



**Independent Acoustic
Consultancy Practice**

Noise Impact Assessment

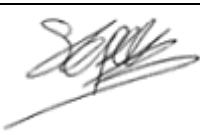
**Pontardawe RFC
Swansea**

7317/NIA1_Draft

Noise Impact Assessment

Project:	Pontardawe RFC
Site Address:	The Clubhouse Ynysderw Road Pontardawe Swansea SA4 4EG
HA Reference:	7317/NIA1_Draft
Date:	05/07/2024
Client:	Pontardawe RFC
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1. INTRODUCTION

We understand that two extensions are proposed to the clubhouse at Pontardawe RFC, Ynysderw Road, Swansea, SA4 4EG.

It is proposed to extend the lounge bar area by an additional 74m² floor area.

At a later date, it is also proposed to extend on the opposite side of the building an additional 256m² to house a function room with stage, bar and ancillary spaces.

The Local Planning Authority have requested a noise impact assessment is submitted to accompany the planning application for both the lounge bar extension and function room extension.

This report focuses on the lounge bar extension - to determine existing background sound levels and predict the noise impact of the lounge bar extension at nearby sound sensitive receivers.

2. CRITERIA

2.1 Planning Conditions

Neath Port Talbot Country Borough Council have imposed the following condition on the development:

4. No development above slab level for each extension hereby approved shall take place until the applicant has undertake an assessment in accordance with BS 8223:2014 - Guidance on sound insulation and noise reduction for buildings which shall be submitted to and approved in writing by the Local Planning Authority, prior to any further development on site. The assessment shall include noise monitoring to determine existing noise levels in accordance with BS7445 and shall reflect the evening and night-time use of the "function room".

The extensions shall be constructed so as to provide sound insulation against internally generated noise not to exceed existing background levels at the nearest noise sensitive receptor, with a schedule of how this is to be achieved. The measures included in the schedule shall be implemented as part of the construction of the extensions fully prior to the first occupation / use of each extension they relate to and thereafter the measures shall be maintained in accordance with the approved details.

Reason: To ensure that the amenities of occupiers of other buildings in the vicinity are protected, and to ensure compliance with Policies SP16, EN8 and BE1 of the Neath Port Talbot Local Development Plan.

3. SOUND SENSITIVE RECEIVERS

In order to set environmental noise limits, it is first necessary to define the existing ambient and background sound climate at the agreed nearest Sound Sensitive Receivers (SSRs).

Figure 3.1 below shows the development site and the closest existing SSRs.

Figure 3.1 – Site Plan Showing Nearest SSRs & Measurement Location



Table 3.1 – Nearest Sound Sensitive Receivers (Distance to Nearest Boundary)

SSR	Description	Distance (m)
1	Residential dwellings to the east of site, located along Ynisdaw Road	22

4. ENVIRONMENTAL NOISE SURVEY

4.1 Procedures

Continuous noise monitoring was carried out from 1100hrs on Friday, 17 May 2024 to 1000hrs on Monday, 20 May 2024 at position A.

Data including L_{Amax} , L_{Aeq} and background L_{A90} was logged at 1 minute intervals over the monitoring period, along with continuous audio and 100ms data to allow source identification and further detailed analysis of results if required.

Site plan in Figure 3.1 above shows the development site and continuous monitoring position used, namely:

Table 4.1 – Continuous Monitoring Location Details

Position	Description
A	Located 17m from clubhouse and 11m from residential dwellings located along Ynisderw Road (SSR1). Meter positioned approx. 3m above local ground height.

Position A's location is to be considered representative of expected noise levels generated by the existing clubhouse due to similar distance.

4.2 Meteorological Conditions

Approximate weather conditions are shown in time history graphs in Figure.1, Figure B.2, Figure B.3 and Figure B.4 of Appendix B.

To summarise, the weather conditions during the monitoring period were dry with an occasional breeze with exception to Saturday which contained heavy precipitation between the period 1500-1600hrs.

4.3 Measurement Equipment

The following measurement equipment was used during the surveys:

Table 4.2 – Noise Monitoring Equipment List

Make	Description	Model	Serial Number	Last Calibrated	Certificate No.
NTi	Type 1 - Sound Level Meter	XL2-TA	A2A-14577-E0	23 June 2022	UK-22 -051
	Preamplifier	MA220	7485	23 June 2022	UK-22 -051
	Microphone Capsule	MC230	A15594	23 June 2022	UK-22 -051
Larson Davis	Calibrator (94.00dB / 114.03dB @ 1kHz)	CAL200	19047	15 August 2023	45153-19047-CAL200

Measurement systems were calibrated before and after the surveys and no variation occurred.

Note: Copies of traceable calibration certificates for all equipment are available upon request.

4.4 Results

The time history graph in Figure B.5 of Appendix B show L_{Amax} , L_{Aeq} and L_{A90} sound pressure levels measured at position A.

Figure B.6 of Appendix B show statistical analysis of background sound levels measured at position A during opening hours.

The following minimum consistent daytime and night-time background L_{A90} sound levels have been determined:

Table 4.3 – Minimum Consistent Background L_{A90} Results

Period	Position A
Daytime (0700-1900hrs) $L_{A90,1hr}$ (dB)	46
Evening (1900-2300hrs) $L_{A90,1hr}$ (dB)	43
Night-time (2300-0030hrs) $L_{A90,15min}$ (dB)	35

The ambient sound climate was typically controlled by distant road traffic noise.

5. ENVIRONMENTAL NOISE CRITERIA

Based on the local planning condition detailed in section 2.1, the internal noise rating level from the clubhouse's operations is to not exceed pre-existing background L_{A90} sound climate at SSR1.

Based on measured background sound levels, the following operational noise criteria are therefore indicated, to be applied at the nearest residential SSRs:

Table 5.1 – Operational Music Noise Limits

Period	SSR1
Daytime (0700-1900hrs) $L_{Aeq,1hr}$ (dB)	46
Evening (1900-2300hrs) $L_{Aeq,1hr}$ (dB)	43
Night-time (2300-0030hrs) $L_{Aeq,15min}$ (dB)	35

6. NOISE IMPACT ASSESSMENT OF LOUNGE BAR EXTENSION

6.1 Proposed Construction

The proposed construction of the lounge bar extension is to comprise of the following:

6.1.1 External walls

365mm cavity walls comprising outer leaf of block rendered to match existing with inner skin of 150mm thermalite/aircrete block or similar with 100mm partially filled cavity (insulation TBC) with residual cavity of 50mm rendered internally with lightweight plaster and hard wall finish.

An INSUL prediction of the proposed masonry construction is shown in Figure C.1, to be used in our breakout assessment.

This proposed external wall construction is similar to the existing external wall construction of the lounge bar.

6.1.2 Roof

Tiles on heavy duty felt on a pitched roof. This proposed roof construction is similar to the existing roof construction of the lounge bar.

The following minimum SRI performance figures are taken from BS 8233:2014: “tiles on felt roof with 100mm mineral wool on plasterboard ceiling” to be used in our breakout assessment:

Table 6.1 – Roof Sound Reduction Index Figures

Description	Sound Reduction Index dB R (BS EN ISO 10140-2:2010) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Pitched Roof	(17)	28	34	40	45	49	49

6.1.3 Glazing

2no bifold doors are proposed for the extension, the doors are located on the less critical south-west and north-west facades, facing away from the sound sensitive receivers. UPVC with low ‘E’ 4mm: 16mm: 4mm glazing.

Glazing sound reduction performances have been sourced from Pilkington test data and are shown in the following table, to be used in our breakout assessment.

Table 6.2 - Glazing Sound Reduction Index Figures

Description	Sound Reduction Index dB R (BS EN ISO 10140-2:2010) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Glazing: 4 mm / (6 - 16 mm) / 4 mm	(17)	21	17	25	35	37	31

6.1.4 Door

On the north-eastern façade, a new external door is proposed. To limit noise breakout from this door, the door is required to be solid with perimeter and threshold seals. The door sound reduction figures used in our assessment is detailed below.

Table 6.3 – Door Sound Reduction Index Figures

Description	Sound Reduction Index dB R (BS EN ISO 10140-2:2010) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Solid-core door: 40mm with perimeter and threshold seals	(12)	19	22	26	24	23	20

6.2 Lounge Bar Noise Activity

6.2.1 Events

Three events took place over the monitoring period.

On Friday 17/05/2024 between the period 1830-2000hrs and 2140 – 2315hrs, a live singer with a guitar and kick drum was detected on the audio analysis playing in the lounge area of the clubhouse.

On Saturday 18/05/2024, a DJ event took place in the lounge. This event was not audible at Position A throughout the duration of the event, it is likely the residual level (road traffic) was controlling the ambient level.

On Sunday 19/05/2024 between the period 1300-1500hrs, a children's entertainment party was held outside the back of the clubhouse. The soundscape comprised of amplified music and children playing. This event has not been included for in our assessment as it does not apply to the clubhouse's lounge extension i.e. it was an external event.

Based on discussions with the client, the above events were deemed typical of events held at the clubhouse.

During the summer and winter months, it is estimated an average of 4no and 2no events respectively per month are held in the lounge.

6.2.2 Operational Hours

The current licensing hours permitted (Premises licence number PREM-0670) for the clubhouse are shown in the following table:

Table 6.4 – Operational Hours

Licensable Activities	Period
Films: Indoors and Outdoors (subject to condition)	Monday to Sunday 0800-0030hrs
Indoor Sporting Events	Sunday to Thursday 1000-0000hrs Friday and Saturday 1000-0030hrs
Live Music: Indoor and Outdoors	Sunday to Thursday 1000-2330hrs Friday and Saturday 1000-0030 Bank Holiday Sunday 1000-0000hrs
Recorded Music: Indoors and Outdoors	Sunday to Thursday 1000-2300hrs Friday and Saturday 1000-0030hrs Bank Holiday Sunday 1000-0000hrs
Performance of Dance: Indoors and Outdoors	Sunday to Thursday 1000-2330hrs Friday and Saturday 1000-0030hrs Bank Holiday Sunday 1000-0000hrs
Entertainment like music/dance: Indoors and Outdoors	Sunday to Thursday 1000-2330hrs Friday and Saturday 1000-0030hrs Bank Holiday Sunday 1000-0000hrs

7. MUSIC LIMITS FOR LOUNGE BAR EXTENSION

Music limits are proposed for the lounge bar extension to satisfy the planning condition.

To calculate the internal limits, our analysis has used the proprietary Predictor (v2023.1) computer modelling software, in conjunction with procedures of ISO 9613.

This model allows noise levels from noise sources (including building facades) to be predicted over large distances and varying terrain. Attenuation is included accounting for distance, air absorption, ground absorption and screening losses from site topography/local structures.

Proposed building fabric of the lounge bar used in our breakout assessment is detailed in section 6.1.

In accordance with the planning condition, event noise levels are to not exceed the critical background sound level measured as detailed in Table 4.3. This has been separated into limiting levels to cover the daytime/evening along with night-time limits (i.e. after 2300hrs).

The following internal limits have been calculated to be the maximum levels permissible to not exceed the existing background noise level at all noise sensitive receivers:

Table 7.1 – Proposed Music Limits Inside Lounge/Bar

Period	L_{Prev} (dB)	L_{Prev} at Octave Band Centre Frequencies, Hz (dB)							
		63	125	250	500	1000	2000	4000	8000
Daytime & Evening (1000-2300hrs)	95	100	95	95	90	90	85	85	80
Night (2300-0030hrs)	89	91	88	86	85	85	80	80	75

The above internal noise limits are considered to be reasonable given the lounge bar's operations.

It is recommended that these limits are confirmed with a music noise breakout test by a Suitably Qualified Acoustician once the lounge extension is complete.

Noise map models of our breakout assessment are shown below in Figure 7.1 and Figure 7.2 for day/evening and night-time periods respectively.

Figure 7.1 – Predicted Day/Evening L_{Aeq} Breakout at 1.5m Above Ground Height

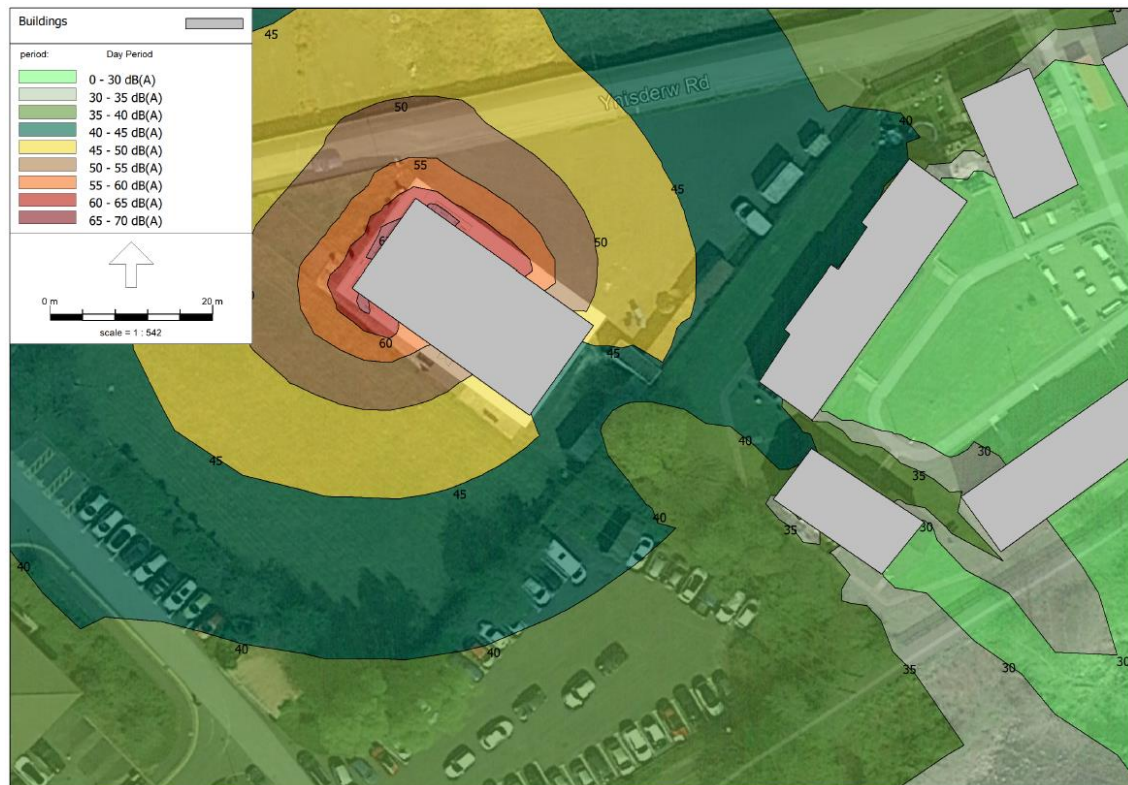
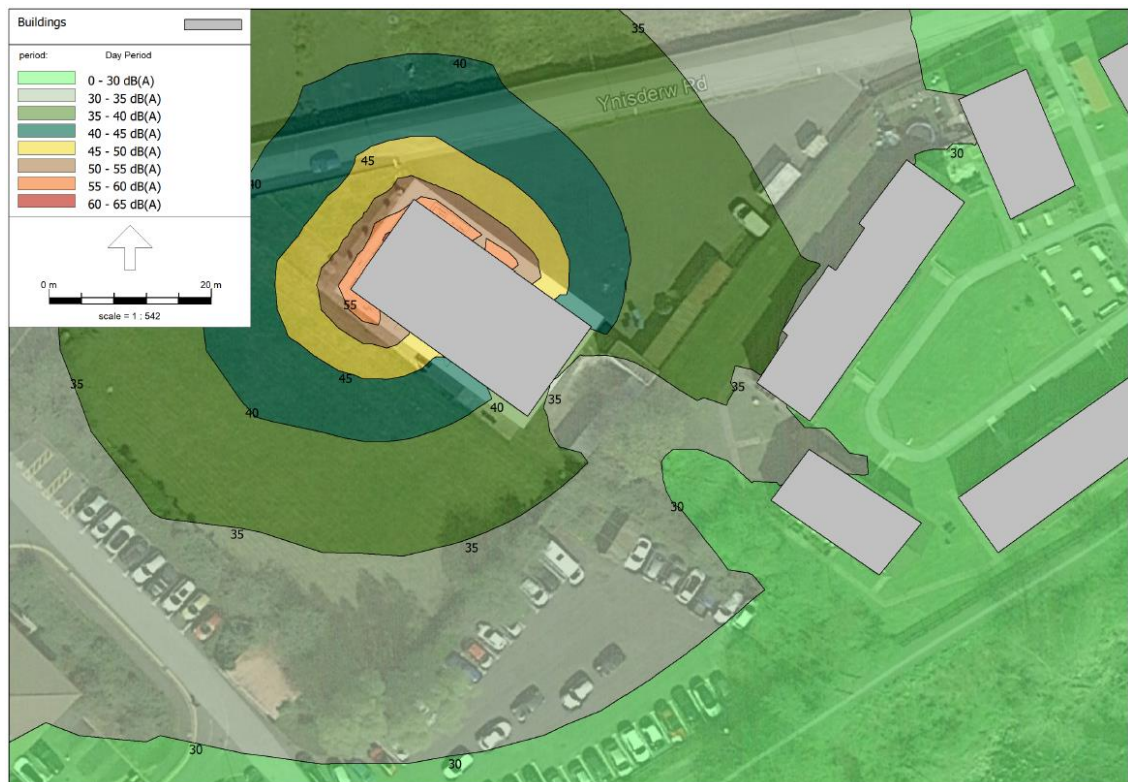


Figure 7.2 – Predicted Night L_{Aeq} Breakout at 1.5m Above Ground Height



To achieve these limits, all doors and windows to the lounge bar are required to be closed when lounge bar events containing music take place.

8. FUNCTION ROOM

We understand the function room to the south-east is to be constructed at a later date in a new extension.

This room is to be located closer to the residential flats and is proposed to contain a stage, bar and large event area. It is anticipated very high music noise levels are to be generated in here (i.e. full live band) which would likely increase the noise levels at the sound sensitive receivers.

The function room is therefore likely to require a high-performance masonry box in box solution with a concrete roof to provide the necessary high level of sound insulation, along with an attenuated mechanical ventilation system to ventilate the space without the need to open windows.

A detailed review of the function room's external building fabric should be carried out by a Suitably Qualified Acoustician when the design develops.

9. CONCLUSION

A noise impact assessment has been carried out for the proposed extension of the clubhouse at Pontardawe RFC, The Clubhouse, Ynysderw Road, Swansea, SA4 4EG.

A survey was carried out to capture the existing background noise levels experienced at sound sensitive receivers along with existing clubhouse activities.

A noise breakout assessment has been carried out to determine the predicted impact of the clubhouse's Lounge extension. Sound insulation measures of the Lounge extension have been highlighted and specifications for external wall, roof, glazing and doors are included.

Internal noise limits have been proposed to prevent noise generated in the lounge bar exceeding existing background levels at the nearby sound sensitive receivers.

All windows and doors to the lounge bar are required to be closed to control music breakout.

With the above conditions in place, the lounge bar extension is indicated to meet the requirements of the planning condition however these should be confirmed with a music noise breakout test by a Suitably Qualified Acoustician once the lounge extension is complete.

We understand the function room extension is to be completed at a later date. This is discussed in Section 8. It is likely to require high performance masonry box in box solution with concrete roof and attenuated mechanical ventilation system to control high levels of music noise breakout.

A detailed review of the function room's external building fabric should be carried out by a Suitably Qualified Acoustician when the design develops.

APPENDIX A - ACOUSTIC TERMINOLOGY

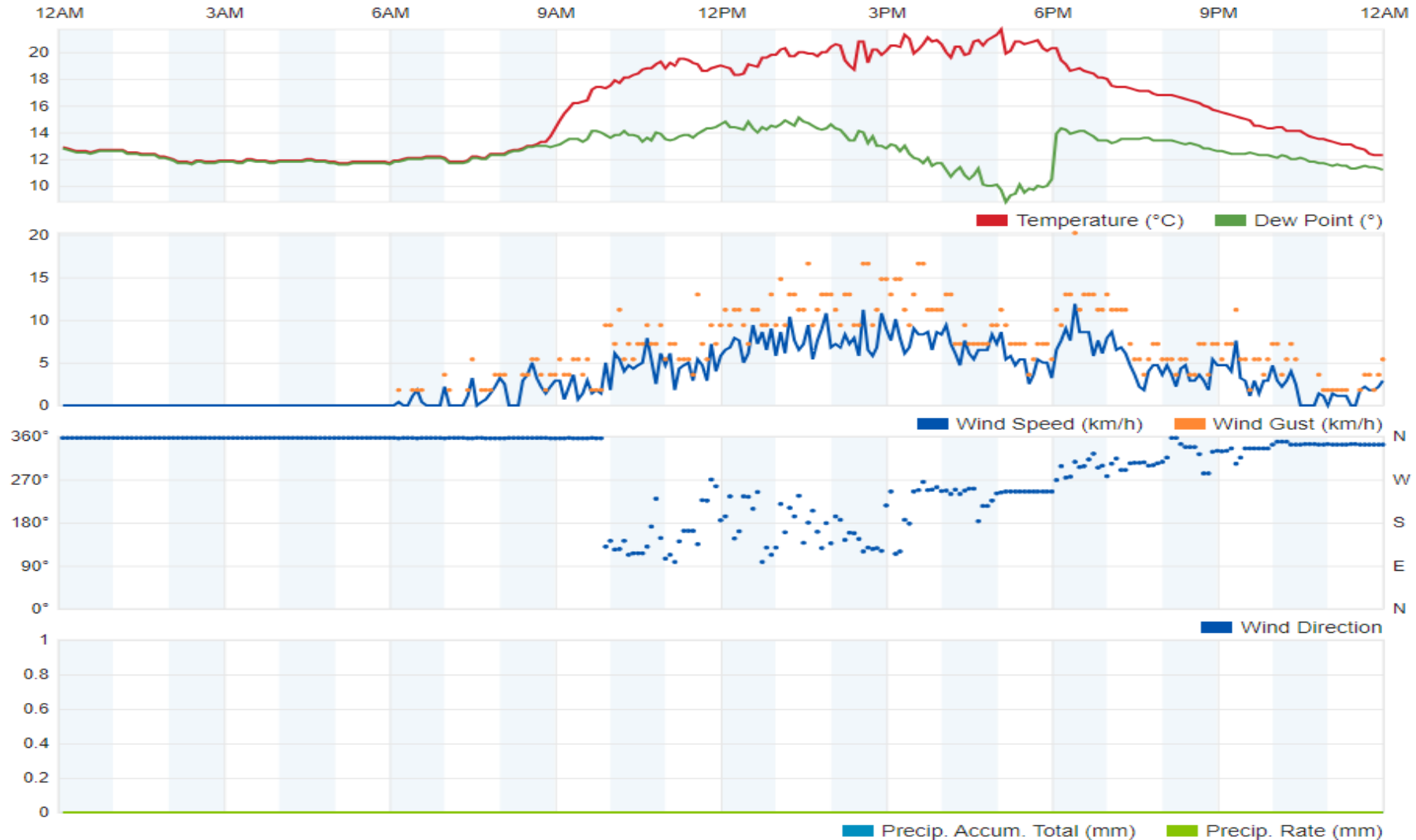
Human response to noise depends on a number of factors including loudness, frequency content and variations in level with time. Various frequency weightings and statistical indices have been developed in order to objectively quantify 'annoyance'.

The following units have been used in this report:

dB(A)	The sound pressure level A-weighted to correspond with the frequency response of the human ear and therefore a persons' subjective response to frequency content.
L_{eq}	The equivalent continuous sound level is a notional steady state level which over a quoted time period would have the same acoustic energy content as the actual fluctuating noise measured over that period.
L_{max}	The highest instantaneous sound level recorded during the measurement period.
L_{10}	The sound level which is exceeded for 10% of the measurement period. i.e. The level exceeded for 6 minutes of a 1 hour measurement.
L_{90}	The sound level which is exceeded for 90% of the measurement period. i.e. The level exceeded for 54 minutes of a 1 hour measurement - used as a measure of background noise.
$L_{Ar,Tr}$	The 'rating' level, as described in BS 4142:2014 – the specific noise plus any adjustment for the characteristic features of the noise.
SSR	Sound sensitive receiver

APPENDIX B - DIAGRAMS, GRAPHS AND TABLES

Figure.1 – Approximate Weather History for Friday, 17 May 2024



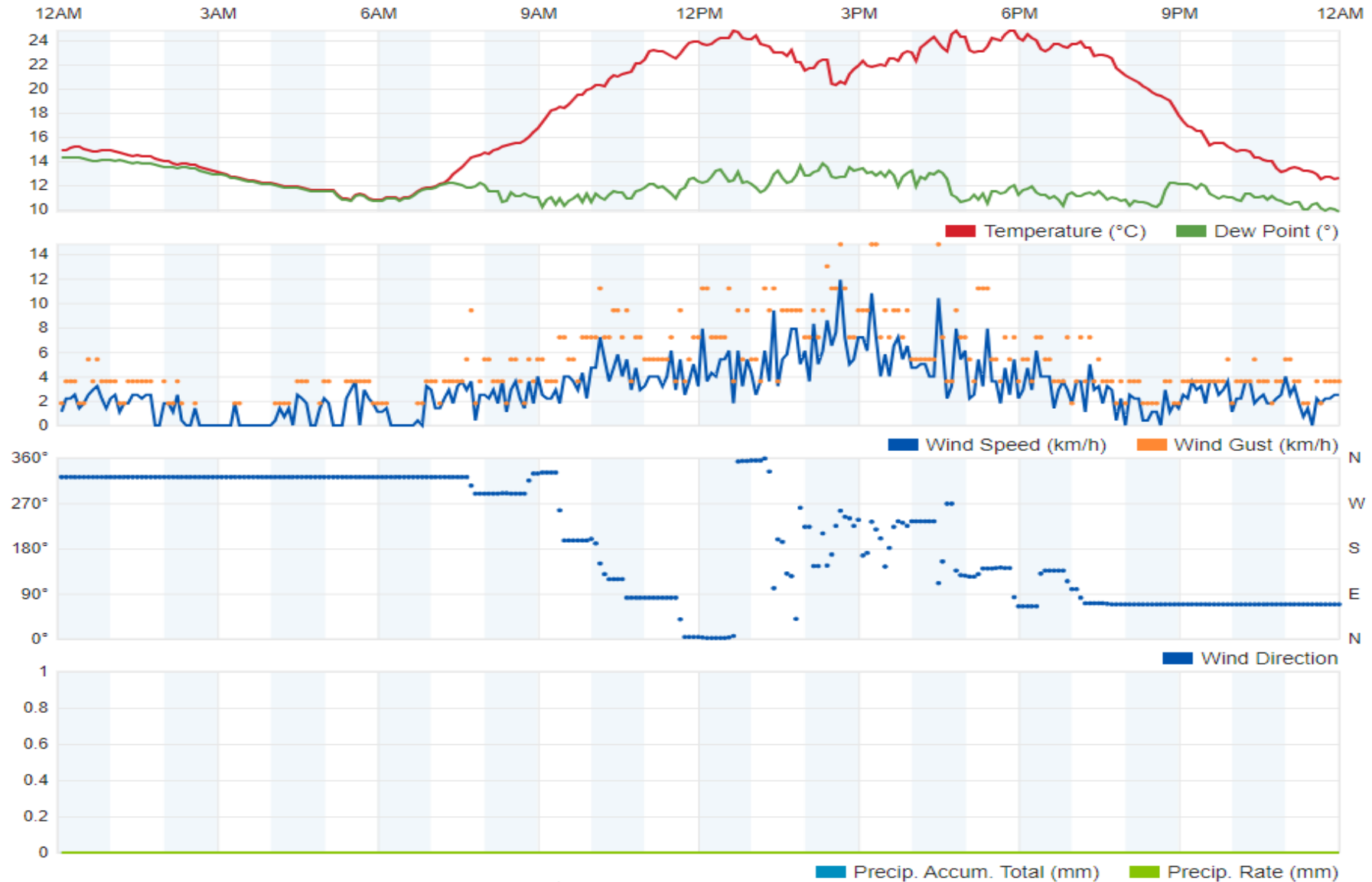
Note: Taken from www.wunderground.com - weather station ISWANS126 located in Pontardawe [Elev 138 m, 51.72 °N, 3.86 °W]

Figure B.2 – Approximate Weather History for Saturday, 18 May 2024



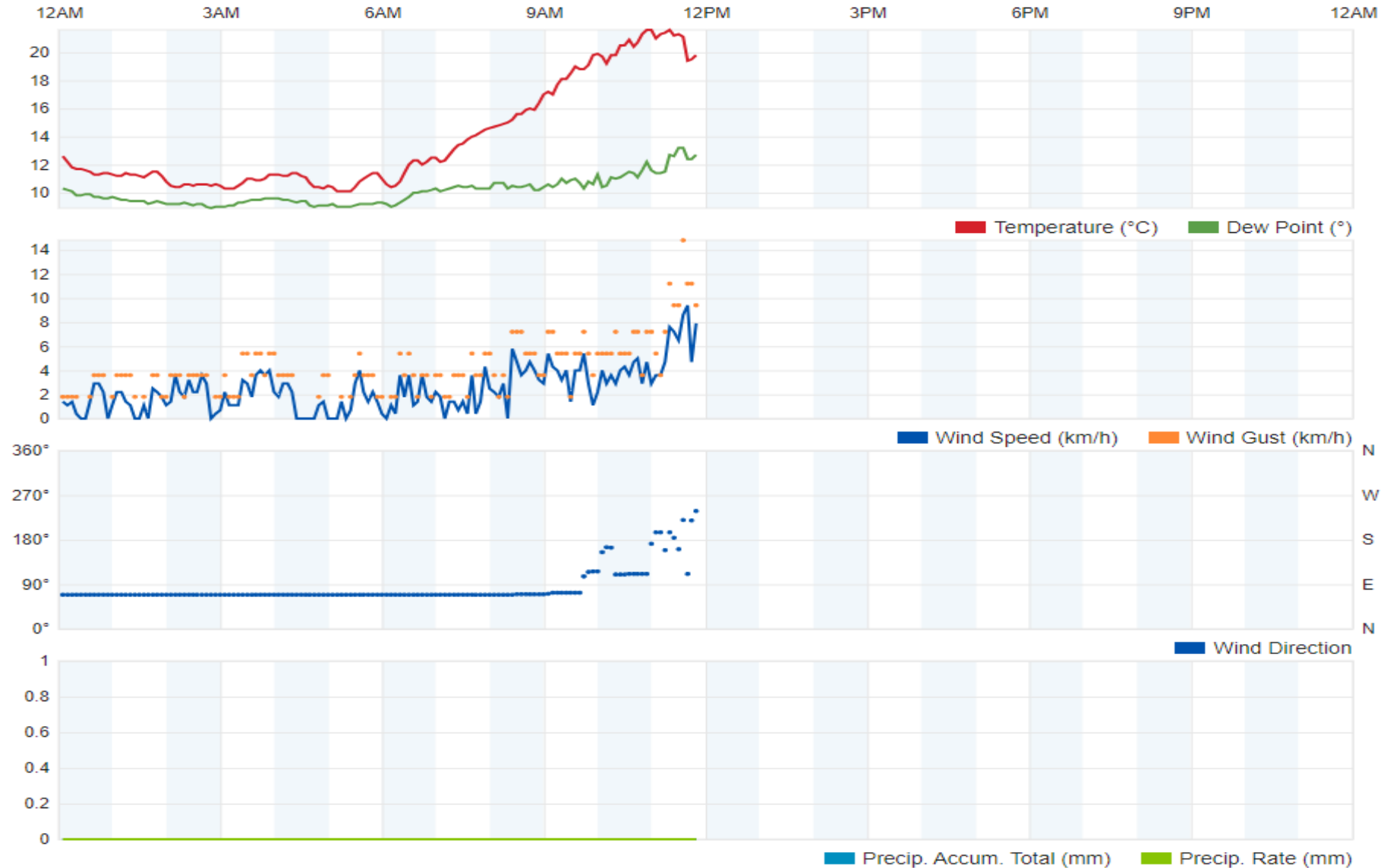
Note: Taken from www.wunderground.com - weather station ISWANS126 located in Pontardawe [Elev 138 m, 51.72 °N, 3.86 °W]

Figure B.3 – Approximate Weather History for Sunday, 19 May 2024



Note: Taken from www.wunderground.com - weather station ISWANS126 located in Pontardawe [Elev 138 m, 51.72 °N, 3.86 °W]

Figure B.4 – Approximate Weather History for Monday, 20 May 2024



Note: Taken from www.wunderground.com - weather station ISWANS126 located in Pontardawe [Elev 138 m, 51.72 °N, 3.86 °W]

Figure B.5 – Time History at Position A (Friday, 17 May 2024 to Monday, 20 May 2024)

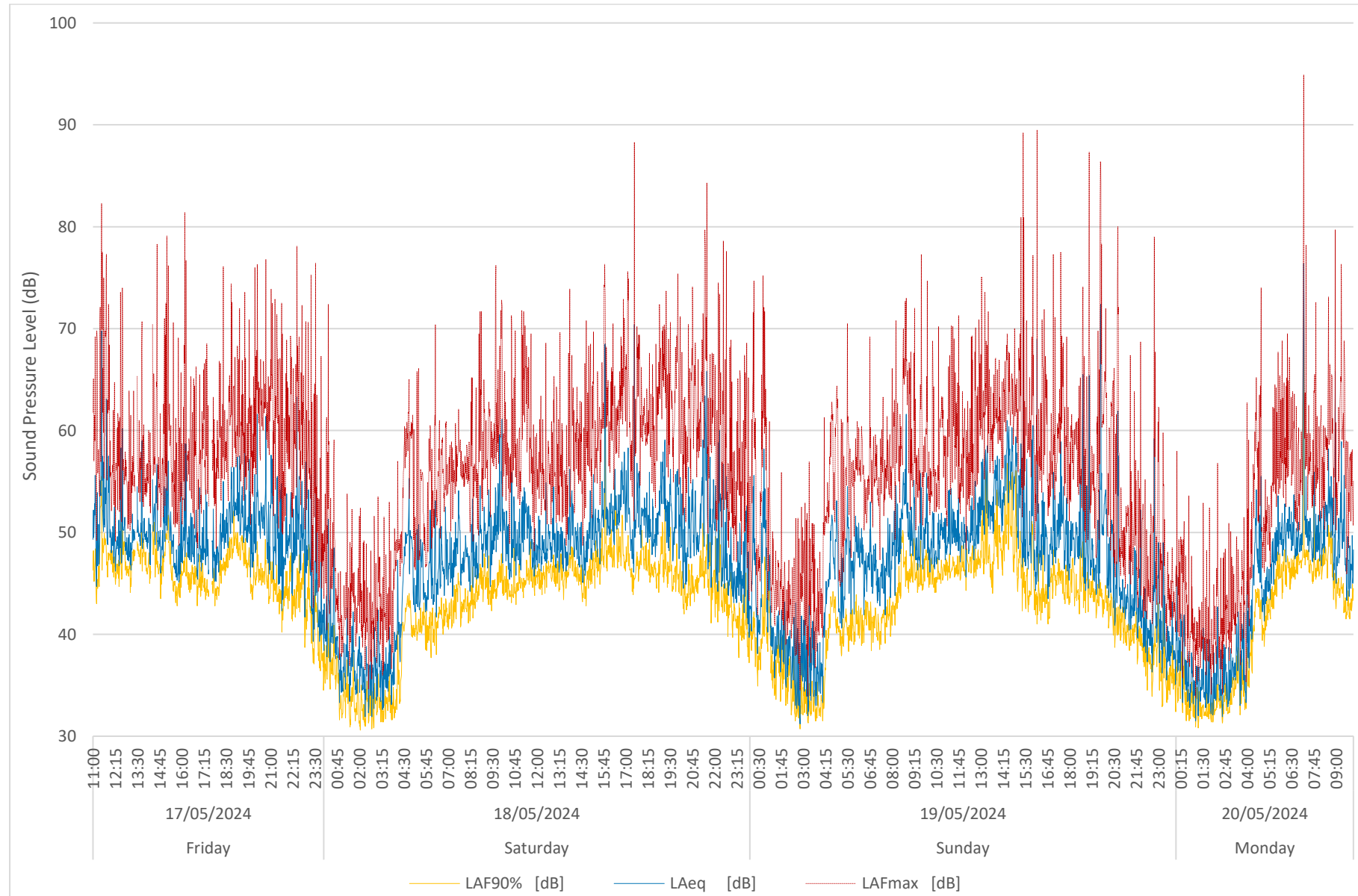
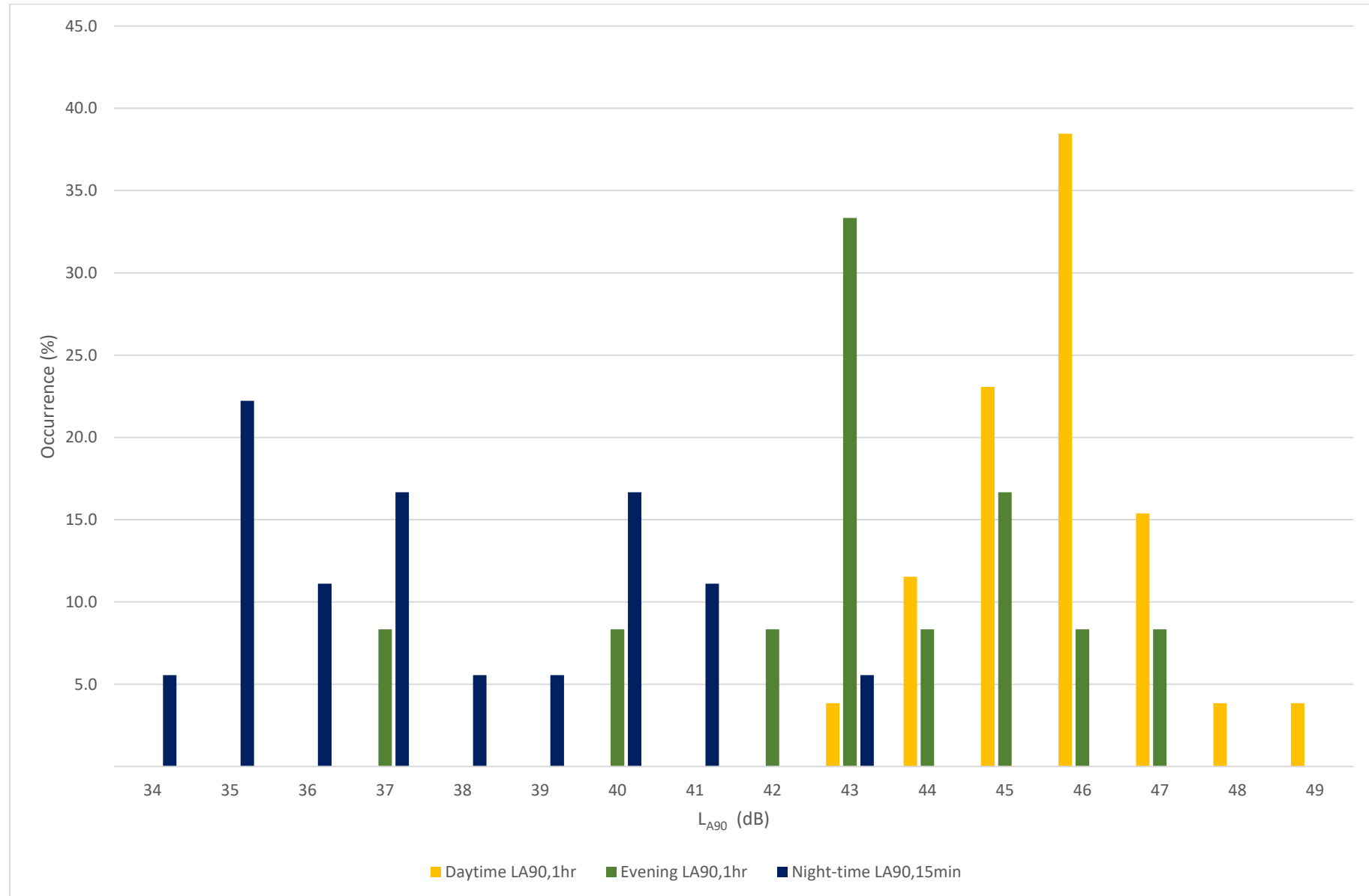


Figure B.6 – Statistical Analysis of Background Sound Levels Measured at Position A



APPENDIX C – INSUL SOUND INSULATION PREDICTIONS

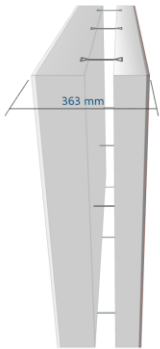
Figure C.1 – External Wall: Masonry Noise Prediction

Sound Insulation Prediction (v10.0.0.2)

Program copyright Marshall Day Acoustics 2017 | Margin of error is generally within $R_w \pm 3$ dB

Date: 05/07/2024

Job Name:



R_w 43 dB

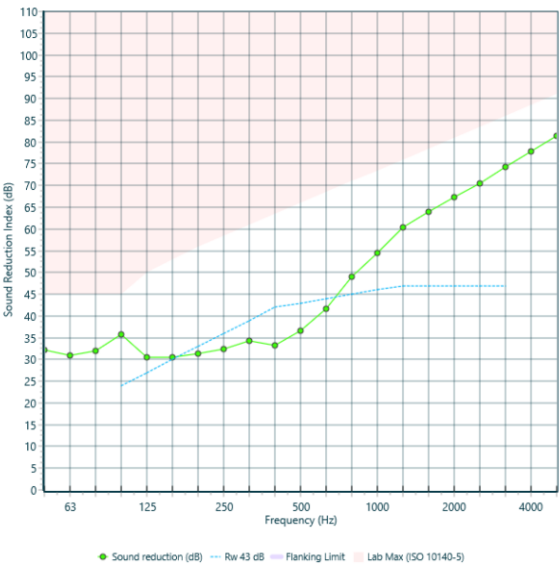
C -1 dB

Ctr -4 dB

System description

Panel 1 1 x 12.5 mm Gyproc Wallboard 12.5mm + 1 x 150 mm Aerated Concrete Block
Frame Butterfly Tie (90 mm) + (Empty cavity)
Panel 2 1 x 100 mm Concrete Block + 1 x 10 mm Sand/Cement render (plaster)
Details Panel Size 2.7 m x 4.0 m, Partition surface mass = 298 kg/m², Mass-air-mass resonant frequency = 22 Hz

freq.(Hz)	R(dB)	Roct (dB)
50	32	
63	31	32
80	32	
100	36	
125	31	32
160	30	
200	31	
250	32	32
315	34	
400	33	
500	36	36
630	42	
800	49	
1000	54	52
1250	60	
1600	64	
2000	67	66
2500	70	
3150	74	
4000	78	77
5000	81	



APPENDIX D - DRAWING LISTS

The following drawings (author unknown) have been used in our assessment:

Table D.1 – Drawing List

Drawing Title	Drawing Number	Date
EXISTING ELEVATIONS	Ponty RFC BR 1	26.06.22
PROPOSED ELEVATIONS	Ponty RFC BR 2	26.06.22
EXISTING AND PROPOSED FLOOR PLANS	Ponty RFC BR 3	30.04.24
SECTION A - A.	Ponty RFC BR 4	30.04.24
GROUND FLOOR PLANS AS PROPOSED	Ponty RFC 3	26.06.22