MATTHEW PALAVIDIS
VICTOR FATTORETTO
MATTHEW SHIELDS

Data Centre - 85-95 Sharps Rd, Tullamarine

Environmental Noise Assessment

MELBOURNE
41 Cobden St
NORTH MELBOURNE VIC 3051
(03) 9272 6800

ABN 98 145 324 714
www.acousticlogic.com.au

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1 INTRODUCTION

Acoustic Logic (AL) and Audio Systems Logic (ASL) has been engaged to conduct an environmental noise assessment of mechanical plant serving the proposed data centre located at 85-95 Sharps Rd, Tullamarine. This assessment has been conducted based on the following documents:

Table 1 – Referenced Document

Prepared By	Document/Drawings Number	Date
Greenbox	DA000, DA001, DA005, DA010, DA011, DA012, DA013, DA014, DA015, DA016, DA018, DA020, DA030, DA031, DA032, DA033, DA040, DA101, DA102, DA105, DA106, DA111, DA112, DA115, DA116, DA121, DA122, DA125, DA126, DA300, DA310, DA311, DA320	18/12/2024
ARUP	Combined MEP Spatials REVs	18/07/2024

2 SITE DESCRIPTION

The proposed data centre is located at 85-95 Sharps Rd, Tullamarine. The subject site is bounded by Sharps Road to the north, other commercial buildings to the east and south and Keilor Park Drive to the west. Figure 1 below details the subject site and the surrounding area. The proposed data centre will incorporate 8 Shells with 4 levels of data halls serviced by plant and equipment located on the roof and end of the building.

The nearest noise sensitive receivers are residential dwellings located to the north east of the subject site and the Quest serviced apartments located to the north west of site. Inspection onsite indicated that the existing acoustic environment at the receivers is dominated by traffic noise from the surrounding road network.

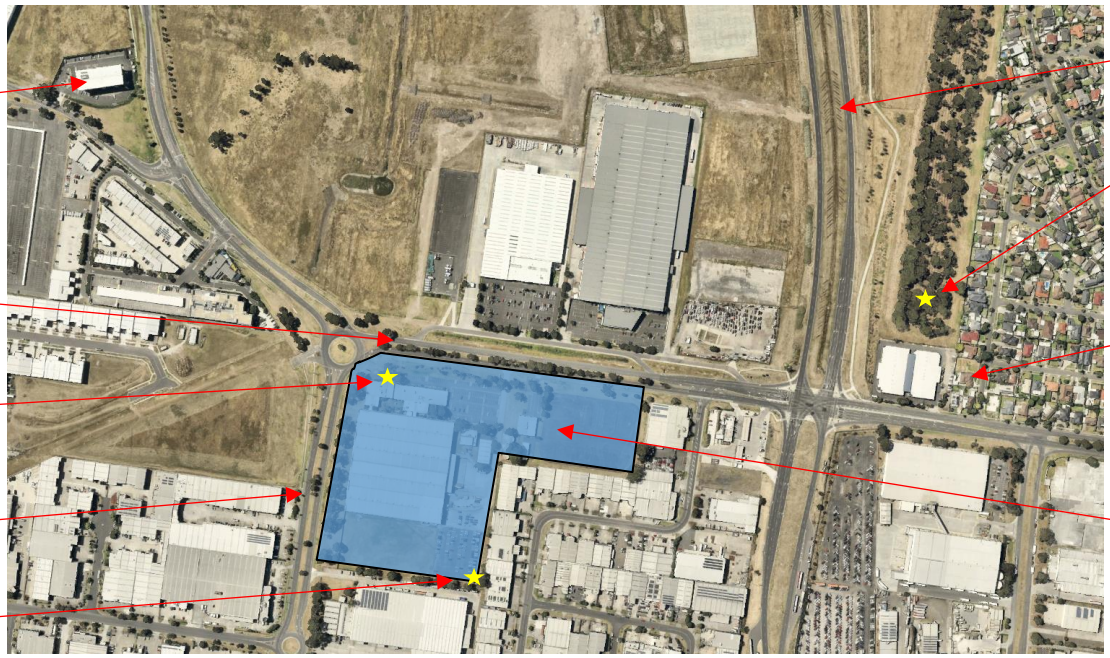

Figure 1 - Subject site and the Surrounding Environment (Google Maps™)

3 ENVIRONMENTAL NOISE DESCRIPTORS

Environmental noise constantly varies. Accordingly, it is not possible to accurately determine prevailing environmental noise conditions by measuring a single, instantaneous noise level.

To accurately determine the environmental noise a 15-20 minute measurement interval is utilised. Over this period, noise levels are monitored on a continuous basis and statistical and integrating techniques are used to determine noise description parameters.

In analysing environmental noise, three principal measurement parameters are used, namely L_{10}, L_{90} and L_{eq}.

The L_{10} and L_{90} measurement parameters are statistical levels that represent the average maximum and average minimum noise levels respectively, over the measurement intervals.

The L_{10} parameter is commonly used to measure noise produced by a particular intrusive noise source since it represents the average of the loudest noise levels produced by the source.

Conversely, the L_{90} level (which is commonly referred to as the background noise level) represents the noise level heard in the quieter periods during a measurement interval. The L_{90} parameter is used to set the allowable noise level for new, potentially intrusive noise sources since the disturbance caused by the new source will depend on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the L_{90} level.

The L_{eq} parameter represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the 15-minute period. L_{eq} is important in the assessment of environmental noise impact as it closely corresponds with human perception of a changing noise environment; such is the character of environmental noise.

4 BACKGROUND NOISE LEVEL MEASUREMENTS

4.1 LOCATION OF MEASUREMENTS

Background noise measurements were conducted at the locations detailed below and as shown in Figure 1.

- Measurement Location 1 – Noise measurements were conducted at 95 Sharps Road at the southern end of site. Measurement was approximately 1.5m above grade and free field.
- Measurement Location 2 – Noise measurements were conducted at 95 Sharps Road at the northern end of site. Measurement was approximately 1.5m above grade and free field.
- Measurement Location 3 – Background noise measurements were conducted in wooded area east of Airport Drive. Measurement was approximately 1.5m above grade and free field.

4.2 TIME OF MEASUREMENTS

Noise measurements were conducted between the 11 July 2024 and 16 July 2024.

4.3 MEASUREMENT EQUIPMENT

Noise measurements were conducted using Rion NL 42 Noise Monitors. Equipment was calibrated at the beginning and the end of the measurement using a Rion NC-75 calibrator and no significant drift was recorded. All measurements were taken on A-weighted fast response mode.

4.4 MEASURED NOISE LEVELS

Tables below details the background noise levels measured at the nearest noise sensitive receivers.

Table 2 – Unattended Background Noise Measurement Levels – Location 1

Period	Time	Measured Background Noise Levels $L_{90,period}$ dB(A)[1]
Day	7am – 6pm (Mon – Sat)	46
Evening	6pm – 10pm (Mon – Sat) 7am – 10pm (Sun)	43
Night	10pm – 7am	40

Note 1 – Background noise levels calculated in accordance with EPA Publication 1826.4.

Table 3 – Unattended Background Noise Measurement Levels – Location 2

Period	Time	Measured Background Noise Levels $L_{90,period}$ dB(A)[1]
Day	7am – 6pm (Mon – Sat)	49
Evening	6pm – 10pm (Mon – Sat) 7am – 10pm (Sun)	43
Night	10pm – 7am	40

Note 1 – Background noise levels calculated in accordance with EPA Publication 1826.4.

Table 4 – Unattended Background Noise Measurement Levels – Location 3

Period	Time	Measured Background Noise Levels $L_{90,period}$ dB(A)[1]
Day	7am – 6pm (Mon – Sat)	48
Evening	6pm – 10pm (Mon – Sat) 7am – 10pm (Sun)	45
Night	10pm – 7am	44

Note 1 – Background noise levels calculated in accordance with EPA Publication 1826.4.

5 ENVIRONMENTAL NOISE CRITERIA

5.1 EPA PUBLICATION 1826.4

EPA Publication 1826.4 details the methodology to be used in assessing environmental noise emissions such that protection of residential amenity may be preserved. The publication is a statutory instrument that is required to be complied with by private individuals, public and private sector organisations. To determine the assessment criteria both the 'zoning' level and ambient background noise levels are required to determine if the background noise level is neutral, high or low.

5.1.1 Zoning Level

The 'Zoning' level is determined by the Influencing Factor (IF) and is calculated by the formula and the 'Zoning Level versus Influencing Factor' graph nominated in Section 1.1 of the EPA Noise Protocol and zoning within VicPlan Mapping. The IF is calculated from the proportion of industrial, commercial and transportation land around noise sensitive areas. Review of the surrounding area indicates an IF of approximately **0.55** for Receiver #1 – Quest Hotel and **0.33** for Receiver #2 – Residents to East.

This results in the zoning limits detailed in the Tables below.

Table 5 - Zoning Levels for Receiver #1

Period	Zoning Level
Day	60
Evening	53
Night	48

Table 6 - Zoning Levels for Receiver #2

Period	Zoning Level
Day	56
Evening	50
Night	45

5.1.2 EPA Publication Noise Limits

Tables below detail the assessment criteria based on the zoning levels and measured background noise levels presented in the report.

Table 7 – EPA Publication 1826.4 Noise Limits – Receiver #1

Period	Measured Background $L_{90,15min}$ dB(A)[1]	Zoning limit	Classification	Project Noise Limits L_{eq} dB(A)[2]
Day Monday – Saturday (7am – 6pm)	49	60	Neutral	**60**
Evening Monday – Saturday (6pm – 10pm) Sunday (7am – 10pm)	43	53	Low	**51**
Night Monday – Sunday (10pm – 7am)	40	48	Neutral	**48**

Note 1 – Noise levels measured background noise levels at location 2.
Note 2 – Noise limit in normal operation. Generators and emergency equipment when tested can be up to 10dBA higher during the day period. Equipment used during an emergency does not need to comply with this noise limit.

Table 8 – EPA Publication 1826.4 Noise Limits – Receiver #2

Period	Measured Background $L_{90,15min}$ dB(A)[1]	Zoning limit	Classification	Project Noise Limits L_{eq} dB(A)[2]
Day Monday – Saturday (7am – 6pm)	48	56	Neutral	**56**
Evening Monday – Saturday (6pm – 10pm) Sunday (7am – 10pm)	45	50	Neutral	**50**
Night Monday – Sunday (10pm – 7am)	44	45	High	**47**

Note 1 – Noise levels measured background noise levels at location 3.
Note 2 – Noise limit in normal operation. Generators and emergency equipment when tested can be up to 10dBA higher during the day period. Equipment used during an emergency does not need to comply with this noise limit.

6 NOISE ASSESSMENT OF DEVELOPMENT

To ensure amenity for nearby noise sensitive receivers is preserved, operation of mechanical plant and equipment shall be designed to ensure compliance with EPA Publication 1826.4 Part 1.

Treatment and operational controls are to be determined during the detailed design phase of the project and may include screening/acoustic louvres, operating equipment at lower speeds/reduced noise level during the night/evening period, selecting quieter equipment, testing emergency equipment during the day period etc. Operational noise impacts shall be assessed based on the combined cumulative scenario and predicted at the noise sensitive receivers. Treatment should take into account proposed staging, if individual shells that would otherwise provide screening are not constructed prior to other shells operating, additional temporary screening may need to be installed until those shells are completed.

7 CONCLUSION

This report presents an assessment of environmental noise assessment of mechanical plant serving the data centre located at 85-95 Sharps Rd, Tullamarine.

We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,

Acoustic Logic Pty Ltd
Ben Mcclymont