

MEMORANDUM



230401-5-9 Croydon St, Lakemba-Section 4.55, desing acoustics-R0

TO: Anthony Habkounk

DATE: 5 July 2024

COMPANY: Eloura

FROM: Ben White

5-9 Croydon Street, Lakemba

SUBJECT: Proposed Section 4.55 - Acoustic Review and Changes

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1 INTRODUCTION

This report details the acoustic assessment and submission for alterations to the project, included within the *Development Application DA-55/2021*, for the project located at 5-9 Croydon Street, Lakemba.

As part of the Section 4.55 modifications an acoustic review of the proposed alterations to the project have been assessed based on the exiting project conditions and acoustic requirements of the project.

2 PROJECT DETAILS

The project includes a multi-story residential development located at 5-9 Croydon Street, Lakemba. The project includes residential dwellings and carparking within the 10 story project including 3 buildings.

Details of the site location are included in the figure below.



Figure 1 – Site Location Details

The projects conditions of consent include the Lane Cove Council DA-55/2021.

As part of the Development Application of the project acoustic assessments for the project have been undertaken and include the following:

- a.* The Acoustic Logic *5-9 Croydon Steet, Lakemba – Noise Impact Assessment* with reference 20190836.1/0610A/R1/LL and dated 6 October 2020.
- b.* The project architectural drawings including the Team 2 Architects drawings with Project number 1136 for Section 4.55 Submission and dated 1/7/2024.

3 PROPOSED DESING CHANGES

This section of the report details the acoustic review of the proposed design modifications which are proposed as part of the section 4.55 modification.

The proposed design alterations to the project and included as part of the Section 4.55 can be summarised as including the following:

1. Relocation of Storage Cages from Building A Lower Ground to Basement (in conjunction with Change 5)
2. Apartment Mix Change & Parking / Storage Allocation - total 3 additional apartments; a. 6 x 3 beddas changed to 6 x 2 beddas & 3 x Studios b. 2 x 1 beddas changed to 2 x 2 beddas.
3. Basement Layout Changes - Storage, Extent of Excavation, Carpark Allocation, Service Plantrooms, Risers & Plenums added and OSD Tank Volume Increase.
4. Basement RL Changes & Ramp Gradients.
5. FRNSW & BCA/PCA Requested Fire Escape Changes Including Stair Pressurisation & Lobby Relief, Addition of sprinkler & hydrant tanks & fire pump room including street access & Light Shaft Changes
6. Construction Certificate Drawing Changes with minor changes to apartment layouts & façade for optimisation & Services / Structural Incorporation
7. Waste Room Layout Changes for Compliance
8. Deletion of Roof Terrace
9. Window Changes Requested by Council in Approved S4.55#1

3.1 Acoustic Assessment of proposed Changes

This assessment details an acoustic review of the proposed design modifications included in the Section 4.55 submission and the resulting impact on the proposed acoustic performance requirements and design of the project.

A summary of the proposed changes to the project and the resulting impact on the acoustic performance and design of the development are detailed in the section above and discussed below.

1. Based on the proposed alterations to the project, including those detailed in Section 3 above, the relevant acoustic performance requirements and constructions as detailed within the projects acoustic reports, including the Acoustic Logic *5-9 Croydon Steet, Lakemba – Noise Impact Assessment* with reference 20190836.1/0610A/R1/LL and dated 6 October 2020 and included in the DA Conditions of Consent.

The exiting projects approvals and acoustic design will be acoustically acceptable based on the details included within the Acoustic Logic *5-9 Croydon Steet, Lakemba – Noise Impact Assessment* with reference 20190836.1/0610A/R1/LL and dated 6 October 2020 report which includes the required external noise emission requirements as well as the internal noise levels criteria which the building performance is required to comply with.

The projects conditions of consent including the *Development Application Notice of Determination DA-55/2021* include those which remain relevant and suitable for the project.

4 CONCLUSION

This report details the acoustic assessment and submission for alterations to proposed residential development located at 5-9 Croydon Street, Lakemba.

As part of the Section 4.55 modifications to the proposed design modifications will be acoustically acceptable based on the exiting conditions of consent for the project.

If you have any additional questions, please contact the author below.

Regards



Ben White
Director
Pulse White Noise Acoustics

APPENDIX A – ACOUSTIC GLOSSARY

The following is a brief description of the acoustic terminology used in this report.

<i>Ambient Sound</i>	The totally encompassing sound in a given situation at a given time, usually composed of sound from all sources near and far.
<i>Audible Range</i>	The limits of frequency which are audible or heard as sound. The normal ear in young adults detects sound having frequencies in the region 20 Hz to 20 kHz, although it is possible for some people to detect frequencies outside these limits.
<i>Character, acoustic</i>	The total of the qualities making up the individuality of the noise. The pitch or shape of a sound's frequency content (spectrum) dictate a sound's character.
<i>Decibel [dB]</i>	The level of noise is measured objectively using a Sound Level Meter. The following are examples of the decibel readings of every day sounds; <div><div>0dB</div><div>the faintest sound we can hear</div></div> <div><div>30dB</div><div>a quiet library or in a quiet location in the country</div></div> <div><div>45dB</div><div>typical office space. Ambience in the city at night</div></div> <div><div>60dB</div><div>Martin Place at lunch time</div></div> <div><div>70dB</div><div>the sound of a car passing on the street</div></div> <div><div>80dB</div><div>loud music played at home</div></div> <div><div>90dB</div><div>the sound of a truck passing on the street</div></div> <div><div>100dB</div><div>the sound of a rock band</div></div> <div><div>115dB</div><div>limit of sound permitted in industry</div></div> <div><div>120dB</div><div>deafening</div></div>
<i>dB(A)</i>	<i>A-weighted decibels</i> The ear is not as effective in hearing low frequency sounds as it is hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter. The sound pressure level in dB(A) gives a close indication of the subjective loudness of the noise.
<i>Frequency</i>	Frequency is synonymous to <i>pitch</i> . Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
<i>Loudness</i>	A rise of 10 dB in sound level corresponds approximately to a doubling of subjective loudness. That is, a sound of 85 dB is twice as loud as a sound of 75 dB which is twice as loud as a sound of 65 dB and so on
<i>L_{Max}</i>	The maximum sound pressure level measured over a given period.
<i>L_{Min}</i>	The minimum sound pressure level measured over a given period.
<i>L₁</i>	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.
<i>L₁₀</i>	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.
<i>L₉₀</i>	The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L ₉₀ noise level expressed in units of dB(A).
<i>Leq</i>	The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.
<i>Background Sound Low</i>	The average of the lowest levels of the sound levels measured in an affected area in the absence of noise from occupants and from unwanted, external ambient noise sources. Usually taken to mean the L _{A90} value
<i>Ctr</i>	A frequency adaptation term applied in accordance with the procedures described in ISO 717.

<i>dB (A)</i>	'A' Weighted overall sound pressure level
<i>Noise Reduction</i>	The difference in sound pressure level between any two areas. The term "noise reduction" does not specify any grade or performance quality unless accompanied by a specification of the units and conditions under which the units shall apply
<i>NR Noise Rating</i>	Single number evaluation of the background noise level. The NR level is normally around 5 to 6 dB below the "A" weighted noise level. The NR curve describes a spectrum of noise levels and is categorised by the level at 1000 Hz ie the NR 50 curve has a value of 50 dB at 1000 Hz. The NR rating is a tangential system where a noise spectrum is classified by the NR curve that just encompasses the entire noise spectrum consideration.
<i>R_w</i>	Weighted Sound Reduction Index - Laboratory test measurement procedure that provides a single number indication of the acoustic performance of a partition or single element. Calculation procedures for <i>R_w</i> are defined in ISO 140-2:1991 "Measurement of Sound Insulation in Buildings and of Building Elements Part 2: Determination, verification and application of precision data".
<i>R'_w</i>	Field obtained Weighted Sound Reduction Index - this figure is generally up to 3-5 lower than the laboratory test determined level data due to flanked sound transmission and imperfect site construction.
<i>Sound Isolation</i>	A reference to the degree of acoustical separation between any two areas. Sound isolation may refer to sound transmission loss of a partition or to noise reduction from any unwanted noise source. The term "sound isolation" does not specify any grade or performance quality and requires the units to be specified for any contractual condition
<i>Sound Pressure Level, L_p dB</i>	A measurement obtained directly using a microphone and sound level meter. Sound pressure level varies with distance from a source and with changes to the measuring environment. Sound pressure level equals 20 times the logarithm to the base 10 of the ratio of the rms sound pressure to the reference sound pressure of 20 micro Pascals.
<i>Sound Power Level, L_w dB</i>	Sound power level is a measure of the sound energy emitted by a source, does not change with distance, and cannot be directly measured. Sound power level of a machine may vary depending on the actual operating load and is calculated from sound pressure level measurements with appropriate corrections for distance and/or environmental conditions. Sound power levels is equal to 10 times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power of 1 picoWatt
<i>Speech Privacy</i>	A non-technical term but one of common usage. Speech privacy and speech intelligibility are opposites and a high level of speech privacy means a low level of speech intelligibility. It should be recognised that acceptable levels of speech privacy do not require that speech from an adjacent room is inaudible.
<i>Transmission Loss</i>	Equivalent to Sound Transmission Loss and to Sound Reduction Index in terminology used in countries other than Australia. A formal test rating of sound transmission properties of any construction, by usually a wall, floor, roof etc. The transmission loss of all materials varies with frequency and may be determined by either laboratory or field tests. Australian Standards apply to test methods for both situations.