# MEMORANDUM

**210392_220224_5-7 Culverston Rd, Minto_Stage 2_BW_R0**

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| **TO:** | Ebrahim Nateghi | **DATE:** | 24 February 2022 |
| **COMPANY:** | Tactical Group | | |
| **FROM:** | Ben White | | |
| | **5-7 Culverston Road, Minto** | | |
| **SUBJECT:** | Project Acoustic Requirements – Stage 2 | | |



## 1 Introduction

This report details the review which has been undertaken for the proposed warehouse project located at 5-7 Culverston Road, Minto including the revised layout of Stage 2. The review includes the proposed alterations to the project and includes the following:

1. The proposed project design, including the layouts included in the Watch This Space Design drawings, including the *Master Plan Drawings A-04* and dated 14th February 2022.
2. The previously undertaken Wilkinson Murray report for the site, including the *Minto Warehouse & Logistics Hub – Noise and Vibration Impact Assessment,* with report number 16048 and dated April 2016.
3. The Pulse White Noise Acoustics *5-7 Culverston Road, Minto – Addendum Acoustic Assessment* dated 22 October 2021.

This report details the acoustic review of the proposed changes to the site and suitability of the previously completed acoustic reports based on the proposed changes to the layout for Stage 2 of the project.

## 2 Proposed Development

The proposed development includes a warehouse project located at Culverston Road, Minto. The site includes Stage 2 of the project which is located to the western side of the Culverston Road, Minto as detailed in the Figure below.


Figure 1- Site Location

The site is located within an area which includes industrial receivers with the closest residential receives including the following:

1. Residence to the northeast of the site. Residence are approximately 450m from the site and opposite Campbeltown Road. There are existing industrial buildings located between the site and the receivers to the northeast of the site.
2. Residence to the west of the stie and located over 350m from the site with Campbeltown Road and existing industrial buildings located between the site and these residential receivers.
3. Residence to the east of the site and located over 700m from the site. There are existing industrial buildings between the site and these residential receivers.

## 3 Proposed Alterations

The proposed changes to Stage 2 of the project includes alterations to the buildings and external storge areas of the warehouse, as detailed in the Figure below.

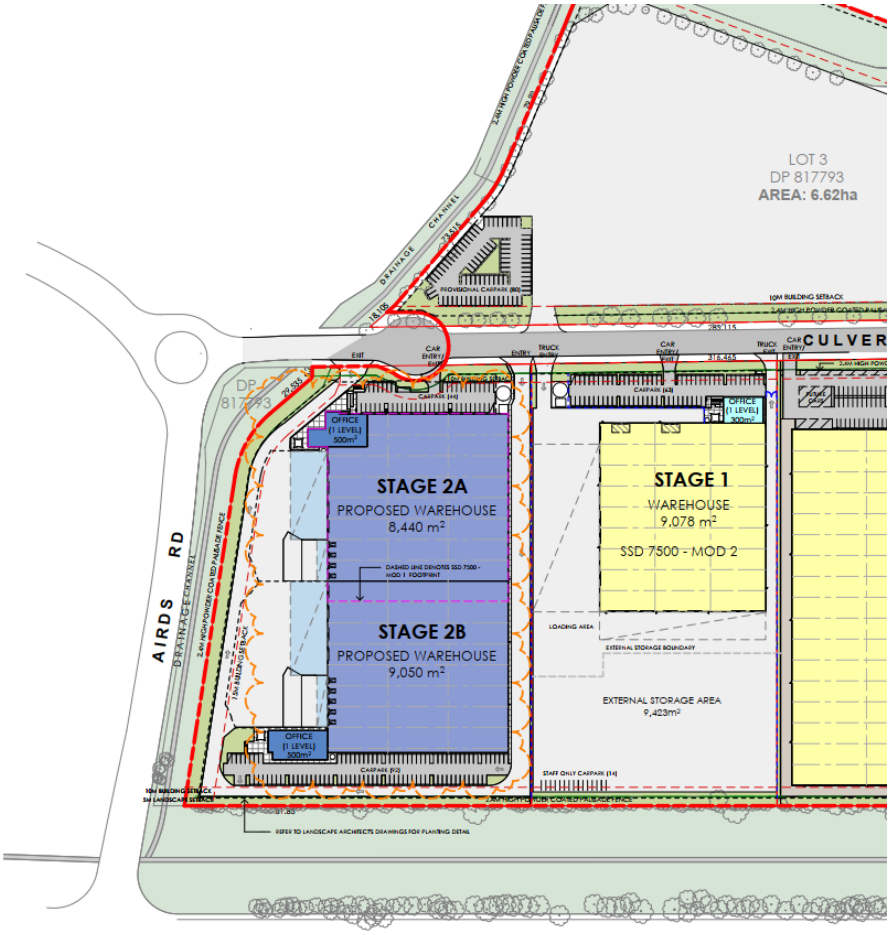


Figure 2 – Proposed Alternative Site Layout

## 4 Acoustic Assessment

The proposed use of the Stage 2 warehouses will include truck movements, loading and unloading of materials within the loading docks as well as the internal use of the warehouses.

Based on the proposed alterations to the site including the proposed layout of the warehouses in Figure 2 above, the resulting noise impacts to all surrounding receivers will comply with the relevant noise emission requirements including the project trigger noise levels of the EPA *Noise Policy for Industry* and will therefore be acoustically acceptable.

## 5 Conclusion

This report details the acoustic review of the proposed warehouse project located at 5-7 Culverston Road, Minto including Stage 2.

Based on the acoustic review of the site, including the proposed layout of the stage 2 warehouses the projects includes noise emissions which will be acoustically acceptable including noise emissions which are compliance with the relevant project noise trigger levels.

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

Regards

Ben White
Director

Pulse White Noise Acoustics

# 6 Appendix A – Glossary of Terms

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| *Ambient Sound* | The totally encompassing sound in a given situation at a given time, usually composed of sound from all sources near and far. |
| *Audible Range* | 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. |
| *Character, acoustic* | 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. |
| *Decibel [dB]* | The level of noise is measured objectively using a Sound Level Meter. The following are examples of the decibel readings of every day sounds;<br>0dB the faintest sound we can hear<br>30dB a quiet library or in a quiet location in the country<br>45dB typical office space. Ambience in the city at night<br>60dB Martin Place at lunch time<br>70dB the sound of a car passing on the street<br>80dB loud music played at home<br>90dB the sound of a truck passing on the street<br>100dB the sound of a rock band<br>115dB limit of sound permitted in industry<br>120dB deafening |
| *dB(A)* | *A-weighted decibels* 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. |
| *Frequency* | Frequency is synonymous to *pitch*. 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. |
| *Loudness* | 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 |
| $L_{Max}$ | The maximum sound pressure level measured over a given period. |
| $L_{Min}$ | The minimum sound pressure level measured over a given period. |
| $L_1$ | The sound pressure level that is exceeded for 1% of the time for which the given sound is measured. |
| $L_{10}$ | The sound pressure level that is exceeded for 10% of the time for which the given sound is measured. |
| $L_{90}$ | 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). |
| $L_{eq}$ | The "equivalent noise level" is the summation of noise events and integrated over a selected period of time. |
| *Background Sound Low* | 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 |
| *Ctr* | A frequency adaptation term applied in accordance with the procedures described in ISO 717. |
| *dB (A)* | 'A' Weighted overall sound pressure level |

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| *Noise Reduction* | 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 |
| *NR Noise Rating* | 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. |
| *$R_w$* | 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 Rw 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”. |
| *$R'_w$* | 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. |
| *Sound Isolation* | 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 |
| *Sound Pressure Level, $L_P$ dB* | 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. |
| *Sound Power Level, $L_W$ dB* | 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 |
| *Speech Privacy* | 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. |
| *Transmission Loss* | 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. |