



REPORT 200083R1

Revision 0

Noise Emission Compliance  
Pittwater RSL - Mona Vale Organic Markets  
82 Mona Vale Road, Mona Vale

PREPARED FOR:  
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28 May 2020



# Noise Emission Compliance

## Pittwater RSL - Mona Vale Organic Markets

### 82 Mona Vale Road, Mona Vale

#### PREPARED BY:

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#### DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
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## TABLE OF CONTENTS

1	INTRODUCTION	4
2	EXISTING DEVELOPMENT	4
2.1	Development Site	4
3	BASELINE NOISE SURVEY	5
3.1	Attended Noise Monitoring	5
4	NOISE GUIDELINES AND CRITERIA	5
4.1	Operational Noise Project Trigger Noise Levels	5
4.1.1	Intrusiveness Noise Levels	5
4.1.2	Amenity Noise Levels	5
4.1.3	Area Classification	6
4.1.4	Project Specific Trigger Noise Levels	6
5	OPERATIONAL NOISE IMPACT	6
5.1	Operational Noise Descriptors	6
5.2	Operational Noise Emissions	6
6	RECOMMENDATIONS	7
7	CONCLUSION	8
Table 3-1	Ambient Noise Level Results	5
Table 4-1	Operational Project Trigger Noise Levels	6
Table 5-1	Measured Noise Emission Levels	7
Figure 2-1	Site Location	4



## 1 INTRODUCTION

Rodney Stevens Acoustics Pty Ltd (here forth referred to as RSA) has been engaged by Stephan Choularton care of Pittwater RSL, to prepare a Noise Emission Compliance for the operation of the Mona Vale Organic Markets taking place Sundays at Pittwater RSL. This is in response to complaints from the neighbouring residences regarding the noise emitted during the morning day-time period of approx. 7:00am - 8:30am. This is indicated as the market arrival and setup period. The market takes place on Sundays from 7am - 2:30pm.

This report details the results of a noise survey and establishes the noise criteria for operations taking place on site.

Specific acoustic terminology is used in this report. An explanation of common acoustic terms is provided in Appendix A.

## 2 EXISTING DEVELOPMENT

### 2.1 Development Site

The organic market site is located in the carpark area of the Pittwater RSL. The nearest residential receivers are located on Jubilee Avenue (highlighted in orange in the figure below) and have direct line of sight to the market and all market operations. R1 as indicated below is the most sensitive receiver.

The market site and its surrounding environment are mainly influenced by local traffic noise. Figure 2-1 shows an aerial image of the site area and the surrounding environment.

Figure 2-1 Site Location



Image Courtesy of Near Map © 2020.

### 3 BASELINE NOISE SURVEY

#### 3.1 Attended Noise Monitoring

Attended noise measurements were carried out on Sunday 22<sup>nd</sup> March 2020 between 7:00am and 9:00am, An NTI XL2 TA (Serial No A2A-09798-E0) Sound Analyser was used to measure operational noise levels. The meter calibration setting was reference checked at the start and end of the monitoring period with a 01 dB-Steel Type 21 sound level calibrator. No significant drift was detected. Weather conditions were fine, temperature was 24°C and wind speed was 0.1 m/s.

An ambient noise level measurement was carried out at the nearest residential receiver with the markets inoperable on Saturday 21<sup>st</sup> March 2020. The results of the ambient survey are presented in the table below:

Table 3-1 Ambient Noise Level Results

Location	Measured $L_{eq(15min)}$ dB(A)	Measured $L_{90(15min)}$ dB(A)
Jubilee Avenue	51	40

### 4 NOISE GUIDELINES AND CRITERIA

#### 4.1 Operational Noise Project Trigger Noise Levels

Responsibility for the control of noise emissions in New South Wales is vested in Local Government and the EPA. The EPA oversees the Noise Policy for Industry (NPfI) October 2017 which provides a framework and process for deriving project trigger noise level. The NPfI project noise levels for industrial noise sources have two (2) components:

- Controlling the intrusive noise impacts for residents and other sensitive receivers in the short term; and
- Maintaining noise level amenity for particular land uses for residents and sensitive receivers in other land uses.

##### 4.1.1 Intrusiveness Noise Levels

For assessing intrusiveness, the background noise generally needs to be measured. The intrusiveness noise level essentially means that the equivalent continuous noise level ( $L_{Aeq}$ ) of the source should not be more than 5 dB(A) above the measured Rated Background Level (RBL), over any 15-minute period.

##### 4.1.2 Amenity Noise Levels

The amenity noise level is based on land use and associated activities (and their sensitivity to noise emission). The cumulative effect of noise from industrial sources needs to be considered in assessing the impact. The noise levels relate only to other industrial-type noise sources and do not include road, rail or community noise. The existing noise level from industry is measured.

If it approaches the project trigger noise level value, then noise levels from new industrial-type noise sources, (including air-conditioning mechanical plant) need to be designed so that the cumulative effect does not produce total noise levels that would significantly exceed the project trigger noise level.

#### 4.1.3 Area Classification

The NPfI characterises the “Suburban” noise environment as an area with an acoustical environment that:

- Has local traffic with characteristically intermittent traffic flows or with some limited commerce or industry.
- This area often has the following characteristic: - evening ambient noise levels defined by the natural environment and human activity

The area surrounding the proposed development falls under the “Suburban” area classification.

#### 4.1.4 Project Specific Trigger Noise Levels

Having defined the area type, the processed results of the attended noise monitoring have been used to determine project specific project trigger noise level. The intrusive and amenity project trigger noise level for nearby residential premises are presented in Table 4-1. These project trigger noise levels are nominated for the purpose of assessing potential noise impacts from the proposed development.

In this case, the ambient noise environment is not controlled by industrial noise sources and therefore the project amenity noise levels are assigned as per Table 2.2 of the NPfI (Recommended Amenity Noise Levels). For each assessment period, the lower (i.e. the more stringent) of the amenity or intrusive project trigger noise level are adopted. This is shown in bold text in Table 4-1.

Table 4-1 Operational Project Trigger Noise Levels

Receiver	Time of Day	ANL <sup>1</sup> L <sub>Aeq(period)</sub>	Measured		Project Trigger Noise Levels	
			RBL <sup>2</sup> L <sub>A90(15min)</sub>	Existing L <sub>Aeq(Period)</sub>	Intrusive L <sub>Aeq(15min)</sub>	Amenity L <sub>Aeq(15min)</sub>
Residential	Day	55	40	51	<b>45</b>	58

Note 1: ANL = “Amenity Noise Level” for residences in Suburban Areas.

Note 2: RBL = “Rating Background Level”.

## 5 OPERATIONAL NOISE IMPACT

### 5.1 Operational Noise Descriptors

The main noise generating activities included the arrival of vehicles servicing the site, the unloading of trucks and the setup of the market stalls.

### 5.2 Operational Noise Emissions

Attended noise measurements were carried out at the nearest boundary of the most sensitive external receivers R1 on Jubilee Ave and R2 on Foley Street. The noise levels resulting from the operation of the market were recorded and is presented below.





Table 5-1 Measured Noise Emission Levels

Location	Measured LAeq	Measured RBL	Criteria	Compliance
R1	52	40	45	No*
R2	51	40	45	No*

The measured noise levels show that there exists noise intrusion at the most sensitive receivers. The driving factor of this is the proximity of the market site to the residential receivers in addition to the proximity of the main entrance on Jubilee Avenue to the nearest receivers. The following is an indication of problematic noise generating activities:

- The arrival of stall operator vehicles and trucks at the same time and entrances.
- Noise generated by trucks idling and unloading in close proximity to receivers
- Noise generated by stall setup and construction
- Raised voices during setup period

\*It must be noted that although criteria exceedance does occur, it is only during the initial arrival and setup period of approximately 7:00am – 7:30am. Given the markets only operate one day a week and provide a beneficial service to the community this brief exceedance may be considered as reasonable.

## 6 RECOMMENDATIONS

During periods when operational noise exceeds the criteria specified by the Noise Policy for Industry, the following noise control management recommendations should be adhered to for the provision of amenity:


- All unloading operations when possible must be located as furthestmost as possible from the entrance.
- Stall operator arrivals (cars) are to be staggered equally between to the two entrances (Jubilee Ave and Foley Street) to ease traffic at any particular entrance.
- No arrivals before 7am on site.
- Stall operators/truck drivers must be proactive in not creating loud impulse noises when arriving and/or setting up i.e. slamming truck roller doors, letting hard objects fall to the ground, shout or raise voices unnecessarily.
- Noise created by vehicles entering over a steel grate at the Jubilee entrance may be remedied by reaffixing the grate so as it does not move when driven over.
- Trucks or heavy vehicles should avoid idling for extended durations.
- Trucks with reverse alarms should avoid reversing when possible.
- Patrons are directed to park in the covered RSL parking or as further away from the residential receivers as possible.
- PA system only used for emergencies.
- Live music to be limited to the northern part of market and kept at reasonable level.

## 7 CONCLUSION

RSA has conducted a noise emission compliance of the existing operations at Mona Vale Organic Markets, Pittwater RSL. The assessment has comprised the establishment of noise criteria with regard to relevant statutory requirements.

Although noise emissions from existing operations do not comply with the criteria, exceedance only occurs during the short arrival and setup period of approx. 7:00am - 7:30am once a week. Noise controls and recommendations presented in this report should be implemented to ensure compliance with the specific criteria and to provide increased amenity to nearby sensitive receivers.

Approved: -



Rodney Stevens

Manager/Principal

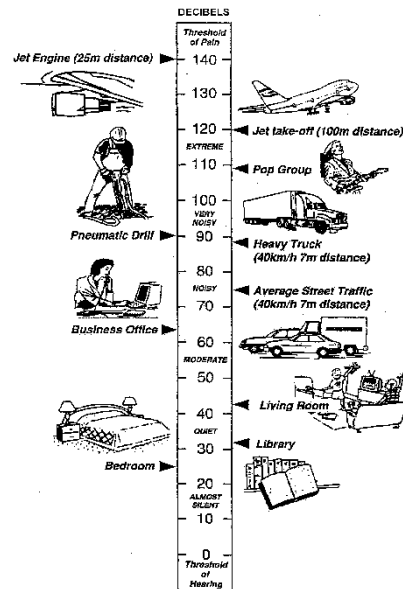


## Appendix A – Acoustic Terminology

<b>A-weighted sound pressure</b>	The human ear is not equally sensitive to sound at different frequencies. People are more sensitive to sound in the range of 1 to 4 kHz (1000 – 4000 vibrations per second) and less sensitive to lower and higher frequency sound. During noise measurement an electronic ' <i>A-weighting</i> ' frequency filter is applied to the measured sound level <i>dB(A)</i> to account for these sensitivities. Other frequency weightings (B, C and D) are less commonly used. Sound measured without a filter is denoted as linear weighted <i>dB(linear)</i> .
<b>Ambient noise</b>	The total noise in a given situation, inclusive of all noise source contributions in the near and far field.
<b>Community annoyance</b>	Includes noise annoyance due to: <ul style="list-style-type: none"> <li>■ character of the noise (e.g. sound pressure level, tonality, impulsiveness, low-frequency content)</li> <li>■ character of the environment (e.g. very quiet suburban, suburban, urban, near industry)</li> <li>■ miscellaneous circumstances (e.g. noise avoidance possibilities, cognitive noise, unpleasant associations)</li> <li>■ human activity being interrupted (e.g. sleep, communicating, reading, working, listening to radio/TV, recreation).</li> </ul>
<b>Compliance</b>	The process of checking that source noise levels meet with the noise limits in a statutory context.
<b>Cumulative noise level</b>	The total level of noise from all sources.
<b>Extraneous noise</b>	Noise resulting from activities that are not typical to the area. Atypical activities may include construction, and traffic generated by holiday periods and by special events such as concerts or sporting events. Normal daily traffic is not considered to be extraneous.
<b>Feasible and reasonable measures</b>	Feasibility relates to engineering considerations and what is practical to build; reasonableness relates to the application of judgement in arriving at a decision, considering the following factors: <ul style="list-style-type: none"> <li>■ Noise mitigation benefits (amount of noise reduction provided, number of people protected).</li> <li>■ Cost of mitigation (cost of mitigation versus benefit provided).</li> <li>■ Community views (aesthetic impacts and community wishes).</li> <li>■ Noise levels for affected land uses (existing and future levels, and changes in noise levels).</li> </ul>
<b>Impulsiveness</b>	Impulsive noise is noise with a high peak of short duration or a sequence of these peaks. Impulsive noise is also considered annoying.



<b>Low frequency</b>	Noise containing major components in the low-frequency range (20 to 250 Hz) of the frequency spectrum.
<b>Noise criteria</b>	The general set of non-mandatory noise levels for protecting against intrusive noise (for example, background noise plus 5 dB) and loss of amenity (e.g. noise levels for various land use).
<b>Noise level (goal)</b>	A noise level that should be adopted for planning purposes as the highest acceptable noise level for the specific area, land use and time of day.
<b>Noise limits</b>	Enforceable noise levels that appear in conditions on consents and licences. The noise limits are based on achievable noise levels, which the proponent has predicted can be met during the environmental assessment. Exceedance of the noise limits can result in the requirement for either the development of noise management plans or legal action.
<b>Performance-based goals</b>	Goals specified in terms of the outcomes/performance to be achieved, but not in terms of the means of achieving them.
<b>Rating Background Level (RBL)</b>	The rating background level is the overall single figure background level representing each day, evening and night time period. The rating background level is the 10 <sup>th</sup> percentile min L <sub>A90</sub> noise level measured over all day, evening and night time monitoring periods.
<b>Receptor</b>	The noise-sensitive land use at which noise from a development can be heard.
<b>Sleep disturbance</b>	Awakenings and disturbance of sleep stages.
<b>Sound and decibels (dB)</b>	<p>Sound (or noise) is caused by minute changes in atmospheric pressure that are detected by the human ear. The ratio between the quietest noise audible and that which should cause permanent hearing damage is a million times the change in sound pressure. To simplify this range the sound pressures are logarithmically converted to decibels from a reference level of 2 x 10<sup>-5</sup> Pa.</p> <p>The picture below indicates typical noise levels from common noise sources.</p>



dB is the abbreviation for decibel – a unit of sound measurement. It is equivalent to 10 times the logarithm (to base 10) of the ratio of a given sound pressure to a reference pressure.

#### Sound power Level (SWL)

The sound power level of a noise source is the sound energy emitted by the source. Notated as SWL, sound power levels are typically presented in  $dB(A)$ .

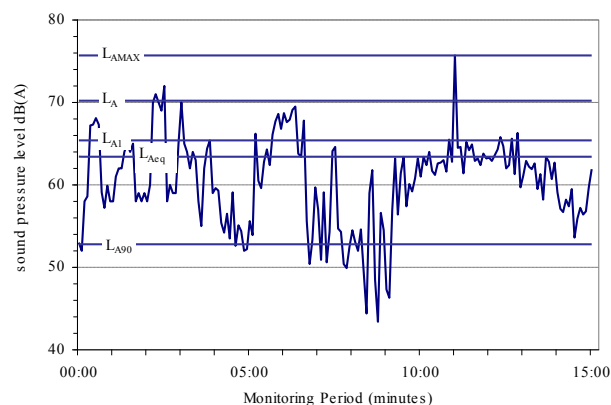
#### Sound Pressure Level (SPL)

The level of noise, usually expressed as SPL in  $dB(A)$ , as measured by a standard sound level meter with a pressure microphone. The sound pressure level in  $dB(A)$  gives a close indication of the subjective loudness of the noise.

#### Statistic noise levels

Noise levels varying over time (e.g. community noise, traffic noise, construction noise) are described in terms of the statistical exceedance level.

A hypothetical example of A weighted noise levels over a 15 minute measurement period is indicated in the following figure:



Key descriptors:

$L_{Amax}$  Maximum recorded noise level.

$L_{A1}$  The noise level exceeded for 1% of the 15 minute interval.

$L_{A10}$  Noise level present for 10% of the 15 minute interval. Commonly referred to the average maximum noise level.

$L_{Aeq}$  Equivalent continuous (energy average) A-weighted sound pressure level. It is defined as the steady sound level that contains the same amount of acoustic energy as the corresponding time-varying sound.

$L_{A90}$  Noise level exceeded for 90% of time (background level). The average minimum background sound level (in the absence of the source under consideration).

### **Threshold**

The lowest sound pressure level that produces a detectable response (in an instrument/person).

### **Tonality**

Tonal noise contains one or more prominent tones (and characterised by a distinct frequency components) and is considered more annoying. A 2 to 5 dB(A) penalty is typically applied to noise sources with tonal characteristics



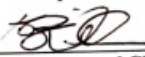
## Appendix B – Instrument Calibration Certificate



**Acoustic  
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Ph: +61 2 9484 0800 A.B.N. 65 160 399 119  
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**Sound Level Meter**  
IEC 61672-3:2013  
**Calibration Certificate**  
Calibration Number C19081

<b>Client Details</b>	Rodney Stevens Acoustics Pty Ltd 1 Majura Close St Ives Chase NSW 2075
<b>Equipment Tested/ Model Number :</b>	NTI XL2-TA
<b>Instrument Serial Number :</b>	A2A-09798-E0
<b>Microphone Serial Number :</b>	8685
<b>Pre-amplifier Serial Number :</b>	5642
<b>Pre-Test Atmospheric Conditions</b>	<b>Post-Test Atmospheric Conditions</b>
<b>Ambient Temperature :</b> 23.7°C	<b>Ambient Temperature :</b> 24.6°C
<b>Relative Humidity :</b> 49.3%	<b>Relative Humidity :</b> 45.8%
<b>Barometric Pressure :</b> 99.53kPa	<b>Barometric Pressure :</b> 99.38kPa
<b>Calibration Technician :</b> Charlie Neil	<b>Secondary Check:</b> Sandra Minto
<b>Calibration Date :</b> 6 Feb 2019	<b>Report Issue Date :</b> 11 Feb 2019
<b>Approved Signatory :</b>	 Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
12: Acoustical Sig. tests of a frequency weighting	Pass	17: Level linearity incl. the level range control	Pass
13: Electrical Sig. tests of frequency weightings	Pass	18: Toneburst response	Pass
14: Frequency and time weightings at 1 kHz	Pass	19: C Weighted Peak Sound Level	Pass
15: Long Term Stability	Pass	20: Overload Indication	Pass
16: Level linearity on the reference level range	Pass	21: High Level Stability	Pass

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation test performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2013.

Least Uncertainties of Measurement -			
Acoustic Tests		Environmental Conditions	
31.5 Hz to 8kHz	±0.15dB	Temperature	±0.2°C
12.5kHz	±0.2dB	Relative Humidity	±2.4%
16kHz	±0.29dB	Barometric Pressure	±0.015kPa
Electrical Tests			
31.5 Hz to 20 kHz	±0.11dB		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.



This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.  
Accredited for compliance with ISO/IEC 17025 - calibration.

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

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PAGE 1 OF 1