minutes)
Trucks being loaded/unloaded	2	5
7 tonne forklift in operation	3	15
Ship in dock - Bow	1	15
Ship in dock - Stern	1	15
Truck Idle	6	15
Truck accelerate	2	15 second acceleration period when on Berth 4

Table 6 Container being loaded/unloaded from trucks prior to and after ship arrival/departure (assumes worst case ship is located in dock, but no ship based operations are occurring)

Plant item/operation	Number of Items	Duration (minutes)
Trucks being loaded/unloaded	6	5
Container forklifts operating	2	15
Ship in dock - Bow	1	15
Ship in dock - Stern	1	15

Plant item/operation	Number of Items	Duration (minutes)
Containers hitting dock when being unloaded	12 occurrences in 15 minute period	
Truck Idle	6	15
Truck accelerate	6	15 second acceleration period when on Berth 4

3.2 Predicted operational noise levels

Table 7 to Table 9 present the predicted noise level at noise sensitive receivers as determined by EPL No. 13181 during each of the three typical operational scenarios and determine compliance with the EPL No. 13181 noise limits presented in Table 1.

Table 7 Containers being loaded from ship onto wharf

Receiver	Predicted Noise Level, $L_{Aeq\ (15\ min)}$, dB(A)	Criteria dB(A)	Exceedance of Noise Criteria, dB(A)	Predicted Noise Level, $L_{Aeq\ (15\ min)}$, dB(A)	Criteria dB(A)	Exceedance of Noise Criteria, dB(A)
	Day-time (7am to 10pm)			Night-time (10pm to 7am)		
1. 52 Arthur Street	36	49	-	37	38	-
2. Mayfield East Public School	33	47	-	34	37	-
3. 21 Crebert Street	38	49	-	39	39	-
4. Newcastle TAFE	30	44	-	32	38	-
5. 1 Arthur Street	24	48	-	25	33	-

Table 8 Offloading of Ammonium Nitrate bags from ship

Receiver	Predicted Noise Level, $L_{Aeq\ (15\ min)}$, dB(A)	Criteria dB(A)	Exceedance of Noise Criteria, dB(A)	Predicted Noise Level, $L_{Aeq\ (15\ min)}$, dB(A)	Criteria dB(A)	Exceedance of Noise Criteria, dB(A)
	Day-time (7am to 10pm)			Night-time (10pm to 7am)		
1. 52 Arthur Street	33	49	-	35	38	-
2. Mayfield East Public School	30	47	-	32	37	-
3. 21 Crebert Street	36	49	-	37	39	-
4. Newcastle TAFE	28	44	-	30	38	-
5. 1 Arthur Street	22	48	-	23	33	-

Table 9 Container being loaded/unloaded from trucks prior to and after ship arrival/departure

Receiver	Predicted Noise Level, $L_{Aeq\ (15\ min)}$, dB(A)	Criteria dB(A)	Exceedance of Noise Criteria, dB(A)	Predicted Noise Level, $L_{Aeq\ (15\ min)}$, dB(A)	Criteria dB(A)	Exceedance of Noise Criteria, dB(A)
	Day-time (7am to 10pm)			Night-time (10pm to 7am)		
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2. Mayfield East Public School	31	47	-	32	37	-
3. 21 Crebert Street	36	49	-	37	39	-
4. Newcastle TAFE	28	44	-	30	38	-
5. 1 Arthur Street	22	48	-	23	33	-

4.0 Conclusion

The noise impacts from worst case operations of Mayfield Berth 4 have been assessed at the five receiver locations specified in EPL No. 13181.

The conditions in EPL No. 13181 specify daytime and evening noise management levels for the site in terms of the $L_{A90(15minute)}$ parameter. It is not usual to assess industrial noise impact using this parameter and it is considered likely that this is an error. The specified $L_{A90(15minute)}$ parameter has been assumed to be the more standard $L_{Aeq(15\ minute)}$ parameter.

Previous attended measurements were undertaken at the EPL receiver locations. Exceedances of the noise management levels were noted at each receiver location. However, the influence of extraneous noise sources, in particular traffic from Industrial Drive and adjacent industrial sites, made it impossible to determine the noise contribution from Mayfield Berth 4 by direct measurement. As direct measurement of noise from the premises was shown to be impractical, noise modelling using SoundPLAN software has been used to determine compliance. This is in accordance with Chapter 11 of the NSW Industrial Noise Policy.

Day- time and night-time noise emissions have been predicted and compared against the criteria specified in EPL No. 13181. In accordance with the requirements of EPL No. 13181 all scenarios were modelled using a Pasquill stability class of D for the day-time period and a Pasquill stability class of F for the night-time period, and a worst case source to receiver wind of 3m/s for both day-time and night-time periods. It has been concluded that compliance is achieved at the five receiver locations specified in EPL No. 13181 during both the day-time and night-time periods.

Appendix A

Acoustic Terminology

Appendix A Acoustic Terminology

The following is a brief description of acoustic terminology that may have been used in this report.

Sound power level	The total sound emitted by a source
Sound pressure level	The amount of sound at a specified point
Decibel [dB]	The measurement unit of sound
A Weighted decibels [dB(A])	The A weighting is a frequency filter applied to measured noise levels to represent how humans hear sounds. The A-weighting filter emphasises frequencies in the speech range (between 1kHz and 4 kHz) which the human ear is most sensitive to, and places less emphasis on low frequencies at which the human ear is not so sensitive. When an overall sound level is A-weighted it is expressed in units of dB(A).
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Frequency [f]	The repetition rate of the cycle measured in Hertz (Hz). The frequency corresponds to the pitch of the sound. A high frequency corresponds to a high pitched sound and a low frequency to a low pitched sound.
Equivalent continuous sound level [L_{eq}]	The constant sound level which, when occurring over the same period of time, would result in the receiver experiencing the same amount of sound energy.
L_{max}	The maximum sound pressure level measured over the measurement period
L_{min}	The minimum sound pressure level measured over the measurement period
L_{10}	The sound pressure level exceeded for 10% of the measurement period. For 10% of the measurement period it was louder than the L_{10}.
L_{90}	The sound pressure level exceeded for 90% of the measurement period. For 90% of the measurement period it was louder than the L_{90}.

Ambient noise	The all-encompassing noise at a point composed of sound from all sources near and far.
Background noise	The underlying level of noise present in the ambient noise when extraneous noise (such as transient traffic and dogs barking) is removed. The L_{90} sound pressure level is used to quantify background noise.
Traffic noise	The total noise resulting from road traffic. The L_{eq} sound pressure level is used to quantify traffic noise.
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Assessment background level [ABL]	The overall background level for each day, evening and night period for **each day** of the noise monitoring.
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