

Project: Saint John of God - Richmond Hospital **Project No:** 301343762
To: Damian Gibson **Date:** 29/05/2024
From: James Ashpole

RE: Acoustic Measurements – Operational Noise Limits

1.1 Introduction

As part of the commissioning of the newly established stage of the Saint John of God – Richmond Hospital redevelopment located at 177 Grose Vale Road, North Richmond, Stantec has been engaged by Johnstaff to conduct acoustic commissioning / compliance testing for the operational noise emissions from the development to the surrounding sensitive receivers. Acoustic measurements have been conducted in order to demonstrate the noise emissions from the noise generating plant to show the compliance with the requirements outlined in the Noise Policy for Industry and established in the SJOG Richmond Hospital Acoustics Report, Assessment of Operational Acoustic Impact prepared by Silver Thomas Hanley dated 16 September 2021.

This report presents the results of the acoustic measurements conducted by Stantec on Tuesday, 28th May 2024, with the mechanical plant equipment in operation.

The report addresses the following conditions:

Operational Noise Limits

F5. *The applicant must ensure that noise generated by operation of the development does not exceed the noise limits in SJOG Richmond Hospital Acoustic Report, Assessment of Operational Acoustic Impact prepared by Silver Thomas Hanley dated 16th September 2021.*

F6. *The Applicant must undertake short term noise monitoring in accordance with the Noise Policy for Industry where valid data is collected following the commencement of use of each stage of the development. The monitoring program must be carried out by an appropriately qualified person and a monitoring report must be submitted to the Planning Secretary within two months of commencement of each stage of the development to verify that operational noise level do not exceed the recommended noise levels for mechanical plant identified in SJOG Richmond Hospital Acoustics Report, Assessment of Operational Acoustic Impact prepared by Silver Thomas Hanley dated 16th September 2021. Should the noise monitoring program identify any exceedance of the recommended noise levels referred to above, the Applicant is required to implement appropriate noise attenuation measures so that operational noise levels do not exceed the recommended noise levels or provide attenuation measures at the affected noise sensitive receivers.*

1.2 Information Sources

This assessment has been prepared considering the following documents:

- NSW Environment Protection Authority – Noise Policy for Industry 2017.
- SJOG Richmond Hospital Acoustics Report, Assessment of Operational Acoustic Impact prepared by Silver Thomas Hanley dated 16 September 2021.
- Assessment of Operational Acoustic Impact Report, prepared by Stantec dated 17th September 2021.

2. External Noise Emissions

2.1 Equipment

The measurements were conducted using the following instruments:

- Hand-held Sound Spectrum Analyser Brüel & Kjær Type 2250, S/N 2709742.
- Brüel & Kjær Sound Calibrator, S/N 2709826.

Equipment was calibrated before and after the measurements and no significant drift was found.

2.2 External Noise Criteria

The project noise trigger levels for industrial noise sources such as mechanical plant etc. are provided in Table 1. These noise levels have been derived from the Noise Policy for Industry 2017 and established in the Assessment of Operational Acoustic Impact Report, prepared by Stantec dated 17th September 2021.

Table 1: Project noise trigger levels for industrial noise emissions

Period	Descriptor	Project Specific Noise Emission Levels dB(A)
Residential Receivers		
Day (7:00am to 6:00pm)	LAeq,15min	40
Evening (6:00pm to 10:00pm)	LAeq,15min	35
Night (10:00pm to 7:00am)	LAeq,15min	35
Hospital Receivers – External		
Nosiest 1-hour period when in use	LAeq, 1 hour	50

2.3 Acoustic Measurements

The NSW EPA NPI states the following:

“For a residence, the project noise trigger level and maximum noise levels are to be assessed at the reasonably most-affected point on or within the residential property boundary or, if that is more than 30 metres from the residence, at the reasonably most-affected point within 30 metres of the residence, but not closer than 3 metres to a reflective surface and at a height of between 1.2 – 1.5 metres above ground level”

The closest residential receiver is approximately 250m from the boundary of the development. Due to the distance from the proposed development, it is unlikely that the mechanical plant contribution will be audible at the residents location. In order to measure something quantifiable, attended measurements were conducted at the boundary of the site with all mechanical plant operating. From this, the data can be extrapolated to determine the noise impact at the receiver location.

The measurements were conducted at the boundaries of the development site as shown in Figure 1. The noise measurement was conducted with all the mechanical equipment operating at capacity during the night time period.

The noise measurements at the boundary of the site, as well as the extrapolated noise level at the nearest residential receivers is presented in Table 2 and compared against the established noise emission criteria derived from the NSW EPA NPI and outlined in the Operational Acoustic Impact Report, prepared by Stantec dated 17th September 2021 in Table 1.

Figure 1: Overview of the Site and Measurements Location



Table 2: Results of External Noise Measurement

Test Ref.	Measured Mechanical Noise Contribution ¹ , L _{Aeq,15mins} dB(A)	Noise level at the nearest residential receiver ² L _{Aeq,15mins} dB(A)	Mechanical Noise Emission Criteria, night ³ L _{Aeq,15mins} dB(A)	Comply with Design Brief? (Y/N)
P1	47	20	35	Yes
P2	44	16	35	Yes
P3	44	44	50 ⁴	Yes
P4	44	11	35	Yes

Note:

1. Measurement at the boundary of the site.
2. Data from the measurement has been extrapolated to determine the noise level within 30m of the residential receiver.
3. The mechanical services has been assessed towards the most stringent (night time) criteria.
4. Noise Emissions have been measured at the existing hospital areas and assessed to the hospital criteria.

The results presented in Table 2 show that the operation of the mechanical plant of the Saint John of God Hospital Richmond development does not exceed the recommended project noise trigger levels identified in SJOG Richmond Hospital Acoustics Report, Assessment of Operational Acoustic Impact prepared by Stantec dated 17th September 2021.

3. Conclusion

Stantec has been engaged by Johnstaff to provide an acoustic commissioning / compliance testing assessment as part of the commissioning stage of the newly established hospital redevelopment located at 177 Grose Vale Road, North Richmond.

The compliance testing has been conducted on Tuesday the 28th May 2024 at the boundary of the nearest potentially affected sensitive receivers presented in Figure 1 and extrapolated to the nearest sensitive receivers. These measurements were taken in order to assess compliance with the established external noise emission criteria derived from the NSW Environment Protection Authority – Noise Policy for Industry 2017.

In accordance with the results of the measurements conducted on site, noise emissions from the operation of the mechanical plant complies with the most stringent night time external noise criteria at the nearest sensitive receivers.

Yours sincerely

Stantec Australia Pty Ltd

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