

Anytime Fitness, 71-73 Davies Road, Padstow

## Noise Impact Assessment

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## 1 INTRODUCTION

Acoustic Logic have been engaged to conduct a noise impact assessment for the proposed Anytime Fitness Gym to be constructed at 71-73 Davies Road, Padstow. In this report, we will:

- Identify relevant noise emission criteria applicable to the development.
- Identify nearby sensitive receivers and the operational noise sources with the potential to adversely impact them.
- Predict operational noise impacts at the nearest receivers and assess these predicted levels against the acoustic criteria.
- Where required, recommend acoustic treatments and/or management controls to ensure ongoing compliance with the noise emission requirements.

The report is based on the drawings prepared by Archispectrum dated 20/2/2025.

## 2 SITE DESCRIPTION

The gym is proposed to be located at 71-73 Davies Road, Padstow in a predominantly commercial zone. It is bound by a busy road, Davies Road to the west and a railway line to the south. It is proposed to operate 24/7. The following equipment is proposed:

- Stationary cardio exercise equipment;
- Various strength training equipment including weights machines;
- Free weights area and benches.

The following table lists the nearest receivers surrounding the site:

**Table 1 – Surrounding Receivers**

<b>Receiver (Refer Figure 1)</b>	<b>Receiver Type</b>	<b>Comment</b>
R1	Residential	Single storey residential dwelling bounding the site to the east
R2	Residential	Residential dwellings located to the south across the railway line
R3	Residential	Residential apartment buildings top the west across Davies Street
C1	Commercial	Commercial development to the north across Bridge Street

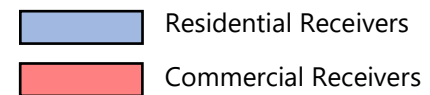
Potential acoustic issues related to the proposed gym are:

- Airborne noise from music and patrons within the gym to surrounding receivers;



**Figure 1: Aerial Site Map**

**Source: Six Maps**



## 3 EXISTING ACOUSTIC ENVIRONMENT

### 3.1 NOISE DESCRIPTORS

Ambient noise constantly varies in level from moment to moment, so it is not possible to accurately determine prevailing noise conditions by measuring a single, instantaneous noise level.

To quantify ambient noise, a 15-minute measurement interval is typically utilised. Noise levels are monitored on a continuous basis over this period, and statistical and integrating techniques are used to characterise the noise being measured.

The principal measurement parameters are:

**L<sub>eq</sub>** - represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the measurement period. **L<sub>eq</sub>** is important in the assessment of noise impact as it closely corresponds with how humans perceive the loudness of steady state and quasi-steady state noise sources (such as traffic noise).

**L<sub>90</sub>** – This is commonly used as a measure of the background noise level as it represents the noise level heard in the quieter periods during the measurement interval. The **L<sub>90</sub>** parameter is used to set noise emission criteria for potentially intrusive noise sources since the disturbance caused by a noise source will depend on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the **L<sub>90</sub>** level.

**L<sub>10</sub>** is used in some guidelines to measure noise produced by an intrusive noise source since it represents the average of the loudest noise levels produced at the source. Typically, this is used to assess noise from licenced venues.

**L<sub>max</sub>** is the highest noise level produced during a noise event and is typically used to assess sleep arousal impacts from short term noise events during the night. It is also used to assess internal noise levels resulting from aircraft noise and ground vibration induced noise from railways.

**L<sub>1</sub>** is sometimes used in place of **L<sub>max</sub>** to represent a typical noise level from a number of high-level, short-term noise events.

## 3.2 RATING BACKGROUND NOISE LEVELS

The following table summarises the assessment background noise levels (ABL) adopted for nearby residential receivers.

The day, evening and night periods are as defined in the NPfl, as follows:

- Day - period from 7 am to 6 pm Monday to Saturday or 8 am to 6 pm on Sundays and public holidays
- Evening - the period from 6 pm to 10 pm
- Night - the remaining periods

Background noise monitoring has not been undertaken. As such, the default “minimum” background noise level as detailed in the NPfl has been adopted for each period. Given the location adjacent to a busy road and rail corridor, background noise levels are likely to be higher than the minimum levels adopted. As such, the assessment is conservative.

**Table 2 –Adopted Rating Background Noise Levels**

Receiver	Rating Background Noise Level (dB(A) $L_{eq,period}$ )		
	Day	Evening	Night
Residential receivers surrounding site	35	30	30

## 4 NOISE EMISSION CRITERIA

### 4.1 MECHANICAL PLANT

Noise emissions from mechanical plant are typically assessed in accordance with the NSW EPA Noise Policy for Industry (NPfl).

The NPfl requires noise impacts at residential receivers to be assessed in 3 ways:

- Whether the emitted noise is unreasonably loud relative to ambient background noise (which the EPA calls the “intrusiveness” trigger level).
- Whether the noise emitted is unreasonably loud in an absolute sense, and consistent with surrounding land use and environment. (“amenity” trigger level)
- For night noise emissions, whether discrete noise events are likely to adversely impact sleep (“maximum noise level” trigger levels).

For other receiver types only the amenity trigger level is relevant.

#### 4.1.1 Intrusiveness

The  $L_{eq,15min}$  descriptor is used for the intrusiveness trigger level, and is set at a level that is 5dB(A) above the rating background noise level.

#### 4.1.2 Amenity

Table 2.2 of the NPfI (repeated below) sets out acceptable noise levels for various receiver types.

There are 3 categories of residential receivers - rural, suburban, urban. The nearest residential receivers to the subject site are categorised as "suburban" receivers. Categories for non-residential uses are also indicated in the table.

The NPI typically requires project amenity noise levels to be calculated in the following manner:

$$L_{Aeq,15min} = \text{Recommended Amenity Noise Level} - 5 \text{ dB(A)} + 3 \text{ dB(A)}$$

#### 4.1.3 Maximum Noise Level Assessment

The purpose of this assessment is to identify whether discrete, nighttime noise events have the potential to produce adverse sleep impacts.

Section 2.5 of NPfI recommends the following procedure to assess the potential for adverse sleep disturbance.

*Where the subject development/ premises night -time noise levels at a residential location exceed:*

- *$L_{eq(15min)}$  40 dB(A) or the prevailing RBL ( $L_{90}$ ) plus 5 dB, whichever is the greater, and/or*
- *$L_{max}$  52 dB(A) or the prevailing RBL ( $L_{90}$ ) plus 15 dB, whichever is the greater,*

*a detailed maximum noise level event assessment should be undertaken.*

*The detailed assessment should cover the maximum noise level, the extent to which the maximum noise level exceeds the rating background noise level, and the number of times this happens during the night-time period. Some guidance on possible impact is contained in the review of research results in the NSW Road Noise Policy.*

*Other factors that may be important in assessing the extent of impacts on sleep include:*

- *how often high noise events will occur*
- *the distribution of likely events across the night-time period and the existing ambient maximum events in the absence of the subject development*
- *whether there are times of day when there is a clear change in the noise environment (such as during early-morning shoulder periods)*
- *current scientific literature available at the time of the assessment regarding the impact of maximum noise level events at night.*

*Maximum noise level event assessments should be based on the  $L_{AFmax}$  descriptor on an event basis under 'fast' time response. The detailed assessment should consider all feasible and reasonable noise mitigation measures with a goal of achieving the above trigger levels.*



#### 4.1.4 Summarised NPfl Criteria (Mechanical Plant)

The following table summarises the trigger levels applying at each of the identified “most impacted” receivers. These have been determined based on the NPfl methodology described above and the measured rating background noise levels.

The trigger levels in bold indicate the most stringent trigger level at each location. While the NPfl is typically used to assess noise from mechanical plant, it will also be adopted to assess airborne noise emissions associated with gym operations in lieu of any specific applicable guidelines to noise of that type.

**Table 3 –Project Specific Trigger Levels**

Location/Receiver Type	Time	RBL dB(A) L <sub>90</sub>	Trigger Noise Level (dB(A) L <sub>eq,15min</sub> )		
			Intrusiveness (BG+5)	Amenity	Max Event
(R1,R2) Residential	Day	35	<b>40</b>	48	n/a
	Evening	30	<b>35</b>	43	n/a
	Night	30	<b>35</b>	38	<b>40 L<sub>eq</sub></b> <b>52 L<sub>max</sub></b>
(C1,C2) Commercial	Day	n/a	n/a	<b>63</b>	n/a

#### 4.2 OPERATIONAL NOISE CRITERIA

There are no applicable statutes or guidelines that for noise emissions from the operation of the gym which would include noise generated by patrons and music. Notwithstanding, for the purposes of this assessment to ensure the acoustic amenity of surrounding uses is maintained, a background + 5 noise emission goal has been adopted for residential receivers and the NPfl “Amenity” level for commercial receivers. The noise goals are detailed in Table 3.

### 5 AIRBORNE NOISE PREDICTIONS

#### 5.1 ASSUMPTIONS

Noise emissions from background music played within the gym have been predicted based on measurements of similar gym facilities conducted by this office. It is noted that patron noise is negligible compared to music noise levels. The table below details the spatially averaged background music noise level that has been adopted for this assessment.

**Table 4–Music Noise Source Data (Background Music)**

63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	A-wt
76	82	78	77	76	71	62	64	<b>80</b>

## 5.2 PREDICTED AIRBORNE NOISE EMISSIONS

Noise has been predicted to the facades of external receivers based on the assumed noise level detailed in the previous section and accounts for attenuation due to distance and the acoustic performance of the façade of the proposed gym.

Noise emissions from use of the gym have been predicted to the most impacted receiver adjacent to the site based on the typical music noise spectrum detailed in the previous section. Compliance at this receiver will result compliance at all other receivers located further from the site due to the inherent additional attenuation provided by distance.

**Table 5 -Predicted Airborne Noise Emission Levels**

<b>Receiver</b>	<b>Predicted Noise Level dB(A)<math>L_{eq}</math></b>	<b>Adopted Criteria dB(A)<math>L_{eq}</math></b>	<b>Meets Adopted Noise Emission Goals</b>
Closest residential receiver (R1)	<30 External	35 (Night)	Yes

## 6 SUMMARY OF COMPLYING MITIGATIONS

### 6.1 GENERAL

The following general controls should be adopted to ensure that music/patron noise emissions from use of the site fully complies with the adopted criteria detailed in Section 4 of this report.

- Speakers are to be vibration isolated using Embelton NRD mounts or equal.
- Signs are to be displayed at the entrance to the gym reminding patrons to minimise noise when entering/departing the premises.
- Entry doors should remain closed except for patron and staff ingress/egress.
- Music should be limited to an average sound pressure level of 80dB(A) $L_{eq}$  at any time within the gym premises.

### 6.2 MECHANICAL PLANT

Detailed acoustic review of any proposed mechanical plant (such as air-conditioning) should be undertaken at CC stage, once plant selections and locations are finalised. Compliance with the NSW EPA Noise Policy for Industry 2017 will be achievable using standard acoustic treatments (in duct lining/attenuators, equipment enclosures etc).

## 7 CONCLUSION


A noise impact assessment has been carried out for the proposed Anytime Fitness Gym at 71-73 Davies Road, Padstow.

Noise from gym operations to receivers external to the site has been assessed and is expected to comply with the adopted noise emission requirements.

Any mechanical plant proposed is to comply with the NPfl noise emission requirements detailed in Section 4.1.4.

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

Yours faithfully,

A handwritten signature in black ink, appearing to be 'RF' followed by a long horizontal stroke.

Acoustic Logic Pty Ltd  
Ross Ferraro

