



ENVIRONMENTAL - REMEDIATION - GEOTECHNICAL ENGINEERING - WORK HEALTH & SAFETY - LABORATORIES - DRILLING

4th April 2023

Job Ref: ES8801-Week 5

Lendlease

Level 14, Tower Three, International Towers Sydney

Exchange Place, 300 Barangaroo Avenue

Barangaroo NSW 2000

By Email: Lourise.Khoury@lendlease.com

CC: Murray.Graham@lendlease.com

Dear Lourise,

Re: Noise Monitoring Programme

Date of monitoring: Sunday 2nd April 2023

Property: Fort Street Public School

Observatory Hill, Upper Fort Street, Millers Point NSW

Aargus Pty Ltd was appointed by Lendlease to prepare a Noise Assessment for the proposed development located at Fort Street Public School, Observatory Hill, Upper Fort Street, Millers Point NSW (hereafter referred to as the “site”). Noise monitoring is to be conducted over the entire period of development works at the site, in particular Sundays between 8am and 4pm.

This assessment was performed in accordance with the Aargus proposal, the Aargus fieldwork protocols, in general accordance to relevant environmental regulatory criteria imposed on the *Noise Policy for Industry (2017)* and *Interim Construction Noise Guidance (2009)*, and the requirements within the *Noise and Vibration Assessment Report/SSDA Acoustic Assessment Report* prepared by Arup Pty Ltd (Ref: 266969 dated 20.12.2019).

NOISE ASSESSMENT OBJECTIVES

The aim of the monitoring program was to:

- Determine if noise generated from the site is excessive, annoying or offensive;
- Provide a record of the noise generated from the development works for future reference; and
- Recommend management strategies for noise compliance.

The monitoring was undertaken on Sunday 4th April 2023, in particular between 8am and 4pm, and with readings taken every 15 minutes. The site works undertaken during this period included general machinery use.

The noise monitor designated NM1 is situated on the western corner (long term measurement location L2, as outlined in Table 1 of the *Noise and Vibration Assessment Report* prepared by Arup Pty Ltd (Ref: 266969 dated 20.12.2019). Reference should be made to the attached Figure 1.

The following areas of potential concern were identified:

- Noise from general machinery onsite.
- Noise from vehicle movement onsite and adjacent Cahill Expressway Cutaway.

NOISE MEASUREMENT & LOCATIONS

Noise monitoring was conducted using the ARL NGARA Environmental Noise Logger with modem. The instrumentation complied with the requirements set out in AS IEC 17025 and carried appropriate NATA calibration certificates. Measurements were logged on a 15-minute interval (T), using the “fast” response of the noise monitor.

The noise monitors and subsequent measurements were taken at the location described in Table 1 of the *Noise and Vibration Assessment Report* prepared by Arup Pty Ltd (Ref: 266969 dated 20.12.2019) and as shown in the attached Figure 1 – Site Plan.

CONSTRUCTION NOISE ASSESSMENT GUIDELINES

The Department of Environment & Climate Change NSW presents the recommended guidelines for control of construction noise in the “*Interim Construction Noise Control Manual (July 2009)*”. These guidelines recognise that due to the short duration of construction noise, higher tolerance of this noise is likely to be accepted by people in the surrounding area.

These guidelines recommend that the $L_{Aeq(15min)}$ construction noise levels outside recommended standard work hours should not exceed:

- “Noise affected level”: + 5 dB(A) $L_{Aeq(15min)}$

The L_{A90} (time period) is the sound pressure level that is exceeded over 90% of a specified time period (in this case 15mins). It is also known as the average background noise level or rating background level (RBL).

The *Noise and Vibration Assessment Report/SSDA Acoustic Assessment Report* prepared by Arup Pty Ltd (Ref: 266969 dated 20.12.2019) contains detailed noise monitoring results for the long-term unattended background noise measurements.

The results of the background noise monitoring are presented in the table below:

Table 1: Measured Background Noise Levels

Location	Period / Time	Rating Background Noise Level dB(A) L_{90}	Ambient Noise Level db(A) L_{eq}
L2, Western Boundary, 1m Above ground, free field measurement.	Day	59	67
	Evening	56	65
	Night	46	61

A summary of the recommended noise levels for background / ambient noise (+5dB) and project construction noise targets (Table 18 of the Noise and Vibration Assessment Report/SSDA Acoustic Assessment Report) is presented in the tables below:

Table 2: Noise Management Levels – Background / Ambient

Location	Period / Time	* Background Noise Level dB(A) L ₉₀	* Ambient Noise Level dB(A) L _{eq}
L2, Western Boundary, 1m Above ground, free field measurement.	Day	64	72
	Evening	61	70
	Night	51	66

* Based on the letter Fort Street Public School (SSD-10340): Construction Hours Variation Request Condition C6, dated 10th February 2023, “Noise levels (measured from the nearest sensitive receptor) will not exceed the existing background noise level plus 5dB”.

Table 3: Noise Management Levels – Project Construction Noise Targets

Time Period	Area	Criteria dB(A) L _{eq(15 min)}	* Variation Request Condition C6 dB(A) L _{eq(15 min)}
During recommended standard hours	Noise affected	67	72
	Highly noise affected areas	75	80
During recommended standard hours	Noise affected	51	56

* Based on the letter Fort Street Public School (SSD-10340): Construction Hours Variation Request Condition C6, dated 10th February 2023, “Noise levels (measured from the nearest sensitive receptor) will not exceed the existing background noise level plus 5dB”.

Therefore, the criteria to be utilised for this investigation will be 72 db(A) Leq(15 min).

RECOMMENDED STANDARD WORK HOURS

The following table outlines the construction hours of the development:

Table 4: Recommended Standard Hours of Construction work

Day	Construction Hours*
Monday to Friday	8am to 4pm
Saturday	8am to 4pm
Sunday	8 am to 4pm

** The relevant authority (consent, determining or regulatory) may impose more or less stringent construction hours.*

NOISE RESULTS

The following table shows the results of the noise measurements carried out on Sunday 2nd April 2023 between 8am and 4pm.

Table 5: Noise Results for NM1

Date and Time	Noise Level - db(A) Leq
Sun 02 Apr 2023 08:00:00	68.9
Sun 02 Apr 2023 08:15:00	70.1
Sun 02 Apr 2023 08:30:00	65.8
Sun 02 Apr 2023 08:45:00	63.5
Sun 02 Apr 2023 09:00:00	61.3
Sun 02 Apr 2023 09:15:00	60.6
Sun 02 Apr 2023 09:30:00	62.1
Sun 02 Apr 2023 09:45:00	63.9
Sun 02 Apr 2023 10:00:00	60
Sun 02 Apr 2023 10:15:00	58.7
Sun 02 Apr 2023 10:30:00	60.8
Sun 02 Apr 2023 10:45:00	60.2
Sun 02 Apr 2023 11:00:00	59.8
Sun 02 Apr 2023 11:15:00	60.4
Sun 02 Apr 2023 11:30:00	59
Sun 02 Apr 2023 11:45:00	59.8
Sun 02 Apr 2023 12:00:00	59.9
Sun 02 Apr 2023 12:15:00	59.8
Sun 02 Apr 2023 12:30:00	60
Sun 02 Apr 2023 12:45:00	59.5
Sun 02 Apr 2023 13:00:00	60.9
Sun 02 Apr 2023 13:15:00	59.5
Sun 02 Apr 2023 13:30:00	60.1
Sun 02 Apr 2023 13:45:00	59.6
Sun 02 Apr 2023 14:00:00	60
Sun 02 Apr 2023 14:15:00	62.9
Sun 02 Apr 2023 14:30:00	65.5
Sun 02 Apr 2023 14:45:00	67.1
Sun 02 Apr 2023 15:00:00	66.6
Sun 02 Apr 2023 15:15:00	64
Sun 02 Apr 2023 15:30:00	65.4
Sun 02 Apr 2023 15:45:00	63.6
Sun 02 Apr 2023 16:00:00	61.5
Guideline	72

The results of NM1 show the relevant daytime noise monitoring results were below the adopted noise goals for the site during the monitoring on Sunday 2nd April 2023 between 8am and 4pm.

CONCLUSIONS & RECOMMENDATIONS

The results from NMI show the relevant daytime noise monitoring results comply with the derived Noise Investigation Levels for the site on Sunday 2nd April 2023 between 8am and 4pm.

The *Noise and Vibration Assessment Report/SSDA Acoustic Assessment Report* prepared by Arup Pty Ltd (Ref: 266969 dated 20.12.2019) provides the assessment of the operational and construction noise from the school and the background levels.

To keep noise to a minimum, Sunday work was restricted to façade and internal building work activities with no delivery of materials to site. Noise levels (measured from the nearest sensitive receptor) did not exceed the existing background noise level plus 5dB.

We trust the above is of assistance and if you have any queries, please do not hesitate to call and discuss.

For and on behalf of

Aargus Pty Ltd

Written by:



Sagar Koirala

Environmental Engineer

Enclosed:


Figure 1 "Site Plan"
Graphs

References:

NSW Environmental Protection Authority (EPA), "*Noise Policy for Industry*" 2017.
Department of Environment and Climate Change NSW, "*Interim Construction Noise Guideline*" 2009.

SITE PLAN



Legend	Site Features
	Location of the noise monitor NM1

PROJECT DETAILS						DRAWING DETAILS			
Project Title	Noise Monitoring					Figure No.	1	Rev No.	0
Project No.	ES8801					Scale	As above	Size	A4
Client	Lendlease					Drawn by	SK	Date	04.04.2023
Site Address	Fort Street Public School Observatory Hill, Upper Fort Street, Millers Point NSW					Approved by	MK	Date	04.04.2023

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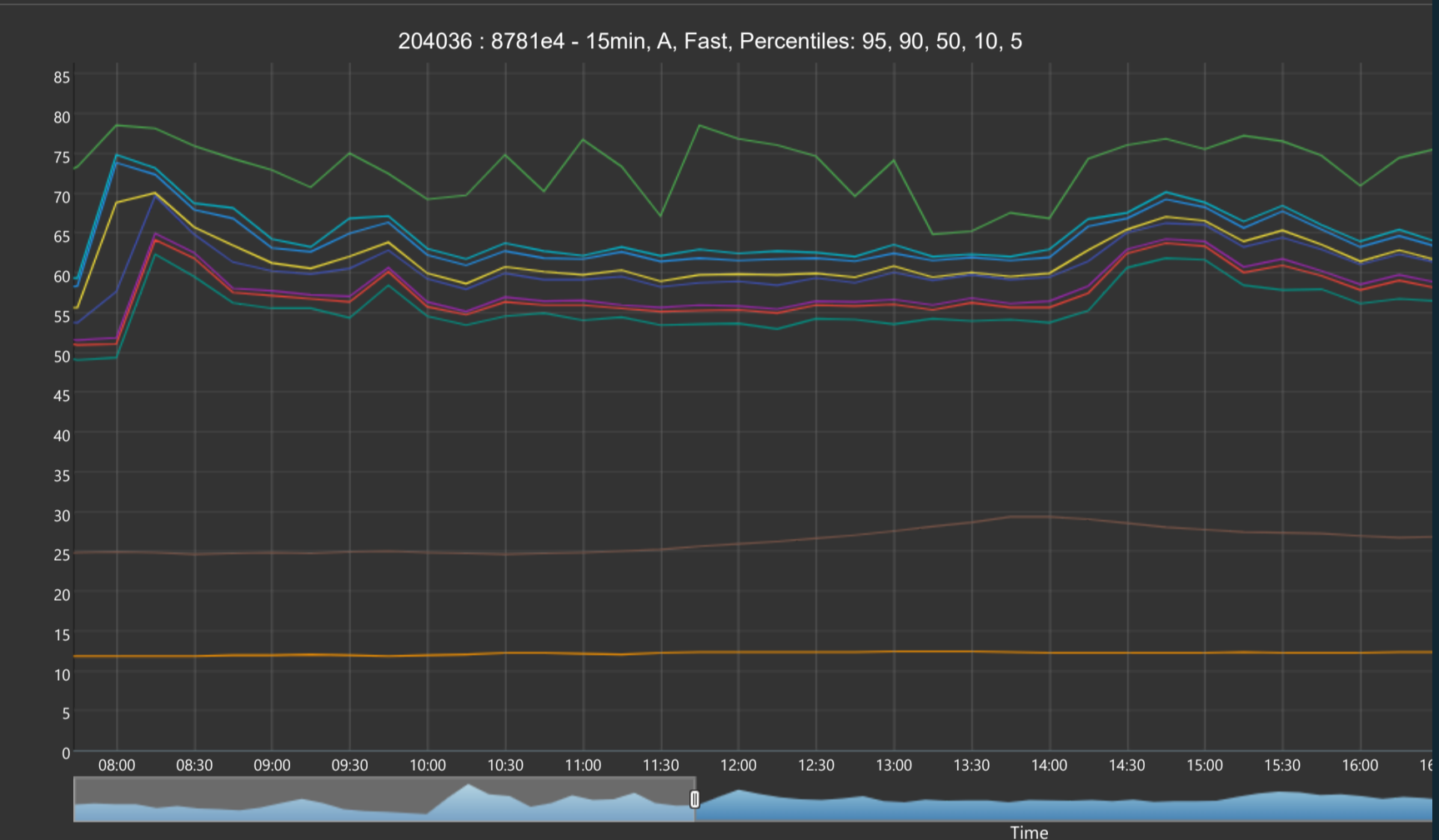
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204036 : 8781e4

Statistics
15min, A, Fast, Percentiles: 95, 90, 50, 10, 5

Start
2023-04-02

End
2023-04-02

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