Vine Acoustics Ltd | Cams Hall | Fareham | Hampshire | PO16 8AB

Noise Impact Assessment undertaken by:

Michael D Vine – BSc Hons, MIOA

NOISE IMPACT ASSESSMENT FOR

JB ARCHITECTURAL DESIGN STUDIO LTD
C/O 212-218 LONDON ROAD
WATERLOOVILLE
HAMPSHIRE
PO7 7AJ

SITE ADDRESS

PROPOSED 12 X BEDROOM HMO, 8 X FLATS AND COMMERCIAL USE
212-218 LONDON ROAD
WAERLOOVILLE
HAMPSHIRE
PO7 7AJ

ASSESSMENT DATE: 20TH – 23RD NOVEMBER 2025
DELIVERIES – 5TH FEBRUARY 2026
9TH – 12TH & 15TH – 16TH FEBRUARY 2026

REPORT DATE: 19th FEBRUARY 2026

Acoustic Engineer: [redacted] Testing Date: 20th – 23rd November 2025

Michael Vine

VINE ACOUSTICS LIMITED – NOISE IMPACT ASSESSMENT

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VINE ACOUSTICS LIMITED – NOISE IMPACT ASSESSMENT

Customer Name:

Testing Date: 20th – 23rd November 2025
5th, 9th – 12th & 15-16th February 2026
Report Date: 19th February 2026

JB Architectural Design Studio Ltd
C/O 212-218 London Road
Waterlooville
Hampshire
PO7 7AJ

Site Address:

212-218 London Road
Waterlooville
Hampshire
PO7 7AJ

Acoustic Engineer:

Mr. Michael Vine

Equipment used:

Norsonic Environmental Analyser 140 BS EN IEC 61672-1 2013 Class 1 – Associated frequency analyser to BS EN IEC 61260: 1996 Class 1 – serial 1407126 – calibration due March 2026

Measurement Microphone (Nor 1225) – Serial Number 305215 – calibration due March 2026

Acoustic Calibrator - (Type 1251) – Serial No 31652, Calibration due November 2026

Measurement Procedure:

The purpose of this noise impact assessment is to assist with the proposed planning application shown below & to provide suitable mitigation measures to ensure the future residents are protected from the local noise sources apparent:

Site Address: 212-218 London Road, Waterlooville, Hampshire, PO7 7AJ

Proposal: Subdivision and part-retention of the ground floor for commercial use (Class E), 8 x new residential flats (Class C3) at ground floor (3no) & 1st floor level (5no), new roof extension providing a second 12-bed HMO, over the 2nd & 3rd floor with third-storey roof addition.

An unattended assessment measuring the current acoustic climate over a 24-hour period in one microphone location was undertaken to determine the ambient noise levels at the proposed front façade for 24hours (Western façade) of the proposed development site, to the front of proposed scheme facing London Road. The assessment took place between 1012hrs on Thursday 20th to 1012hrs on Friday 21st November at the front. Further attended and unattended measurements were taken at the rear façade of the scheme (Monday 9th to Thursday 12th and Sunday 15th to Monday 16th February 2026) and some attended measurements were undertaken to directly measure the noise associated with deliveries to the petrol filling station (PFS) and Wickes DIY superstore. These took place during live deliveries on site. Additional measurements were taken from Enterprise car rental & the condensers at the rear of the PFS.

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Assessment Criteria:

The National Planning Policy Framework (NPPF) came into effect in March 2012 and was updated in December 2024. It replaced other documents such as PPG24. The NPPF provides several objectives and aims that are directed towards avoiding significant adverse impacts and reducing others on quality of life and health. This document states that:

Paragraph 187 states Planning policies and decisions should contribute to and enhance the natural and local environment by:

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, considering relevant information such as river basin management plans.

Paragraph 198 states - Planning policies and decisions should also ensure that new development is appropriate for its location considering the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

a) mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;
b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and
c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes, and nature conservation.

Paragraph 200 - Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues, and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

The Planning Practice Guidance has guidance on noise, dated 22nd July 2019, and has the noise hierarchy table as shown below. Paragraphs 009 & 011 are referenced later in this report.

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Response	Examples of outcomes	Increasing effect level	Action
No Observed Effect Level			
Not present	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

NOEL – No Observed Effect Level This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to noise.

LOAEL – Lowest Observed Adverse Effect Level This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level This is the level above which significant adverse effects on health and quality of life occur.

The NPSE (Noise Policy Statement for England) states the following aims with respect to noise policy:

Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of the Government policy on sustainable development:

avoid significant adverse impacts on health and quality of life;
mitigate and minimise adverse impacts on health and quality of life; and
where possible, contribute to the improvement of health and quality of life.

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PROPG: PLANNING & NOISE (2017) NEW RESIDENTIAL DEVELOPMENT [PROPG 2017]

The ProPG Planning & Noise document was published in 2017, its development supported by the Institute of Acoustics, the Association of Noise Consultants, and the Chartered Institute of Environmental Health. The aim of the document is to provide practitioners with guidance on a recommended approach to the management of noise within the planning system in England.

ProPG advocates a systematic, proportionate risk-based, 2 stage approach which:

1. Encourages early consideration of noise issues;
2. Facilitates straightforward accelerated decision making for lower risk sites;
3. Assists proper consideration of noise issues where the acoustic environment is challenging.

A summary of the overall ProPG approach is included in Appendix B. The two sequential stages of the overall approach are:

1. Stage 1 – an initial noise risk assessment of the proposed development site; and
2. Stage 2 – a systematic consideration of four key elements.

The four key elements to be undertaken in parallel during Stage 2 are:

1. Element 1 – demonstrating a "Good Acoustic Design Process";
2. Element 2 – observing internal "Noise Level Guidelines";
3. Element 3 – undertaking an "External Amenity Area Noise Assessment"; and
4. Element 4 – consideration of "Other Relevant Issues".

The approach is underpinned by the preparation and delivery of an "Acoustic Design Statement" [ADS]. The ADS is intended to conclude in the provision of one of the following four recommendations to the decision maker:

1. Planning consent may be granted without any need for noise conditions;
2. Planning consent may be granted subject to the inclusion of suitable noise conditions;
3. Planning consent should be refused on noise grounds in order to avoid significant adverse effects ("avoid"); or
4. Planning consent should be refused on noise grounds in order to prevent unacceptable adverse effects ("prevent").

The overall ProPG 2017 approach is intended for implementation with projects at an earlier stage than the subject of this report. This report provides a full noise mitigation strategy for the site, rather than an initial recommendation to the decision maker.

ProPG 2017 contains the most up to date guidance available on industry-wide adopted best-practice interpretation of relevant guidance regarding acceptable internal and external noise levels i.e., BS8233:2014 and WHO Guidelines.

WHO GUIDELINES FOR COMMUNITY NOISE (1999)

The guidance in this document recommends design criteria for internal noise levels within residential and commercial buildings. A summary of the recommended guidance is shown in Table 2.1. **Table 2.1 – Excerpt from WHO [dB ref. 20µPa]**

Criterion	Environment	Design range LAeq, T dB
Maintain speech intelligibility, avoid moderate annoyance, daytime & evening	Living Rooms	35
Prevent sleep disturbance, night time	Bedrooms	30

This guidance also states:

For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45dB $L_{Amax,F}$ more than 10-15 times a night (Vallet & Vernet 1991)

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For outdoor living areas, it is stated that:

To protect the majority of people from being seriously annoyed during the daytime, the outdoor sound level from steady, continuous noise should not exceed 55dB L_{Aeq} on balconies, terraces and in outdoor living areas. To protect the majority of people from being moderately annoyed during the daytime, the outdoor sound level should not exceed 50dB L_{Aeq}. Where it is practical and feasible, the lower outdoor sound level should be considered the maximum desirable sound level for new development.

BS8233:2014 GUIDANCE ON SOUND INSULATION AND NOISE REDUCTION FOR BUILDINGS

The guidance in this document indicates acceptable noise levels for various activities within residential dwellings. A summary of the recommended guidance is shown in the following table as listed in BS8233: 2014

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living Room	35 dB LAeq, 16 hour	-
Dining	Dining Room	40 dB LAeq, 16 hour	-
Sleeping (daytime resting)	Bedroom	35 dB LAeq, 16 hour	30 dB LAeq, 8 hour

Pro PG document states the following for $L_{Amax,F}$ noise levels.

An indication that there may be more than 10 noise events at night (2300 – 0700) with $L_{Amax,F}$ > 60 dB means the site should not be regarded as negligible risk.

The WHO guidance states the following regarding frequency of events: For a good sleep, internal maximum noise levels should not exceed 45dB L_{Amax} more than **10–15 times per night**. Therefore, the calculations used in this assessment are the numbers of events not exceeding 10 times between the hours of 2300-0700hrs – measured in F time-weighting – $L_{Amax,F}$

BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound states that:

1- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.

2- A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.

3- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level this is an indication of the specific sound source having a negligible impact, depending on the context.

The local authority listed the criteria below for the Noise Impact Assessment in a pre-application response to thew scheme.

Overall it is considered that provided a Noise Assessment can demonstrate that noise and ventilation issues can be successfully mitigated for future occupiers, then with some careful minor revisions, it is considered likely that the proposed mixed use development would be able to satisfactorily demonstrate an adequate standard of living and amenity can be provided for future residents, whilst having no harm on neighbouring amenity, in accordance with Policies CS16 and DM10.

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Executive Summary:

Vine Acoustics Ltd were instructed by JB Architectural Design Studio Ltd on behalf of the building owner to undertake a Noise Impact Assessment (NIA) at 212-218 London Road, Waterlooville. A planning application is to be made to convert the existing building into a 12-x bedroom HMO (2nd & 3rd floors), with a commercial unit remaining at ground floor level and the addition of 3 x residential flats at ground floor level & a further 5 x flats at 1st floor level. The site will be extended by 2 x additional storeys to accommodate the scheme. The microphone locations were used to determine the impact of the following noise sources on the proposed dwellings:

1. Noise associated with London Road – Front façade (Western)
2. Noise associated with Petrol Filling Station, car rental garage, rear office & Wickes DIY store (Northern & Eastern)

After correspondence with the LPA additional assessments have been carried out for the rear elevation to assess the commercial noise sources in operation in this location. It is clear however that road noise is the dominant noise source apparent at the site. This report will address the noise sources listed above and has been written to assess the impact of the noise sources on the proposed mixed-use scheme, in particular the bedrooms that will be located on both the Western & Eastern facades at Ground, 1st, 2nd & 3rd floor. The proposed bedrooms & dwellings should not be adversely affected by the noise associated with the immediate area providing the necessary mitigation measures are implemented to the scheme. The measured noise levels are consistent with the site near the noise sources listed above. The conclusions of this report illustrate that the noise associated with the immediate area will not have an adverse impact on the proposed residential scheme, providing that suitable mitigation measures are implemented to the proposed scheme. It is recommended that the scheme be fitted with an alternative ventilation system such as MVHR with summer cooling, acoustic wall ventilation, or acoustic trickle vents to assist with periods when windows are closed. However, to strike a balance between noise, overheating & ventilation it is anticipated that future residents of the scheme should be able to ventilate the bedrooms naturally by opening windows on various elevations throughout the day time and night time period. Both the measured & calculated levels indicate a generally low to moderate impact on large parts of the proposed scheme with lengthy periods whereby the rooms can be naturally ventilated via open windows without leading to an adverse impact. The rooms located to the rear are exposed to lower noise levels than the front, but in reality the rear rooms could be naturally ventilated for longer without it leading to an adverse impact.

Therefore, the scheme can be naturally ventilated with open windows for periods of the day time and night time. The measures to be taken by the client should ensure a satisfactory acoustic climate for the future residents of the proposed scheme.

The immediate area is in a mixed-use location with dwellings located to the front of the scheme, on the other side of London Road, some commercial buildings to the South, the petrol filling station to the North and an office building to the East (rear).

There are existing residential dwellings located in similar locations to the proposed, along London Road.

For the rear elevation, noise levels were measured for a 3-4day period during the week and a Sunday evening and Monday morning periods to ascertain the background noise levels at various parts of the week and weekend.

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Acoustic Design Statement:

The measured average levels are moderate and constant throughout the measurement duration. The necessary noise criteria should be achieved by suitable mitigation measures for the building façade & glazing. The client will take steps and implement mitigation measures to ensure the impact of the external & internal noise should not have an adverse impact on the future residential dwelling. These steps include:

1 Install a robust glazing system to the scheme to protect the residents from external noise emissions when closed
2 Thermal mass offered by the building fabric
3 Alternative ventilation system installed to dwellings to ensure ventilation when windows closed – MVHR with summer bypass for dwelling facing the road & acoustic trickle vents for dwellings to the rear
4 Orientation of noise sensitive rooms – some bedrooms & flats located to the rear
5 No windows on Northern elevation

The initial risk assessment has indicated that the day time noise levels for the proposed scheme fall into the medium-to-high category for the front. The calculated & measured levels at the rear of the scheme fall into the low category at the rear (due to screening and location). Pro PG states that for medium categories *'High noise levels indicate that there is an increased risk that development may be refused on noise grounds. This risk may be reduced by following a good acoustic design process that is demonstrated in a detailed ADS. Applicants are strongly advised to seek expert advice.*

As noise levels increase, the site is likely to be less suitable from a noise perspective and any subsequent application may be refused unless a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised, and which clearly demonstrate that a significant adverse noise impact will be avoided in the finished development.'

A robust & comprehensive ADS has been applied to the scheme. This is the case as can be seen above. The ADS for this scheme included robust & comprehensive mitigation measures that will ensure a suitable acoustic criterion for the future residents of the scheme.

The alternative ventilation system are not designed to ensure BS8233: 2014 compliance in isolation but offer suitable levels of ventilation during periods when windows maybe closed, but it is anticipated that the scheme can be naturally ventilated with open windows for periods of the day time and night time periods, and it is essential that a balance is struck between noise, ventilation and overheating as there will clearly be periods of the day time and night time that the dwellings will not be adversely affected by the noise sources.

The rear elevations will be compared to the commercial noise levels measured at the nearby PFS and DIY superstore along with other sources. The combined values will then be compared to the background noise levels (L_{A90}) during opening hours of the neighbouring sources.

Venue	Hours of operation	Distance to receptor	Screened
PFS	0600-2200hrs	25m	Partially
Wickes DIY Superstore	0700-2000hrs Monday to Saturday 1000-1600hrs - Sunday	60m	Partially
Enterprise Car Rental	0800-1800 – Monday to Friday 0900-1200hrs - Saturday	30m	Partially
Condensers	As per PFS	15m	Partially

All calculations indicate that the proposed residents will not be adversely affected by the noise sources in operation at the site providing suitable mitigation measures are implemented. The dominant noise source is road traffic, and this is reflected in the calculations.

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VINE ACOUSTICS LIMITED – NOISE IMPACT ASSESSMENT

1 Objective:

1.1 To demonstrate that the noise associated with the immediate area will not have an adverse impact on the proposed residential scheme. A planning application is to be made to convert the existing building into a 12-x bed HMO with the bedrooms located at 2nd & 3rd floor (11x bedrooms at 2nd floor & 1 x bedroom at 3rd floor level), and the commercial/retail units remaining at the ground floor, along with 3 x flats, and a further 5 x flats at 1st floor level.

1.2 This report will account for noise emissions produced from London Road at the front & the petrol filling/DIY superstore/car rental garage & condenser units to the North. The scheme will include comprehensive mitigation measures to reduce the impact of the sources and ensure a suitable internal acoustic environment and a balance between noise, ventilation & overheating.

2 Calibration:

2.1 The measurement microphone was calibrated before and after testing in the measurement location and there were no drifts recorded during the assessments.

3 Site Layout & Microphone Position:

3.1 London Road is the main transport street and bus route through the Centre of Waterlooville, Hampshire. The road is a main road through the immediate area and is busy for long periods of the day time and night time. The commercial sources are all located to the North. The proposed building is a large, detached building located immediately to the East of London Road, with the front elevation directly facing the road at a distance of approximately 5m. There is an office building that is located to the rear of the scheme, which operates 24hours a day. This building is accessed by vehicles to the North of the scheme, so additional calculations will be provided to determine the impact of vehicle movements on the rear elevations. The plant serving this building is located at flat roof level and is completely screened from the proposed development. The only noise source that will be audible is vehicle movements accessing the office building car park (car park located at the rear of the building). In addition to the calculated value at the rear, the average values indicate that the noise sources can be mitigated accordingly within the proposed mitigation measures listed later in the report.

3.2 The immediate area is predominantly mixed use with residential dwellings located along London Road to the North, South & West of the scheme. The petrol filling station is located to the North, with other commercial buildings located to the East & South of the proposed scheme.

3.3 The proposed scheme will comprise of a mixed-use scheme with a commercial unit located at the front on the ground floor, the bin stores at the rear and 3 x residential dwellings also at ground floor. There will be 5 x flats at 1st floor level with flats 5 & 6 the only ones facing the front (road) along with the bedroom of flat 4, all other flats will face the rear of the scheme and therefore be exposed to lower noise levels. There will be a 12-x bedroom HMO located at 2nd & 3rd floor level, along with a communal kitchen/living space at 3rd floor. 11 x bedrooms will be at 2nd floor level, with bedrooms 1-6 facing the front but 7-11 all facing the rear, with 1 x bedroom & the communal kitchen/living space being located at 3rd floor level – these will be set back and thus screened from the noise source.

3.4 The measurement microphones were located:

1- At the building façade facing London Road. It was 1m from the building façade so a -3dB reduction has been applied to the figures to account for reflection.
2- At the rear building façade of the site (Eastern elevation). It was 1m from the building façade so a -3dB reduction has been applied to the figures to account for reflection.

4 Weather Conditions:

4.1 The weather was cold & predominantly dry during the measurement procedure (some rain during periods whereby data was not used); the temperature ranged between -1-5 degrees on Thursday 20th, -3-7 degrees on Friday 21st November. There was no rain or wind during the delivery noise assessment. There were some rain showers during the February assessment, but these did not affect the critical time periods for obtaining the background noise levels.

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5 Measurement Duration:

5.1 The continuous measurement was taken for a 24-hour period at the front façade and over a 3-4 day period for the real elevation, along with the delivery noise levels. The immediate area was operating at normal levels and thus offers a fair reflection of the noise associated with the immediate area.

6 Results:

6.1 The purpose of this measurement was to establish the levels associated with the immediate area on the proposed scheme. The levels will be compared to the necessary British Standards & relevant documents, also some bespoke measurements will be adopted.

$L_{Aeq\ 16hour\ \&\ 8hour}$ Noise Levels:

Mic Location	$L_{Aeq\ 16hour}$ Value	Reduction needed for BS8233 compliance	$L_{Aeq\ 8hour}$ Value	Reduction for BS8233 compliance	L_{Amax} Value	Reduction for compliance
ML 1 – Front elevation	72dBA	37dB	63dBA	33dB	81dBA	36dB

7 Results Conclusion:

7.1 The tables listed above clearly indicate the required sound reduction values at the proposed site. It is clear to see that the measured levels are within the medium to high category of the Pro PG document for the front façade due to the road traffic. Providing suitable mitigation measures are applied to the necessary facades and the required internal criteria can be achieved. It is anticipated that the scheme can be naturally ventilated with open windows for periods during the day time and night time, to achieve a balance between noise, ventilation, and overheating and without leading to a change in behavior – especially those located to the rear.

7.2 Based on the measured noise levels, the proposed mitigation measures, the location of the development and the type of noise apparent it is anticipated that the noise will fall at The NOEL value (No adverse effect level) and maybe towards the LOAEL (Lowest observed adverse effect level) and as such the noise should not have a detrimental effect on the future residents providing adequate measures are implemented to the building fabric & elements. For noise sources at the LOAEL, it is anticipated that the noise will be noticeable but not intrusive if suitable mitigation measures are implemented to the development.

7.3 Based on the measured levels and assuming a glazing specification offering a sound reduction of 30dBA (meeting the levels required above) is installed the following internal levels would be achieved:

Front Facade

Room	External Level	Sound Reduction of windows	Internal Level	Criteria Met
Lounge	72dBA	37dB	35dBA	Yes
Bedroom – L_{Aeq}	63dBA	37dB	26dBA	Yes
Bedroom - L_{Amax}	81dBA	37dB	44dBA	Yes

7.4 The levels above indicate that the internal levels can be achieved with the windows closed. Further table shown on the following page. Section 2.30 and Figure 2 of the Pro PG document states that the internal guidelines of BS8233: 2014 can be relaxed by 5dBA (40dBA $L_{Aeq\ 16hour}$ and 35dBA $L_{Aeq\ 8hour}$) when the dwellings are necessary or desirable and that residents will accept a slight increase in noise levels to ensure natural ventilation. A relaxation of 5dBA will still ensure a reasonable standard of living. This approach could be implemented to development for the day time levels and the night time levels.

7.5 The levels shown in the table above indicate that a reasonable standard of living can be achieved with closed windows, and the calculations below indicate the levels with open windows for transportation noise.

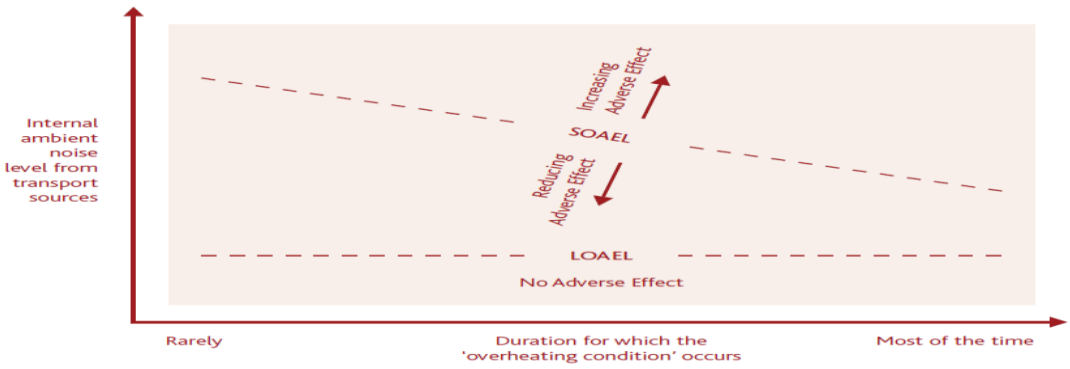
7.6 Table 3.3 – Guidance for level 2 assessment of noise from transport services in the ANC AVO guide states that '*Noise causes a material change in behaviour e.g., having to keep windows closed most of the time*' if the following levels are exceeded for longer periods of time:

Internal ambient noise levels		
LAeq 16hour 0700-2300	LAeq 8hour 2300-0700	Individual noise events 2300-0700
>50dB	>42dB	Normally exceeds 65dB LAmaxT

7.7 Using the above guidance (sliding scale as shown in the diagram below) the calculated internal levels at all facades and other screened facades (rear facades) with the windows open are also shown below. It is anticipated that the future occupants will accept an increase in the noise levels for periods of time to ensure good thermal comfort for the dwellings. These levels can be met for transportation noise. There will be periods of time when windows are opened and may be fewer, but then the acoustic trickle vents can ensure suitable levels of ventilation for the bedrooms. The future residents will be able to open and close the windows at their own discretion at the rear elevations can be open as they wish.

Front Facade	**External Level**	**Sound Reduction of open windows**	**Internal Level**
Lounge	72dBA	-13dB	59dBA
Bedroom – LAeq	63dBA	-13dB	50dBA
Bedroom - LAmax	81dBA	-13dB	68BA

Figure 3-2 Qualitative guidance on combined effect of internal ambient noise level and duration for the overheating situation



7.8 Based on the measured average levels and anticipated internal levels, it is recommended that whilst the scheme can be naturally ventilated for short periods of time, to ensure suitable internal balance and criteria that an alternative ventilation system is incorporated into the scheme. An alternative ventilation system will help to ensure that the dwellings can be ventilated when the windows are closed. These measures combined with glazing should ensure a reasonable standard of living can be achieved for the proposed dwellings.

7.9 It can be seen that the measured levels at the site for the front elevation are above those levels listed within the values listed in Table 3.3 with windows open and therefore consistently higher noise levels may lead to a change in behavior, although the rear facades should be exposed to lower noise levels and these rooms will meet the levels stated in table 3.3 and thus these residents can have their windows open for longer periods of time. The purpose of the alternative ventilation system is to ensure the bedrooms can be ventilated for the period of time when the windows are closed, and a balance must be struck between noise, overheating, and ventilation. It is anticipated that future residents will accept this slightly higher level for periods of time to be able to naturally ventilate their homes and the measured levels should not be intrusive.

7.10 The proposed measures indicate that the development follows the approach recommended in the PPG Guidance (Paragraph 009) regarding the closure of windows which states: *"The agent of change will also need to define clearly the mitigation being proposed to address any potential significant adverse effects that are identified. Adopting this approach may not prevent all complaints from the new residents/users about noise or other effects but can help to achieve a satisfactory living or working environment and help to mitigate the risk of a statutory nuisance being found if the new development is used as designed (for example, keeping windows closed and using alternative ventilation systems when the noise or other effects are occurring)."*

7.11 Paragraph 011 of the same guidance states: Noise impacts may be partially offset if residents have access to one or more of:

- a relatively quiet facade (containing windows to habitable rooms) as part of their dwelling.
- a relatively quiet external amenity space for their sole use, (e.g., a garden or balcony). Although the existence of a garden or balcony is generally desirable, the intended benefits will be reduced if this area is exposed to noise levels that result in significant adverse effects.
- a relatively quiet, protected, nearby external amenity space for sole use by a limited group of residents as part of the amenity of their dwellings; and/or
- a relatively quiet, protected, externally publicly accessible amenity space (e.g., a public park or a local green space designated because of its tranquility) that is nearby (e.g. within a 5-minute walking distance).

7.12 The proposed scheme ensures that some of the bullet points shown above have been implemented as part of the application. There are quieter facades as part of the application that are screened from the noise sources (rear facade). In addition to the orientation of the rooms, further measures also include installing alternative ventilation measures to the dwellings & bedrooms to ensure suitable levels of ventilation when the windows are closed, but all residents will have the ability to open their windows at their own discretion.

Residential Amenity Space:

7.13 The client will accept a proposal for a 2m high acoustic barrier (such as Jackson's reflective barrier) that has lab calculations suggesting an improvement of 28dB) for the ground floor amenity spaces located to the South of the building. Whilst it is accepted that this level of performance is subjective to numerous factors and site specific it is anticipated that such a barrier will offer a high level of sound reduction and therefore achieve a reasonable standard of noise within the ground floor amenity spaces.

7.14 The other amenity spaces are located in completely screened locations and therefore will be exposed to much lower noise levels and it is expected that the limits listed in BS8233: 2014 can be achieved in these locations. The areas at 1st floor level are located towards the South of the building, so they are away from the petrol filing station and completely screened from the road noise by the building. They will also have some sort of boundary treatment to ensure privacy when in use which will further reduce the noise impact.

7.15 The areas at 3rd floor level will be located in a recessed area, again completely screened from the road traffic, so again it is anticipated that due to the building fabric specification in these locations, a reasonable level of enjoyment can be achieved in these locations.

VINE ACOUSTICS NOISE IMPACT ASSESSMENT

8 Delivery Data – $L_{Aeq,T}$ & L_{Amax} Values for delivery noise to proposed dwellings:

8.1 The table below shows the background noise levels over the measurement period at the rear facades, particularly in the hours between 0600-0700 and 2200-2300hrs as these are times that a delivery could arrive at the PFS. The PFS stated that the delivery can arrive at any time during opening hours and there is usually one every 1-2weeks. They confirmed that the deliveries near take place outside opening hours, as did Wickes, so the deliveries to Wickes will not take place before 0700hrs.

15min Values & 1hour Values:

Time Period	0600-0615	0615-0630	0630-0645	0645-0700	0700-0800 1hour	2200-2300 1hour
Sunday						$L_{Aeq\ 1hour}$ – 51 $L_{A90\ 1hour}$ - 44
Tuesday	L_{Aeq} - 56 L_{A90} - 47	57 47	55 47	57 52	$L_{Aeq\ 1hour}$ – 59 $L_{A90\ 1hour}$ – 54	$L_{Aeq\ 1hour}$ – 52 $L_{A90\ 1hour}$ – 45
Wednesday	L_{Aeq} - 54 L_{A90} - 46	54 49	56 51	56 51	$L_{Aeq\ 1hour}$ – 59 $L_{A90\ 1hour}$ – 55	$L_{Aeq\ 1hour}$ – 50 $L_{A90\ 1hour}$ - 44
Thursday	L_{Aeq} - 54 L_{A90} - 47	57 50	57 51	58 53	$L_{Aeq\ 1hour}$ – 58 $L_{A90\ 1hour}$ – 55	
Monday	L_{Aeq} - 56 L_{A90} - 49	55 50	56 51	56 52	$L_{Aeq\ 1hour}$ – 57 $L_{A90\ 1hour}$ - 54	$L_{Aeq\ 1hour}$ – 51 $L_{A90\ 1hour}$ - 45

8.2 The above values indicate that the deliveries for the PFS delivery, condenser noise and all other vehicle movements for the station will be rated against the $L_{A90\ 15min}$ value of 46dBA and the $L_{A90\ 1hour}$ value (2200-2300hrs) of 44dBA, therefore the value of 44dBA will be used for this delivery schedule & noise source. Wickes deliveries & Enterprice Car rental will be rated against the lowest $L_{A90\ 1hour}$ value between 0700-0800hrs which is 54dB as they are not open during the evening period. If additional -3dB corrections are applied to these values for reflection then the BGN levels are 41dBA $L_{A90\ 15mins}$ & 51dBA $L_{A90\ 1hour}$. For reference, the lowest $L_{A90\ 15min}$ value during the night time period was 37dBA – adjusted to 34dBA to account for reflection, this has been included for reference purposes only.

8.3 Due to the deliveries only being operational for a short period of time, an acoustic time correction equation is applied to the values. Time correction equation:

- -10log (duration of event/duration of reference period) in seconds

PFS Delivery:

						Event Noise Level (at 2m)				Overall
Arrival		Unloading		Air Lines		Engine Running for lines		Departure		
Duration (mins)	$L_{Aeq,T}$ (dB)	Duration (dB)	$L_{Aeq,T}$ (dB)	Duration (mins)	$L_{Aeq,T}$ (dB)	Duration (mins)	$L_{Aeq,T}$ (dB)	Duration (mins)	$L_{Aeq,T}$ (dB)	$L_{Amax,F}$ (dB)
1	71	20	66	2	67	2	81	1	71	82

Activity	Resultant Noise Level
Arrival	
Baseline Level	$L_{Aeq1min}$ = 71
Distance Attenuation to 25m = 20log $^{2}/_{25}$ = -22	$L_{Aeq1min}$ = 49
Screening Loss	None – although partial screening
Convert to 1hour = 10 log $^{60}/_{3600}$ = -18	$L_{Aeq\ 1hour}$ = 31

VINE ACOUSTICS LIMITED – NOISE IMPACT ASSESSMENT

Activity	Resultant Noise Level
Unloading	
Baseline Level	$L_{Aeq20min}$ = 66
Distance Attenuation to 25m = 20log $^{2}/_{25}$ = -22	$L_{Aeq20min}$ = 44
Screening Loss	None – although partially screened
Convert to 1hour = 10 log $^{1200}/_{3600}$ = -5	$L_{Aeq\ 1hour}$ = 39

Activity	Resultant Noise Level
Air Lines	
Baseline Level	$L_{Aeq2min}$ = 67
Distance Attenuation to 25m = 20log $^{2}/_{25}$ = -22	$L_{Aeq20min}$ = 45
Screening Loss	None – although partially screened
Convert to 1hour = 10 log $^{120}/_{3600}$ = -15	$L_{Aeq\ 1hour}$ = 30

Activity	Resultant Noise Level
Engine running to start process	
Baseline Level	$L_{Aeq20min}$ = 81
Distance Attenuation to 25m = 20log $^{2}/_{25}$ = -22	$L_{Aeq20min}$ = 59
Screening Loss	None – although partially screened
Convert to 1hour = 10 log $^{120}/_{3600}$ = -15	$L_{Aeq\ 1hour}$ = 44

Activity	Resultant Noise Level
Departure	
Baseline Level	$L_{Aeq1min}$ = 71
Distance Attenuation to 25m = 20log $^{2}/_{25}$ = -22	$L_{Aeq1min}$ = 49
Screening Loss	None – although some may apply for existing dwelling
Convert to 1hour = 10 log $^{30}/_{3600}$ = -21	$L_{Aeq\ 1hour}$ = 28

Overall Delivery Process	
10log(^{10}3.1 + ^{10}3.9 + ^{10}3 + ^{10}4.4 + ^{10}2.8)	$L_{Aeq,T}$ = 46dBA
Acoustic Feature Corrections	+3 Intermittent
Total Rating Level	49dBA
$L_{Aeq\ 1hour}$ 2200-2300hrs (less than 15min at 0600)	47dBA – incl façade correction
$L_{A90\ 1hour}$ 2200-2300hrs (less than 15min value at 0600)	41dBA – incl façade correction
Difference – L_{Aeq}	+2dB
Difference – L_{A90}	+8dB

Activity	Resultant Noise Level
$L_{Amax,F}$	
Baseline Level	L_{Amax} = 82
Distance Attenuation to 25m = 20log $^{2}/_{25}$ = -22	L_{Amax} = 60
Recommended internal level	45dBA
Difference	15dBA
Required level of sound reduction	-15dB – achieved by the mitigation measures

8.4 The above deliveries have been compared to the lowest $L_{A90\ 1hour}$ value at 2200-2300hrs as this was less than the 15min value between 0600-0700hrs but still within the possible delivery times.

VINE ACOUSTICS LIMITED – NOISE IMPACT ASSESSMENT

9 Other Noise sources associated with the PFS & Car Rental shop:

9.1 The table below shows the other noise sources in operation at the PFS and car rental garage. A distance equation has been applied to these levels but no further reductions for screening (even though they are partially screened). They will then be combined with the delivery noise just in case they are all in operation at the same time.

Noise Source	L_{Aeq} (dB)	Distance to receptor	Point source reduction	Level at Facade
Car filling up with fuel @2m	65	25m	-22	43dBA
Condensers @ 1m	69	15m	-23	46dBA
Car Rental cleaning @3m	64	30m	-20	44dBA
Combined				49dB
Acoustic Feature Corrections		+3dB Intermittent		52dBA

Decibel addition to include the delivery noise and the sources above:

Overall Process	
$10\log(^{10}4.9 + ^{10}5.2)$	$L_{Aeq,T}$ = 54dBA
Acoustic Feature Corrections	None – Included already
Total Rating Level	54dBA
$L_{Aeq\ 1hour}$ 2200-2300hrs (less than 15min at 0600)	47dBA – incl façade correction
$L_{A90\ 1hour}$ 2200-2300hrs (less than 15min value at 0600)	41dBA – incl façade correction
Difference – L_{Aeq}	+7dB
Difference – L_{A90}	+13dB

9.2 Based on the above calculations the combined rating levels of all plant at the façade are 54dBA L_{Aeq} & 60dB $L_{Amax,F}$ leading to a total sound reduction value of 13dB for L_{Aeq} noise and 16dB for $L_{Amax,F}$ noise. This level of reduction is easily achieved by the proposed mitigation measures listed for the rear facades. Even if an additional acoustic feature correction for impulsivity were applied (as per the table below) for clearly perceptible (not the case) would be an additional 6dB – leading to a highest sound reduction of 19dB L_{Aeq} noise – again easily achieved by the proposed mitigation measures.

9.3 The above table has been included in the unlikely events that all the noise sources listed are in operation at the same time, but it must be reiterated that the road traffic is the dominant noise source apparent at the site. Furthermore, the calculations do not include any further reduction for screening of the sources, but all the above has been included to assume worst case scenario.

Acoustic Feature	Perceptibility	Correction (dB)
Tonality (e.g., whine, hum, drone)	Just perceptible	+2 dB
	Clearly perceptible	+4 dB
	Highly perceptible	+6 dB
Impulsivity (e.g., bangs, thuds)	Just perceptible	+3 dB
	Clearly perceptible	+6 dB
	Highly perceptible	+9 dB
Intermittency (distinct on/off conditions)	Readily distinctive	+3 dB
Other features (readily distinctive)	Readily distinctive	+3 dB

9.4 It must also be reiterated that the noise associated with the PFS deliveries, other vehicles using the station, car rental garage and the condensers is not audible at the residential façade due to the road traffic being the dominant noise source in operation.

VINE ACOUSTICS LIMITED – NOISE IMPACT ASSESSMENT

10 Wickes Delivery:

Event Noise Level (at 2m)								Overall
Arrival		General Unloading		Forklift Movement		Departure		
Duration (mins)	$L_{Aeq,T}$ (dB)	Duration (mins)	$L_{Aeq,T}$ (dB)	Duration (mins)	$L_{Aeq,T}$ (dB)	Duration (mins)	$L_{Aeq,T}$ (dB)	$L_{Amax,F}$ (dB)
2	70	16	67	16	70	1	72	88

Activity	Resultant Noise Level
Arrival	
Baseline Level	$L_{Aeq3min}$ = 70
Distance Attenuation to 60m = 20log $^{2}/_{60}$ = -29	$L_{Aeq3min}$ = 41
Screening Loss	None – although partially screened
Convert to 1hour = 10 log $^{120}/_{3600}$ = -15	$L_{Aeq\ 1hour}$ = 26

Activity	Resultant Noise Level
Unloading	
Baseline Level	$L_{Aeq20min}$ = 67
Distance Attenuation to 60m = 20log $^{2}/_{60}$ = -29	$L_{Aeq20min}$ = 38
Screening Loss	None – although partially screened
Convert to 1hour = 10 log $^{960}/_{3600}$ = -6	$L_{Aeq\ 1hour}$ = 32

Activity	Resultant Noise Level
Forklift	
Baseline Level	$L_{Aeq1min}$ = 70
Distance Attenuation to 60m = 20log $^{2}/_{60}$ = -29	$L_{Aeq1min}$ = 41
Screening Loss	None – although some may apply for existing dwelling
Convert to 1hour = 10 log $^{960}/_{3600}$ = -6	$L_{Aeq\ 1hour}$ = 35

Activity	Resultant Noise Level
Departure	
Baseline Level	$L_{Aeq1min}$ = 72
Distance Attenuation to 60m = 20log $^{2}/_{60}$ = -29	$L_{Aeq1min}$ = 43
Screening Loss	As above
Convert to 1hour = 10 log $^{60}/_{3600}$ = -18	$L_{Aeq\ 1hour}$ = 25

Overall Delivery Process	
10log(^{10}2.6 + ^{10}3.2 + ^{10}3.5 + ^{10}2.5)	$L_{Aeq,T}$ = 37dBA
Acoustic Feature Corrections	+3 Intermittent
Total Rating Level	40dBA
$L_{Aeq\ 1hour}$ 0700hrs	54dBA – incl façade correction
$L_{A90\ 1hour}$ 0700hrs	51dBA – incl façade correction
Difference – L_{Aeq}	-14dB
Difference – L_{A90}	-11dB

Activity	Resultant Noise Level
$L_{Amax,F}$	
Highest Baseline Level	L_{Amax} = 88
Distance Attenuation to 60m = 20log $^{2}/_{60}$ = -29	L_{Amax} = 59
Recommended internal level	45dBA
Difference	14dBA
Required level of sound reduction	-14dB – achieved by the mitigation measures

10.1 The above calculations indicate that the deliveries associated with Wickes should be negligible at the façade. If the $L_{Amax,F}$ values were added together for both deliveries then a total of 63dB $L_{Amax,F}$ would be apparent at the façade, leading to an overall level of reduction of 18dBA to meet the internal guidelines. This is achieved by the proposed mitigation measures for the site. If all the L_{Aeq} values were combined then the final rating levels for these would be 54dBA at the façade – as per the above calculations, due to the low rating levels of the Wickes delivery.

10.2 Additional post-delivery levels (for a variety of works taking place) were measured at the corner of Wickes outside/garden goods area, which is completely screened from the proposed site. This noise was measured at 58dBA at 15m, with a receptor distance (façade) of 45m indicating a level of 48dBA at the façade. This value is -3dB below the measured $L_{A90\ 1hour}$ value at 0700hrs (including façade correction) again indicating no adverse impact for the residents. All the above calculations and on-site measurements indicate that the commercial noise associated with the local area will not lead to an adverse impact for the scheme providing suitable mitigation measures are implemented. Road traffic is the dominant noise source in operation, and this is justified by the measured and calculated results.

10.3 It is accepted that the delivery noise may be increased above the calculation methods at some points of the day, month or year due to weather, reflection and a variety of sources occurring at the same time but it must also be accepted that the calculations used above are (further) clear indications of the calculated levels at the proposed façade (which have been calculated in a number of ways, all with the same conclusions) can all be suitably mitigated at the receptor location and they should not lead to an adverse impact. The noise associated with all the delivery activity and other sources to do with the PFS, Car Rental Centre and Wickes deliveries was not audible at the proposed façade due to the road traffic. This has been expressed previously, along with other measurements – such as average noise levels & calculations which indicate that the noise levels associated with the nearby sources are not dominant and can be adequately mitigated against via the robust & comprehensive measures listed within this report.

11 Vehicles accessing the rear office:

11.1 The vehicles for the proposed scheme will use the access road to the North of the site, this is also used by the vehicles accessing the rear office. This office is open 24hours a day, so the calculation below assumes the worst-case scenario for vehicles movements during any time period (no time corrections have been applied to these, just sound propagation based on the events).

L_{Aeq} level at 2m	Distance propagation (2m to **5**m)	Level at **5**m	**Reduction Required**
65dBA	-8dBA – point source used for parking	57dBA	22dBA – Day Time 27dBA – night time
L_{Amax} level at 2m			
72dBA	-8dBA	64dBA	19dBA

10.3 The above table indicates that vehicle movements for the rear office building should also be mitigated accordingly due to the measures proposed by the client. The robust & comprehensive mitigation measures for the rear façade indicate that the residents will not be adversely affected by the commercial noise sources in operation.

10.4 The average values at the rear elevation have also been assessed and indicate that the rear elevations are exposed to noise levels circa -18dB below the front elevation during the day time and -15dB below the night time values, so it is anticipated that the scheme could be naturally ventilated for periods of time with open windows without leading to a change in behaviour. The rear elevation should be fitted with acoustic trickle vents to ensure suitable levels of ventilation during periods when windows are closed. The front dwellings will be fitted with an MVHR system with summer bypass.

10.5 Whilst the dwellings may be exposed to road traffic, some commercial activity noise & vehicle movement noise throughout the day time and night time period, it is anticipated that the proposed noise levels produced from the site will fall between the NOEL and the LOAEL values. The NPSE introduces the following terms which are also used in the NPPF:

NOEL – No Observed Effect Level This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

LOAEL – Lowest Observed Adverse Effect Level This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level This is the level above which significant adverse effects on health and quality of life occur.'

However, neither the NPSE nor the NPPF defines numeric bounds for NOEL, LOAEL, or SOAEL. The limits of each effect level should be defined for each situation and location.

10.6 The steps listed below are an indication of the steps taken by the client to reduce the impact of the commercial aspect on the proposed & existing dwellings.

10.7 It is recommended that the rear rooms and dwellings are fitted with acoustic trickle vents to allow for ventilation during times when the windows are closed.

VINE ACOUSTICS LIMITED – NOISE IMPACT ASSESSMENT

11 Required Levels of Mitigation:

Elevation	Noise Source	Level of Sound Reduction
Front Façade	London Road	37dBA
Rear Facade	Various	27dBA

12 Building Specifications:

12.1 It is recommended that the dwellings are ventilated with an alternative ventilation system. These will ensure the dwellings can be ventilated when the windows are closed.

Make	Model	Type
Vent-Axia	Sentinel Kinetic Plus	Whole House Ventilation
Titon	HRV1.25 Q Plus with Trimbox NO2 Filter®	Whole House Ventilation
Nuaire	MRXBOXAB-ECO2B Wall Mounted MVHR	Whole House Ventilation

A ventilation system could be an acoustic wall ventilation system, such as:

Make	Model	Type
Titon Direct	Sonair F+	Wall mounted acoustic Ventilation

12.2 The above system is a wall mounted ventilation unit that allows for ventilation when the windows are closed, with elevated levels of sound reduction.

12.3 Another option could be to install acoustic trickle vents to the noise sensitive rooms, something similar to:

Product	Sound Reduction - open	Sound reduction - closed
RW Simon Acoustic EHA trickle vent	36dB	38dB – Front & side
RW Simon EHAS trickle vent	38dB	41dB – Front & side
RW Simon Acoustic FV trickle vent	32dB	40dB – Rear
RW Simon Acoustic SL trickle vent	33dB	39dB – Rear

If multiple vents are required, then the performance requirement shown in Table 6.3 will increase by a value equal to +10log(N), with N being the total number of vents serving the room.

12.4 Façade Detail – The proposed façade is believed to be something like: - Aggregate block cavity wall, minimum 100mm blocks (minimum density 1350kg/m3), minimum 75mm cavity between leaves, finished with 13mm plaster. This system should achieve a sound reduction of between 50-52dB DnT,w + Ctr 'Code of Practice BS8233: 2014, Page 60 – Table E.1B – Airborne sound insulation of walls and partitions'. Also, a cavity wall system comprising of 7N concrete blocks (two separate frames), have a sound reduction of approximately 53dB (predicted weighted sound reduction index values of Celcon Blockwork – from H&H Celcon). The mansard roof detail will also offer a suitable level of sound reduction for the scheme.

12.5 Roof Detail – The proposed roof detail is believed to be like: Flat roof system with 100mm mineral wool on plasterboard ceiling. This system should achieve a sound reduction of 43dB R_w 'BS8233: 2014, page 41 - Table 8 - The sound insulation of roofs'.

12.6 Windows - The proposed windows to be used is unknown but a robust system offering a sound reduction of more than 37dBA has been determined from the various calculations (front elevation) and thus the specifications listed below will offer this level of reduction.

Possible Units	Thickness	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	Overall reduction
SG Solaglass 10-12-8.4	30.4mm	28	30	39	44	49	56	42-5 = 37dB
SG Solaglass 10-12-10.4	32.4mm	28	30	39	43	48	58	42-5 = 37dB
SG Solaglass 4-12-6	22mm	23	22	26	46	45	45	34-4=30dB
SG Solaglass 4-10-6	20mm	24	23	28	38	40	42	34-4 = 30dB

12.7 There are many other suitable products, and the client will have to show compliance with the windows before installation, the manufacturer will have the acoustic data for the windows.

VINE ACOUSTICS LIMITED – NOISE IMPACT ASSESSMENT

13 Results Summary:

13.1 The findings of this survey indicate that whilst the noise levels are between the medium to high category in the Pro PG document for the front façade and are dominant at the site location, they should not have an adverse impact on the proposed residential dwellings & bedrooms, providing the necessary mitigation measures are applied to the site.

13.2 The results of the various detailed calculations indicate that the noise emissions associated with area and neighbouring commercial sources will not lead to an adverse impact for future residents. The road traffic noise is the dominant noise source and thus the bedrooms located on the front façade are exposed to higher noise levels, but there are screened facades and robust and comprehensive mitigation measures to be implemented by the client to ensure a suitable acoustic criterion for the scheme. The rear facades are exposed to lower noise levels (calculated in numerous ways).

13.3 The mitigation measures listed within this report offer suitable sound reduction for the necessary building elements and if they are implemented throughout the site then the future residents should be able to enjoy a reasonable standard of living. Upon implementation of the mitigation measures, the internal & external criteria of BS8233: 2014 should be met within the noise sensitive bedrooms at the proposed development.

13.4 Planning ProPG states that a good acoustic design process is a vital part of new developments. The client has taken steps to ensure that the existing & future occupants are protected from the noise source, these steps include:

1 Install a robust glazing system to the scheme to protect the residents from external noise emissions when closed
2 Thermal mass offered by the building fabric
3 Alternative ventilation system installed to dwellings to ensure ventilation when windows closed – MVHR with summer bypass for dwelling facing the road & acoustic trickle vents for dwellings to the rear
4 Orientation of noise sensitive rooms – some bedrooms & flats located to the rear
5 No windows on Northern elevation

13.5 The measures taken by the client should ensure the future residents will not be adversely affected by the noise sources associated with the immediate area.

13.6 Whilst this report recommends an alternative ventilation system to be installed, this is not meant to ensure the bedrooms are solely reliant on such. There are facades on the proposed dwellings and bedrooms that will be able to be naturally ventilated for longer periods of the day time and night time via open windows due to screening from the noise sources. It is essential to strike a balance between noise, overheating & ventilation and this report offers such measures.

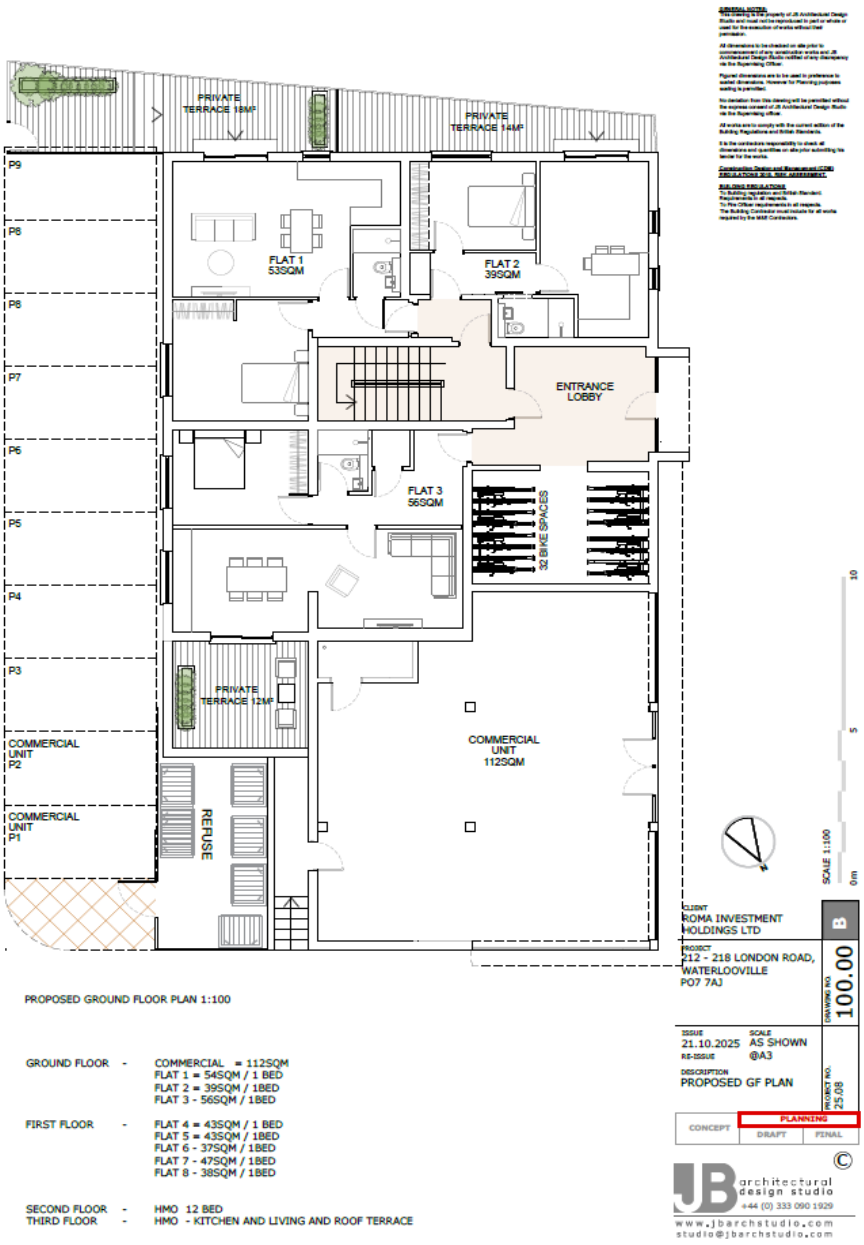
13.7 It can also be seen that good acoustic design has been incorporated into the development by having no windows on the Northern or Southern elevations at upper floors, therefore the majority of rooms located away from the road will be served by windows facing the rear elevation. It can also be seen that the rear elevations are exposed to much lower noise levels than the front facade. All rooms located to the rear will be exposed to lower noise levels due to screening of the buildings and orientation of the dwellings from the road traffic. The site plan clearly shows that a good acoustic design has been implemented with many bedrooms & dwellings located to the rear of the development and therefore exposed to lower noise levels due to the extra distance from the source and the screening offered by the building fabric.

13.8 It is anticipated that windows with an overall sound reduction of 30dBA should be sufficient for the rear elevations, along with acoustic trickle vents for noise sensitive windows on this elevation.

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SITE PLAN



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PROPOSED FIRST FLOOR PLAN 1:100

GROUND FLOOR - COMMERCIAL = 112SQM
FLAT 1 = 54SQM / 1 BED
FLAT 2 = 39SQM / 1BED
FLAT 3 - 56SQM / 1BED

FIRST FLOOR - FLAT 4 = 43SQM / 1 BED
FLAT 5 = 43SQM / 1BED
FLAT 6 - 37SQM / 1BED
FLAT 7 - 47SQM / 1BED
FLAT 8 - 38SQM / 1BED

SECOND FLOOR - HMO 12 BED
THIRD FLOOR - HMO KITCHEN AND LIVING AND ROOF TERRACE

SCALE 1:100

CLIENT
ROMA INVESTMENT HOLDINGS LTD

PROJECT
212 - 218 LONDON ROAD, WATERLOOVILLE

DRAWING NO. 100.01 B

ISSUE 21.10.2025
RE-ISSUE
SCALE AS SHOWN @A3

DESCRIPTION
PROPOSED FIRST FLOOR PLAN

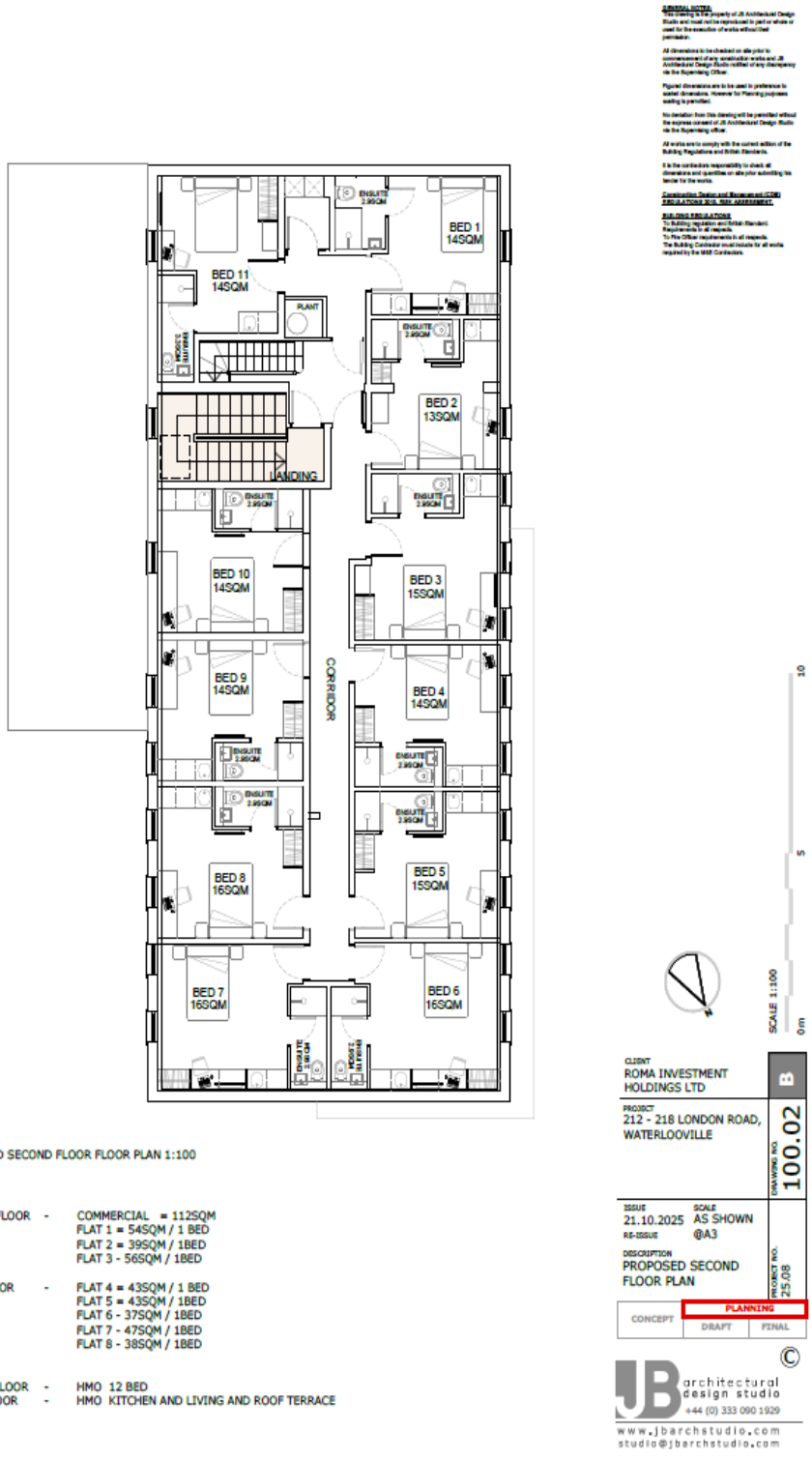
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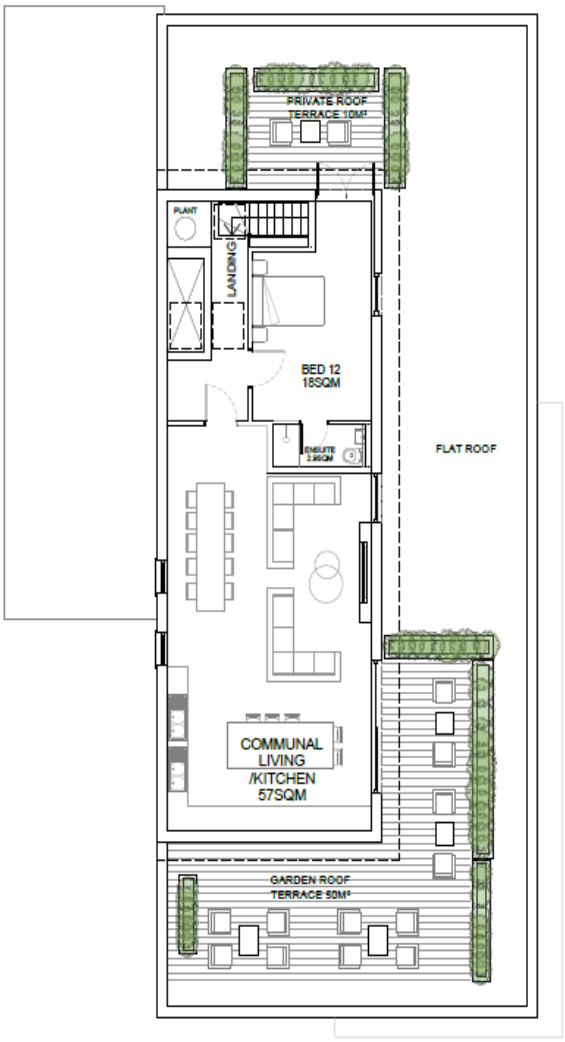


PROPOSED SECOND FLOOR FLOOR PLAN 1:100

GROUND FLOOR	-	COMMERCIAL = 112SQM FLAT 1 = 54SQM / 1 BED FLAT 2 = 39SQM / 1BED FLAT 3 - 56SQM / 1BED
FIRST FLOOR	-	FLAT 4 = 43SQM / 1 BED FLAT 5 = 43SQM / 1BED FLAT 6 - 37SQM / 1BED FLAT 7 - 47SQM / 1BED FLAT 8 - 38SQM / 1BED
SECOND FLOOR	-	HMO 12 BED
THIRD FLOOR	-	HMO KITCHEN AND LIVING AND ROOF TERRACE

VINE ACOUSTICS

VINE ACOUSTICS LIMITED – NOISE IMPACT ASSESSMENT



PROPOSED THIRD / ROOF PLAN 1:100

GROUND FLOOR - COMMERCIAL = 112SQM
FLAT 1 = 54SQM / 1 BED
FLAT 2 = 39SQM / 1BED
FLAT 3 - 56SQM / 1BED

FIRST FLOOR - FLAT 4 = 43SQM / 1 BED
FLAT 5 = 43SQM / 1BED
FLAT 6 - 37SQM / 1BED
FLAT 7 - 47SQM / 1BED
FLAT 8 - 38SQM / 1BED

SECOND FLOOR - HMO 12 BED
THIRD FLOOR - HMO KITCHEN AND LIVING AND ROOF TERRACE

SCALE 1:100

CLIENT
ROMA INVESTMENT HOLDINGS LTD

PROJECT
212 - 218 LONDON ROAD, WATERLOOVILLE

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DESCRIPTION
PROPOSED THIRD/ROOF PLAN

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Table B-5 Examples of passive ventilation solutions providing enhanced sound insulation

Design option	Description and references	Approximate Level Difference (external free field level – internal reverberant level)	Improvement relative to a window providing a similar amount of ventilation
Standard opening windows	Window(s) open sufficiently to provide a ventilation free-area equivalent to 2% of the floor area. [42]	13 dB	0 dB
Open windows with sound attenuating balconies	Window(s) as above. Balconies may have a solid balustrade or be enclosed to a further degree (maintaining an open area for ventilation). Absorption may be provided to the balcony soffit or potentially to other surfaces. [49, 50, 51]	17 – 23 dB	4 – 10 dB
Attenuated or plenum windows	Dual windows (spaced by around 200mm) with staggered openings and absorptive linings to the cavity reveals. Various other configurations also possible in principle. [52, 53]	17 – 24 dB	4 – 11 dB
Attenuated vents/ louvres	Ventilation openings with integral means of attenuating sound. Typically this may be acoustic louvres or acoustically lined ducts/plena. [54, 55]	17 – 29 dB	4 – 16 dB
Attenuated windows or vents/ louvres with sound attenuating balconies	Combined use of balconies to provide screening and acoustically attenuated windows or vents. Refer to above for description of each element.	21 – 39 dB	8 – 26 dB

VINE ACOUSTICS

VINE ACOUSTICS LIMITED – NOISE IMPACT ASSESSMENT

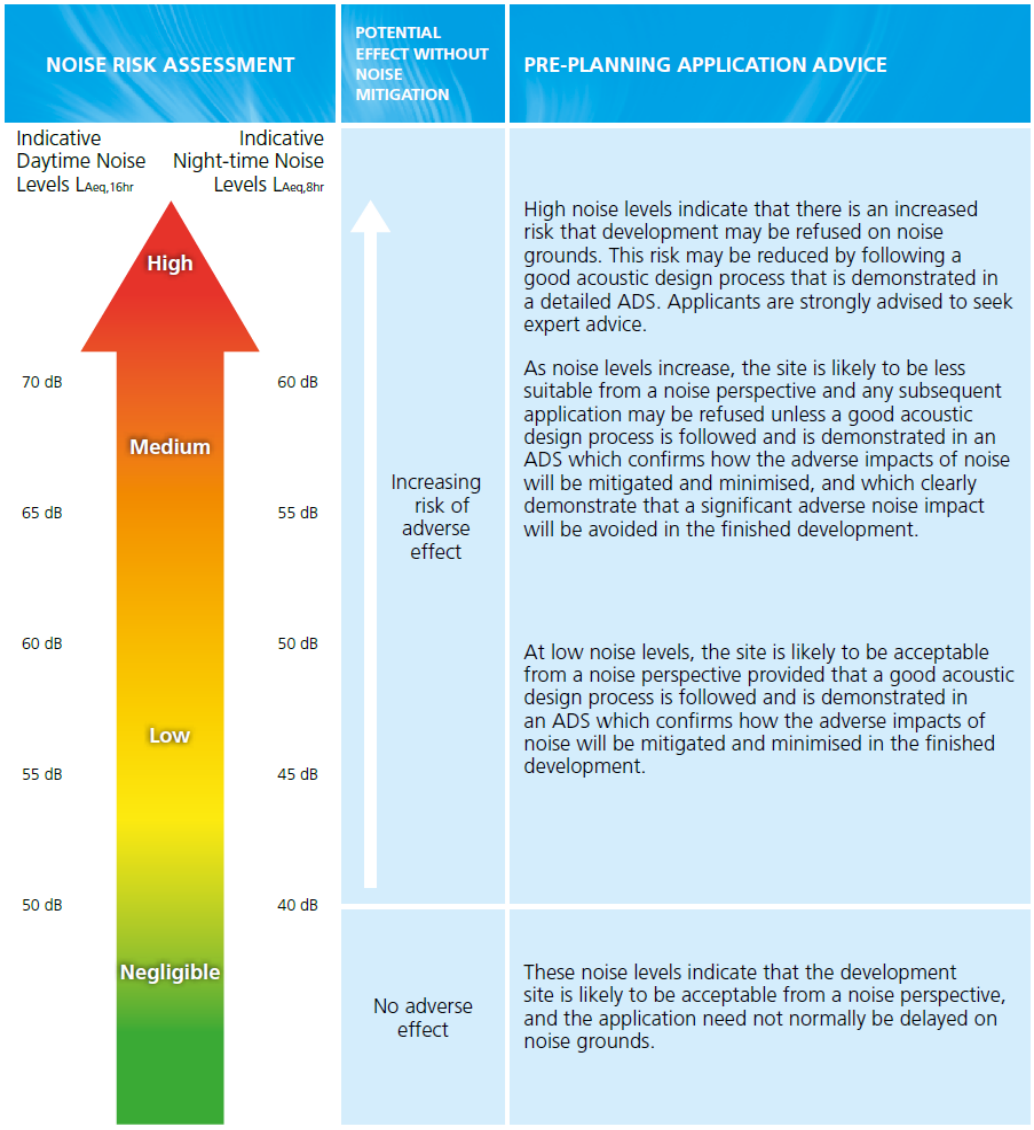


Figure 1. Stage 1– Initial Site Noise Risk Assessment

VINE ACOUSTICS LIMITED – NOISE IMPACT ASSESSMENT

APPENDIX

Continuous equivalent noise level, LAeq — The steady noise level (usually in dBA) which, over the period of time under consideration, contains the same amount of sound energy as the time varying noise.

LAmax - The maximum value that the A-weighted sound pressure level reaches during a measurement period.

dB (A) — The A-weighted sound pressure level.

Decibel (dB) A unit used for many acoustic qualities to indicate the level of sound with respect to a reference level.

A-weighting — A frequency weighting that relates to the response of the human ear.

Background noise level — Prevailing noise level in a specified environment measured in the absence of the noise being studied.

Habitable Room – A room used for sleeping or recreation/relaxation

Dne,w Weighted element normalised level difference – A single-number quantity which characterises the airborne sound insulation of a small building elements.

EPU – Environmental Protection Unit

Rw Weighted sound reduction index – A single-number quantity which characterises the airborne sound insulation of a material or building element measured in the laboratory.

LA10 – The A-weighted noise level exceeded for 10% of the measurement duration.

LA90 - The A-weighted noise level exceeded for 90% of the measurement duration.

British Standards & associated documents:

Code of Practice: BS8233: 2014 - Sound Insulation and noise reduction for buildings.

World Health Organization (WHO) - Guidelines for Community Noise.

Pro PG – Planning & Noise, Residential Development – 2017

VINE ACOUSTICS LIMITED – NOISE IMPACT ASSESSMENT



VINE ACOUSTICS LIMITED – NOISE IMPACT ASSESSMENT

ML 1

Time Period	LAeq	LAmax
(2025/11/20 10:12:02.00)	74	81
(2025/11/20 10:15:02.00)	74.6	81
(2025/11/20 10:18:02.00)	73.9	80.3
(2025/11/20 10:21:02.00)	73.8	81.2
(2025/11/20 10:24:02.00)	73.7	81.5
(2025/11/20 10:27:02.00)	75.1	86.3
(2025/11/20 10:30:02.00)	72.9	81.4
(2025/11/20 10:33:02.00)	73.9	80.8
(2025/11/20 10:36:02.00)	73.3	80.3
(2025/11/20 10:39:02.00)	73.8	82.5
(2025/11/20 10:42:02.00)	74.1	81.1
(2025/11/20 10:45:02.00)	73.6	81.1
(2025/11/20 10:48:02.00)	75.4	83.5
(2025/11/20 10:51:02.00)	73.9	80.8
(2025/11/20 10:54:02.00)	74.6	79.5
(2025/11/20 10:57:02.00)	74.6	84.5
(2025/11/20 11:00:02.00)	75.7	82.3
(2025/11/20 11:03:02.00)	74.9	88.4
(2025/11/20 11:06:02.00)	73.5	80
(2025/11/20 11:09:02.00)	73.9	80.3
(2025/11/20 11:12:02.00)	75.4	81.3
(2025/11/20 11:15:02.00)	74.7	82.4
(2025/11/20 11:18:02.00)	73.4	80.9
(2025/11/20 11:21:02.00)	75.2	87.1
(2025/11/20 11:24:02.00)	73.6	79.7
(2025/11/20 11:27:02.00)	73.9	80.6
(2025/11/20 11:30:02.00)	74.4	80.9
(2025/11/20 11:33:02.00)	73.3	82.1
(2025/11/20 11:36:02.00)	73.8	83.2
(2025/11/20 11:39:02.00)	74.4	81.1
(2025/11/20 11:42:02.00)	75.4	82.2
(2025/11/20 11:45:02.00)	75	82.1
(2025/11/20 11:48:02.00)	74.2	83.1
(2025/11/20 11:51:02.00)	74.8	81.2
(2025/11/20 11:54:02.00)	73.2	82.2
(2025/11/20 11:57:02.00)	75.2	82.3
(2025/11/20 12:00:02.00)	74	79.4
(2025/11/20 12:03:02.00)	74.4	81.9
(2025/11/20 12:06:02.00)	74.7	80.5
(2025/11/20 12:09:02.00)	75.1	81
(2025/11/20 12:12:02.00)	74.8	90.7

(2025/11/20 12:15:02.00)	74.2	81.3
(2025/11/20 12:18:02.00)	74.6	82.2
(2025/11/20 12:21:02.00)	74.8	85.6
(2025/11/20 12:24:02.00)	77.6	94.6
(2025/11/20 12:27:02.00)	75	82.1
(2025/11/20 12:30:02.00)	74.8	80.5
(2025/11/20 12:33:02.00)	74	82.9
(2025/11/20 12:36:02.00)	74.5	81.2
(2025/11/20 12:39:02.00)	75.6	80.9
(2025/11/20 12:42:02.00)	74.8	81.7
(2025/11/20 12:45:02.00)	74.2	80.9
(2025/11/20 12:48:02.00)	73.5	81.3
(2025/11/20 12:51:02.00)	74.7	85.2
(2025/11/20 12:54:02.00)	74.2	82.2
(2025/11/20 12:57:02.00)	74.9	85.5
(2025/11/20 13:00:02.00)	74.6	86.5
(2025/11/20 13:03:02.00)	73.8	83.6
(2025/11/20 13:06:02.00)	75.2	80.8
(2025/11/20 13:09:02.00)	73.9	83.1
(2025/11/20 13:12:02.00)	74.8	80.1
(2025/11/20 13:15:02.00)	73.6	83.6
(2025/11/20 13:18:02.00)	75	85.5
(2025/11/20 13:21:02.00)	74.8	81.4
(2025/11/20 13:24:02.00)	74.5	82.1
(2025/11/20 13:27:02.00)	74.2	80.9
(2025/11/20 13:30:02.00)	73.6	79.3
(2025/11/20 13:33:02.00)	74.4	82.7
(2025/11/20 13:36:02.00)	75.8	90.7
(2025/11/20 13:39:02.00)	74.8	84.2
(2025/11/20 13:42:02.00)	74.5	81.7
(2025/11/20 13:45:02.00)	74.5	81.4
(2025/11/20 13:48:02.00)	74.3	81.6
(2025/11/20 13:51:02.00)	75.3	88.6
(2025/11/20 13:54:02.00)	73.4	80.5
(2025/11/20 13:57:02.00)	74.7	81
(2025/11/20 14:00:02.00)	74.2	80.3
(2025/11/20 14:03:02.00)	86.4	110.3
(2025/11/20 14:06:02.00)	74.5	80.4
(2025/11/20 14:09:02.00)	73.4	81.4
(2025/11/20 14:12:02.00)	74.3	81.2
(2025/11/20 14:15:02.00)	74.8	79.8
(2025/11/20 14:18:02.00)	74.9	82.8
(2025/11/20 14:21:02.00)	75.1	88
(2025/11/20 14:24:02.00)	75	81.6
(2025/11/20 14:27:02.00)	75.2	80.5

(2025/11/20 14:30:02.00)	75.3	87
(2025/11/20 14:33:02.00)	74.6	83.7
(2025/11/20 14:36:02.00)	75.6	85.1
(2025/11/20 14:39:02.00)	74.3	80
(2025/11/20 14:42:02.00)	74.9	81.1
(2025/11/20 14:45:02.00)	75.1	81.9
(2025/11/20 14:48:02.00)	75.6	83.8
(2025/11/20 14:51:02.00)	75.9	84
(2025/11/20 14:54:02.00)	74.6	81.6
(2025/11/20 14:57:02.00)	73.7	81.1
(2025/11/20 15:00:03.00)	74.1	80.7
(2025/11/20 15:03:02.00)	78.1	96.4
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(2025/11/20 15:09:02.00)	76.2	80.9
(2025/11/20 15:12:02.00)	74.8	82.3
(2025/11/20 15:15:02.00)	76.1	83
(2025/11/20 15:18:02.00)	74.1	79.9
(2025/11/20 15:21:02.00)	76.7	85.7
(2025/11/20 15:24:02.00)	74.4	80.8
(2025/11/20 15:27:02.00)	74.3	80.4
(2025/11/20 15:30:02.00)	75.6	88.2
(2025/11/20 15:33:02.00)	75.7	80.4
(2025/11/20 15:36:02.00)	74.8	81.4
(2025/11/20 15:39:02.00)	75.7	85.9
(2025/11/20 15:42:02.00)	75.7	82.2
(2025/11/20 15:45:02.00)	75	80.3
(2025/11/20 15:48:02.00)	75.9	84
(2025/11/20 15:51:02.00)	75.1	86
(2025/11/20 15:54:02.00)	75.3	80.5
(2025/11/20 15:57:02.00)	75.2	81.8
(2025/11/20 16:00:02.00)	75.3	82.1
(2025/11/20 16:03:02.00)	75.9	85.5
(2025/11/20 16:06:02.00)	75.8	82.2
(2025/11/20 16:09:02.00)	75.4	82
(2025/11/20 16:12:02.00)	75	85.4
(2025/11/20 16:15:02.00)	76	83.9
(2025/11/20 16:18:02.00)	75.7	86.9
(2025/11/20 16:21:02.00)	75.1	83.6
(2025/11/20 16:24:02.00)	74.9	82
(2025/11/20 16:27:03.00)	74.8	81.2
(2025/11/20 16:30:02.00)	75.6	81.1
(2025/11/20 16:33:02.00)	75.1	80.9
(2025/11/20 16:36:03.00)	75	81.9
(2025/11/20 16:39:02.00)	76	87

(2025/11/20 16:42:02.00)	87.3	109.9
(2025/11/20 16:45:02.00)	75.9	81.2
(2025/11/20 16:48:02.00)	76	85.7
(2025/11/20 16:51:02.00)	74.1	79.5
(2025/11/20 16:54:02.00)	75.5	84.4
(2025/11/20 16:57:02.00)	80.8	104.4
(2025/11/20 17:00:02.00)	75.1	81.7
(2025/11/20 17:03:02.00)	76.6	87.5
(2025/11/20 17:06:02.00)	76.1	83.3
(2025/11/20 17:09:02.00)	74.6	81.2
(2025/11/20 17:12:02.00)	75.6	80.7
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(2025/11/20 17:24:02.00)	74.7	83
(2025/11/20 17:27:03.00)	75.4	82.5
(2025/11/20 17:30:02.00)	75.6	81.3
(2025/11/20 17:33:02.00)	75.7	80.9
(2025/11/20 17:36:02.00)	75.6	83.3
(2025/11/20 17:39:02.00)	75.2	81.3
(2025/11/20 17:42:02.00)	75.4	81.6
(2025/11/20 17:45:02.00)	75.4	82.8
(2025/11/20 17:48:02.00)	74.9	81.6
(2025/11/20 17:51:03.00)	79	99.1
(2025/11/20 17:54:03.00)	74.9	87.3
(2025/11/20 17:57:03.00)	75.3	83
(2025/11/20 18:00:02.00)	75	80.5
(2025/11/20 18:03:02.00)	74.4	80.5
(2025/11/20 18:06:02.00)	74.9	83
(2025/11/20 18:09:02.00)	75	82.2
(2025/11/20 18:12:02.00)	75	80.8
(2025/11/20 18:15:02.00)	75.7	81.8
(2025/11/20 18:18:02.00)	74.8	82.3
(2025/11/20 18:21:02.00)	74.1	79.6
(2025/11/20 18:24:02.00)	74.6	81.6
(2025/11/20 18:27:02.00)	74.1	83.8
(2025/11/20 18:30:03.00)	76.4	96.6
(2025/11/20 18:33:02.00)	74.8	82.4
(2025/11/20 18:36:02.00)	74.8	81.4
(2025/11/20 18:39:02.00)	74.9	83.7
(2025/11/20 18:42:02.00)	74.9	80.8
(2025/11/20 18:45:02.00)	73.6	82.2
(2025/11/20 18:48:02.00)	75.4	88.2
(2025/11/20 18:51:03.00)	73.3	81.1
(2025/11/20 18:54:02.00)	73.5	80.6

(2025/11/20 18:57:02.00)	74.2	81.8
(2025/11/20 19:00:02.00)	74.8	80.6
(2025/11/20 19:03:02.00)	75.1	81.2
(2025/11/20 19:06:02.00)	75	82.3
(2025/11/20 19:09:02.00)	75.5	93.8
(2025/11/20 19:12:02.00)	74.6	82.2
(2025/11/20 19:15:02.00)	73	81
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(2025/11/20 19:21:02.00)	74.1	81.1
(2025/11/20 19:24:02.00)	74.1	81.8
(2025/11/20 19:27:02.00)	72	80.3
(2025/11/20 19:30:02.00)	72	80.4
(2025/11/20 19:33:02.00)	74	82
(2025/11/20 19:36:02.00)	73.2	81.6
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(2025/11/20 19:42:02.00)	77.9	98.1
(2025/11/20 19:45:02.00)	72.9	82.1
(2025/11/20 19:48:02.00)	72.4	81.5
(2025/11/20 19:51:02.00)	72.3	80.9
(2025/11/20 19:54:02.00)	72.9	84
(2025/11/20 19:57:03.00)	73.6	81.4
(2025/11/20 20:00:02.00)	75.4	90.2
(2025/11/20 20:03:02.00)	73.5	82.1
(2025/11/20 20:06:03.00)	72.6	84
(2025/11/20 20:09:02.00)	72.1	81.1
(2025/11/20 20:12:02.00)	72.9	82.8
(2025/11/20 20:15:02.00)	72.7	80.1
(2025/11/20 20:18:02.00)	72.5	80.1
(2025/11/20 20:21:02.00)	72.8	86.3
(2025/11/20 20:24:02.00)	72.4	81.6
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(2025/11/20 20:33:02.00)	72.5	82.3
(2025/11/20 20:36:02.00)	73.5	80.6
(2025/11/20 20:39:02.00)	71.9	80.7
(2025/11/20 20:42:02.00)	72.3	82.4
(2025/11/20 20:45:02.00)	72	81.5
(2025/11/20 20:48:02.00)	71.5	80.1
(2025/11/20 20:51:02.00)	71.7	81.4
(2025/11/20 20:54:02.00)	71.2	82.4
(2025/11/20 20:57:02.00)	70.9	81.2
(2025/11/20 21:00:02.00)	69.5	82
(2025/11/20 21:03:03.00)	72.3	79.1
(2025/11/20 21:06:02.00)	72.7	90.2

(2025/11/20 21:09:02.00)	72.2	84.4
(2025/11/20 21:12:02.00)	72.1	84.6
(2025/11/20 21:15:02.00)	69	78.6
(2025/11/20 21:18:02.00)	73.8	90.1
(2025/11/20 21:21:03.00)	72.2	86.8
(2025/11/20 21:24:02.00)	73.4	88.9
(2025/11/20 21:27:02.00)	68.6	84.5
(2025/11/20 21:30:02.00)	72.4	81.3
(2025/11/20 21:33:02.00)	72.1	80.3
(2025/11/20 21:36:02.00)	72.5	81.6
(2025/11/20 21:39:02.00)	68.9	79.4
(2025/11/20 21:42:02.00)	70.8	79.8
(2025/11/20 21:45:02.00)	71.2	81.7
(2025/11/20 21:48:02.00)	73.4	86.4
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(2025/11/20 21:57:02.00)	71.2	89.4
(2025/11/20 22:00:02.00)	69.7	80.8
(2025/11/20 22:03:02.00)	71.6	83.2
(2025/11/20 22:06:02.00)	70.6	81.6
(2025/11/20 22:09:02.00)	71.7	82.5
(2025/11/20 22:12:02.00)	71.5	83.6
(2025/11/20 22:15:02.00)	71.4	80.6
(2025/11/20 22:18:02.00)	70.1	80.3
(2025/11/20 22:21:02.00)	70.3	80.8
(2025/11/20 22:24:02.00)	68.9	82.2
(2025/11/20 22:27:02.00)	70.3	81.1
(2025/11/20 22:30:02.00)	67.1	80.8
(2025/11/20 22:33:02.00)	69	82.8
(2025/11/20 22:36:02.00)	68.4	79.8
(2025/11/20 22:39:02.00)	69.6	82.4
(2025/11/20 22:42:02.00)	65.6	80.3
(2025/11/20 22:45:02.00)	68.1	81.2
(2025/11/20 22:48:02.00)	64.9	78.9
(2025/11/20 22:51:02.00)	68.1	79.1
(2025/11/20 22:54:02.00)	69.1	81.4
(2025/11/20 22:57:02.00)	68.2	80.1
(2025/11/20 23:00:02.00)	63.7	78.2
(2025/11/20 23:03:02.00)	67.1	78.6
(2025/11/20 23:06:02.00)	67.2	79.5
(2025/11/20 23:09:02.00)	69.3	82.7
(2025/11/20 23:12:03.00)	69.3	83.4
(2025/11/20 23:15:02.00)	69	85.7
(2025/11/20 23:18:02.00)	65.3	76.2
(2025/11/20 23:21:02.00)	64.8	80.9

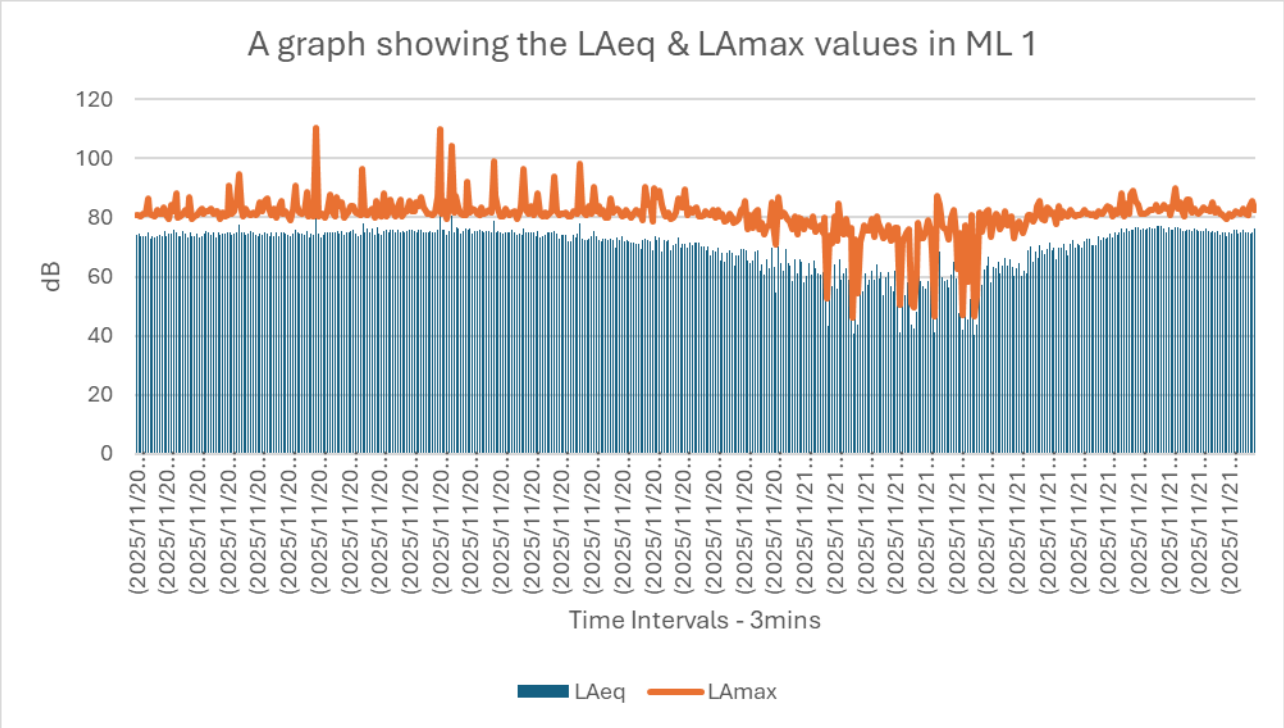
(2025/11/20 23:24:02.00)	65.3	76.6
(2025/11/20 23:27:02.00)	68.4	81.6
(2025/11/20 23:30:02.00)	69	82.8
(2025/11/20 23:33:02.00)	62.2	75.9
(2025/11/20 23:36:02.00)	64.1	78.4
(2025/11/20 23:39:03.00)	60.8	74.5
(2025/11/20 23:42:02.00)	65.9	77
(2025/11/20 23:45:02.00)	62.7	77.5
(2025/11/20 23:48:02.00)	69.6	85.3
(2025/11/20 23:51:02.00)	63.5	77.6
(2025/11/20 23:54:03.00)	54.7	70.7
(2025/11/20 23:57:02.00)	70.2	86.8
(2025/11/21 00:00:03.00)	64.6	80.6
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(2025/11/21 00:06:02.00)	69.4	81.2
(2025/11/21 00:09:02.00)	64.5	79.7
(2025/11/21 00:12:02.00)	63.6	78.5
(2025/11/21 00:15:02.00)	58.7	76.3
(2025/11/21 00:18:02.00)	66	80.6
(2025/11/21 00:21:02.00)	61.3	74.5
(2025/11/21 00:24:02.00)	66.1	80
(2025/11/21 00:27:02.00)	65	79.7
(2025/11/21 00:30:02.00)	58.1	76.2
(2025/11/21 00:33:03.00)	60.4	79
(2025/11/21 00:36:02.00)	64.8	78
(2025/11/21 00:39:02.00)	60.6	77
(2025/11/21 00:42:02.00)	65.3	80.4
(2025/11/21 00:45:02.00)	62.7	75.2
(2025/11/21 00:48:02.00)	61.3	76.7
(2025/11/21 00:51:02.00)	60.7	77.2
(2025/11/21 00:54:02.00)	61.4	74.6
(2025/11/21 00:57:02.00)	61.3	80.2
(2025/11/21 01:00:02.00)	43.3	52.5
(2025/11/21 01:03:02.00)	61.1	74
(2025/11/21 01:06:02.00)	56.6	71.2
(2025/11/21 01:09:02.00)	64.3	80.3
(2025/11/21 01:12:02.00)	55.9	72.2
(2025/11/21 01:15:02.00)	66	84.7
(2025/11/21 01:18:02.00)	58.8	76.6
(2025/11/21 01:21:02.00)	61.1	74.4
(2025/11/21 01:24:03.00)	62.9	79.4
(2025/11/21 01:27:02.00)	59.1	74.4
(2025/11/21 01:30:02.00)	62.4	76.7
(2025/11/21 01:33:02.00)	40.9	46.2

(2025/11/21 01:36:02.00)	58.3	72.7
(2025/11/21 01:39:02.00)	43.6	54.2
(2025/11/21 01:42:02.00)	56.3	71.9
(2025/11/21 01:45:02.00)	54.9	75.4
(2025/11/21 01:48:02.00)	61.1	77.6
(2025/11/21 01:51:02.00)	57.1	75.5
(2025/11/21 01:54:02.00)	59	75.6
(2025/11/21 01:57:02.00)	62.1	79.4
(2025/11/21 02:00:02.00)	59	73.4
(2025/11/21 02:03:02.00)	64.3	80.6
(2025/11/21 02:06:02.00)	59.4	78.2
(2025/11/21 02:09:02.00)	61.4	75.9
(2025/11/21 02:12:02.00)	53.9	72.9
(2025/11/21 02:15:02.00)	60	73.7
(2025/11/21 02:18:02.00)	61.4	77.4
(2025/11/21 02:21:02.00)	56.9	72.2
(2025/11/21 02:24:02.00)	54.9	72.5
(2025/11/21 02:27:02.00)	62.2	76.5
(2025/11/21 02:30:02.00)	57.9	76.6
(2025/11/21 02:33:03.00)	41.1	50.5
(2025/11/21 02:36:02.00)	55.6	72.4
(2025/11/21 02:39:02.00)	53.6	72.5
(2025/11/21 02:42:02.00)	58	74.8
(2025/11/21 02:45:02.00)	57.2	76.2
(2025/11/21 02:48:02.00)	43.6	51.1
(2025/11/21 02:51:02.00)	42.3	49.8
(2025/11/21 02:54:02.00)	47.9	61.1
(2025/11/21 02:57:02.00)	62.1	78.3
(2025/11/21 03:00:02.00)	58.7	73.2
(2025/11/21 03:03:02.00)	56.6	73.2
(2025/11/21 03:06:02.00)	56.1	75.1
(2025/11/21 03:09:02.00)	58.7	79.2
(2025/11/21 03:12:02.00)	59.8	75.8
(2025/11/21 03:15:02.00)	50	68.9
(2025/11/21 03:18:02.00)	41.1	46.8
(2025/11/21 03:21:03.00)	67.6	87.2
(2025/11/21 03:24:02.00)	68.6	84.4
(2025/11/21 03:27:02.00)	59.9	77.2
(2025/11/21 03:30:02.00)	58.4	76.4
(2025/11/21 03:33:02.00)	59	76
(2025/11/21 03:36:02.00)	56.2	72.6
(2025/11/21 03:39:02.00)	60.6	80
(2025/11/21 03:42:02.00)	65.2	82.6
(2025/11/21 03:45:02.00)	59.3	73.7
(2025/11/21 03:48:02.00)	47.5	62.8

(2025/11/21 03:51:02.00)	60	74.8
(2025/11/21 03:54:02.00)	42.2	47
(2025/11/21 03:57:02.00)	60.3	77.2
(2025/11/21 04:00:02.00)	45.7	58.5
(2025/11/21 04:03:02.00)	52.4	68.4
(2025/11/21 04:06:02.00)	63.3	80.8
(2025/11/21 04:09:02.00)	40.4	46.4
(2025/11/21 04:12:02.00)	43.8	53.6
(2025/11/21 04:15:02.00)	64	81.9
(2025/11/21 04:18:02.00)	57	75.2
(2025/11/21 04:21:02.00)	62.6	77.6
(2025/11/21 04:24:02.00)	63.6	81.8
(2025/11/21 04:27:02.00)	66.6	82.6
(2025/11/21 04:30:02.00)	58.1	73.4
(2025/11/21 04:33:02.00)	63.5	78.5
(2025/11/21 04:36:02.00)	62.7	81.2
(2025/11/21 04:39:02.00)	65.2	80.7
(2025/11/21 04:42:02.00)	61.3	76.3
(2025/11/21 04:45:02.00)	63.6	77.7
(2025/11/21 04:48:02.00)	66.2	82.2
(2025/11/21 04:51:02.00)	63.6	77.6
(2025/11/21 04:54:02.00)	65.7	79.5
(2025/11/21 04:57:02.00)	63.1	80.5
(2025/11/21 05:00:02.00)	60.2	73.1
(2025/11/21 05:03:02.00)	62.9	77.4
(2025/11/21 05:06:02.00)	64.5	78.8
(2025/11/21 05:09:02.00)	60.1	76.1
(2025/11/21 05:12:02.00)	62.1	74.6
(2025/11/21 05:15:02.00)	61.3	77.5
(2025/11/21 05:18:02.00)	68.9	80.7
(2025/11/21 05:21:02.00)	70.2	80.9
(2025/11/21 05:24:02.00)	65.1	78.6
(2025/11/21 05:27:02.00)	68.4	80.5
(2025/11/21 05:30:02.00)	66.2	83.7
(2025/11/21 05:33:02.00)	70.7	85.5
(2025/11/21 05:36:02.00)	69	79.7
(2025/11/21 05:39:02.00)	67.6	79.1
(2025/11/21 05:42:02.00)	69.3	83.4
(2025/11/21 05:45:02.00)	71.5	82.8
(2025/11/21 05:48:02.00)	68.8	81.2
(2025/11/21 05:51:02.00)	69.9	81.6
(2025/11/21 05:54:02.00)	65.9	78
(2025/11/21 05:57:02.00)	70	83.8
(2025/11/21 06:00:02.00)	70	80.2

(2025/11/21 06:03:02.00)	70.9	82.1
(2025/11/21 06:06:02.00)	68.8	81
(2025/11/21 06:09:02.00)	67.2	80.5
(2025/11/21 06:12:02.00)	71.3	82.8
(2025/11/21 06:15:02.00)	72.2	81.5
(2025/11/21 06:18:02.00)	69.6	80.5
(2025/11/21 06:21:02.00)	71.3	80.7
(2025/11/21 06:24:02.00)	70.5	80.8
(2025/11/21 06:27:02.00)	69.7	81.5
(2025/11/21 06:30:02.00)	71.8	82.7
(2025/11/21 06:33:02.00)	73	81.4
(2025/11/21 06:36:02.00)	72.8	81.4
(2025/11/21 06:39:02.00)	70.6	81
(2025/11/21 06:42:02.00)	70.5	81.1
(2025/11/21 06:45:02.00)	70.7	80.5
(2025/11/21 06:48:02.00)	73.9	82.3
(2025/11/21 06:51:02.00)	72.3	81.3
(2025/11/21 06:54:02.00)	73.3	81.3
(2025/11/21 06:57:02.00)	72.7	82.8
(2025/11/21 07:00:02.00)	73.1	83.8
(2025/11/21 07:03:02.00)	74.4	83.6
(2025/11/21 07:06:02.00)	73.1	80.6
(2025/11/21 07:09:02.00)	74.8	82.8
(2025/11/21 07:12:02.00)	74	81.3
(2025/11/21 07:15:02.00)	75.1	81.8
(2025/11/21 07:18:02.00)	76.3	88.3
(2025/11/21 07:21:02.00)	74.9	80.6
(2025/11/21 07:24:02.00)	76.1	84.7
(2025/11/21 07:27:02.00)	75.3	81.3
(2025/11/21 07:30:02.00)	76	88
(2025/11/21 07:33:02.00)	76	89
(2025/11/21 07:36:02.00)	76.7	85.7
(2025/11/21 07:39:02.00)	76.6	84.5
(2025/11/21 07:42:02.00)	75.8	81.1
(2025/11/21 07:45:02.00)	76.2	81.5
(2025/11/21 07:48:02.00)	76	81.1
(2025/11/21 07:51:02.00)	76.2	81.6
(2025/11/21 07:54:02.00)	76.7	82.5
(2025/11/21 07:57:02.00)	76.1	82.4
(2025/11/21 08:00:02.00)	76.3	83
(2025/11/21 08:03:02.00)	77.2	84.5
(2025/11/21 08:06:02.00)	77.2	82.2
(2025/11/21 08:09:02.00)	77	82.8
(2025/11/21 08:12:02.00)	76.1	84.2
(2025/11/21 08:15:02.00)	75.1	83.2

(2025/11/21 08:18:02.00)	76.9	83.3
(2025/11/21 08:21:03.00)	75.7	81
(2025/11/21 08:24:02.00)	75.8	84.3
(2025/11/21 08:27:02.00)	76.9	89.8
(2025/11/21 08:30:02.00)	76.6	83.2
(2025/11/21 08:33:02.00)	76.3	85.1
(2025/11/21 08:36:02.00)	75.3	82.7
(2025/11/21 08:39:02.00)	75.4	80.5
(2025/11/21 08:42:02.00)	75.7	86.1
(2025/11/21 08:45:02.00)	75.9	86
(2025/11/21 08:48:02.00)	75.6	81.8
(2025/11/21 08:51:02.00)	76.1	82.9
(2025/11/21 08:54:03.00)	75.8	82.3
(2025/11/21 08:57:02.00)	75.3	81.4
(2025/11/21 09:00:02.00)	75.6	82.2
(2025/11/21 09:03:02.00)	75.6	83.3
(2025/11/21 09:06:02.00)	76.1	82.4
(2025/11/21 09:09:03.00)	75.5	82.6
(2025/11/21 09:12:02.00)	75.2	82.2
(2025/11/21 09:15:02.00)	75.5	85.4
(2025/11/21 09:18:02.00)	75.1	81.7
(2025/11/21 09:21:02.00)	75.3	83.2
(2025/11/21 09:24:03.00)	74.3	81.4
(2025/11/21 09:27:02.00)	75.2	81.2
(2025/11/21 09:30:02.00)	74.9	80.4
(2025/11/21 09:33:03.00)	73.5	79.4
(2025/11/21 09:36:02.00)	74.9	81.2
(2025/11/21 09:39:03.00)	74.4	80.6
(2025/11/21 09:42:02.00)	76	81.5
(2025/11/21 09:45:02.00)	75.8	82.2
(2025/11/21 09:48:02.00)	74.4	81.6
(2025/11/21 09:51:02.00)	74.9	81.1
(2025/11/21 09:54:02.00)	75.7	83
(2025/11/21 09:57:02.00)	75	81.4
(2025/11/21 10:00:02.00)	75.1	81
(2025/11/21 10:03:02.00)	74.6	83.9
(2025/11/21 10:06:02.00)	75.1	85.5
(2025/11/21 10:09:02.00)	76.1	82.6


A graph showing the LAeq & LAmax values in ML 1
120
100
80
60
40
20
0
dB
(2025/11/20...
(2025/11/21...
Time Intervals - 3mins
LAeq
LAmax

ML 2

Time Period	LAeq	LAmax	LA90
(2026/02/09 14:30:02.00)	58.3	82.4	53.4
(2026/02/09 14:45:02.00)	56.1	68.9	53.5
(2026/02/09 15:00:02.00)	57.1	71.2	53
(2026/02/09 15:15:02.00)	55.9	67.8	53.4
(2026/02/09 15:30:02.00)	56.3	71.2	53.5
(2026/02/09 15:45:02.00)	56.5	67.5	54
(2026/02/09 16:00:02.00)	57.2	72.3	54.3
(2026/02/09 16:15:02.00)	56.6	71	54.3
(2026/02/09 16:30:02.00)	57.2	70.1	54.7
(2026/02/09 16:45:02.00)	58	67	55.6
(2026/02/09 17:00:02.00)	58.4	69.6	56
(2026/02/09 17:15:02.00)	58.5	67.6	56
(2026/02/09 17:30:02.00)	58.8	69.9	56.5
(2026/02/09 17:45:02.00)	58.1	68.8	55.6
(2026/02/09 18:00:02.00)	57.9	63.8	55.4
(2026/02/09 18:15:02.00)	58.6	70.9	55.8
(2026/02/09 18:30:02.00)	57.7	69.2	54.5
(2026/02/09 18:45:02.00)	56.9	66.7	54
(2026/02/09 19:00:02.00)	57.5	71.6	54.1
(2026/02/09 19:15:02.00)	56	71.8	52.4
(2026/02/09 19:30:02.00)	55.8	64.3	52.5
(2026/02/09 19:45:02.00)	55.2	67.5	51.7
(2026/02/09 20:00:02.00)	55.6	61.3	52.6
(2026/02/09 20:15:02.00)	55.2	67.5	51.2
(2026/02/09 20:30:02.00)	55	70.7	50.1
(2026/02/09 20:45:02.00)	53.7	62.6	49.4
(2026/02/09 21:00:02.00)	52.8	61.2	48.2
(2026/02/09 21:15:02.00)	52.6	62	47.4
(2026/02/09 21:30:02.00)	52.9	61.7	47.5
(2026/02/09 21:45:02.00)	51.9	62.9	46.7
(2026/02/09 22:00:02.00)	52.2	62.5	46.7
(2026/02/09 22:15:02.00)	51.5	64.7	45
(2026/02/09 22:30:02.00)	50.2	60.8	43.7
(2026/02/09 22:45:02.00)	48.9	60.7	43.7
(2026/02/09 23:00:02.00)	50.3	61.6	44.2
(2026/02/09 23:15:02.00)	48.7	62.1	42.5
(2026/02/09 23:30:02.00)	47.9	59.4	42.9
(2026/02/09 23:45:02.00)	49.1	66.1	42.3
(2026/02/10 00:00:03.00)	46.3	63.8	40.1
(2026/02/10 00:15:03.00)	46.1	59	40
(2026/02/10 00:30:02.00)	48.1	68.6	39.1

(2026/02/10 00:45:02.00)	45.2	64.3	39.4
(2026/02/10 01:00:02.00)	45	59.1	38.9
(2026/02/10 01:15:02.00)	45.3	59	38.9
(2026/02/10 01:30:02.00)	44.3	57.8	38.7
(2026/02/10 01:45:02.00)	44.8	60.8	38.7
(2026/02/10 02:00:02.00)	42.9	58.6	38.9
(2026/02/10 02:15:02.00)	42.8	60.3	38.7
(2026/02/10 02:30:02.00)	47.1	66.9	39.2
(2026/02/10 02:45:02.00)	45	58.9	39.1
(2026/02/10 03:00:02.00)	44.3	60.7	39
(2026/02/10 03:15:02.00)	43.3	58.1	38.9
(2026/02/10 03:30:02.00)	42.6	57.5	39
(2026/02/10 03:45:02.00)	46.5	63.5	40.1
(2026/02/10 04:00:02.00)	45.1	59.3	39.6
(2026/02/10 04:15:02.00)	48.4	67.2	40.6
(2026/02/10 04:30:02.00)	56.4	71	42.8
(2026/02/10 04:45:02.00)	53	69.9	42.2
(2026/02/10 05:00:02.00)	55.3	70.4	42.6
(2026/02/10 05:15:02.00)	55.7	71.8	43.1
(2026/02/10 05:30:02.00)	63	83.8	43.8
(2026/02/10 05:45:02.00)	56.8	81	45.2
(2026/02/10 06:00:02.00)	56.2	69.5	47
(2026/02/10 06:15:02.00)	56.9	70.2	47.4
(2026/02/10 06:30:02.00)	55.2	74.9	49.2
(2026/02/10 06:45:02.00)	56.6	77.8	51.6
(2026/02/10 07:00:02.00)	60.6	93.2	52.8
(2026/02/10 07:15:02.00)	57.1	70.5	53.8
(2026/02/10 07:30:02.00)	58	68.8	54.6
(2026/02/10 07:45:02.00)	57.6	67.4	54.5
(2026/02/10 08:00:02.00)	56.9	64.5	54.3
(2026/02/10 08:15:02.00)	58	71.1	54.6
(2026/02/10 08:30:02.00)	58.1	70.8	55.1
(2026/02/10 08:45:02.00)	57.4	66.2	54.8
(2026/02/10 09:00:02.00)	57.4	77.9	54.1
(2026/02/10 09:15:02.00)	57.2	70.6	54.2
(2026/02/10 09:30:02.00)	56.4	67.5	52.7
(2026/02/10 09:45:02.00)	56.2	65.9	53.6
(2026/02/10 10:00:02.00)	56.1	65.4	53
(2026/02/10 10:15:02.00)	55.7	65.8	52
(2026/02/10 10:30:02.00)	56.8	72.7	53.4
(2026/02/10 10:45:02.00)	56.5	71.3	52.7
(2026/02/10 11:00:02.00)	58.6	81.1	53.4
(2026/02/10 11:15:02.00)	56.8	73.4	52.7
(2026/02/10 11:30:02.00)	55.4	66.3	51.5
(2026/02/10 11:45:02.00)	55.7	67.6	51.9

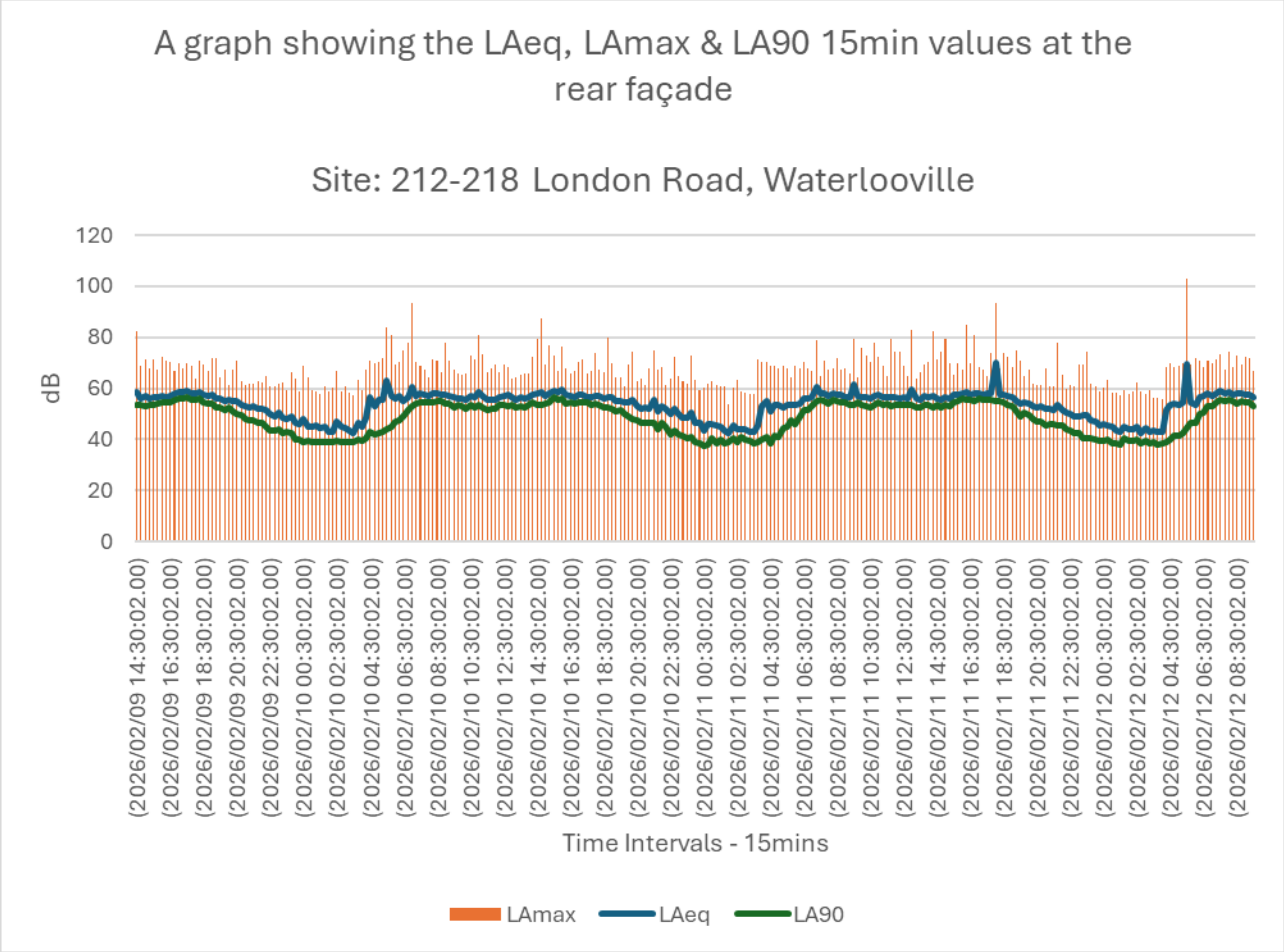
(2026/02/10 12:00:02.00)	55.6	69.3	52.1
(2026/02/10 12:15:02.00)	56.4	66.3	53.3
(2026/02/10 12:30:02.00)	57.1	69.4	53.5
(2026/02/10 12:45:02.00)	57.3	68.3	53.1
(2026/02/10 13:00:02.00)	56.4	63.9	53.4
(2026/02/10 13:15:02.00)	55.7	64.2	52.4
(2026/02/10 13:30:02.00)	56.3	65.3	52.9
(2026/02/10 13:45:02.00)	56	65.9	52.6
(2026/02/10 14:00:02.00)	56.7	65.8	53.6
(2026/02/10 14:15:02.00)	57.3	72.5	54.3
(2026/02/10 14:30:02.00)	57.9	79.6	53.7
(2026/02/10 14:45:02.00)	58.5	87.6	53.3
(2026/02/10 15:00:02.00)	57.1	69.4	54.1
(2026/02/10 15:15:02.00)	58.2	76.7	54.6
(2026/02/10 15:30:02.00)	59.2	72.9	56.7
(2026/02/10 15:45:02.00)	58.4	66.7	55.6
(2026/02/10 16:00:02.00)	59.4	76.2	55.8
(2026/02/10 16:15:02.00)	57.5	67.7	54.2
(2026/02/10 16:30:02.00)	57.1	65.8	54.7
(2026/02/10 16:45:02.00)	56.6	67	53.9
(2026/02/10 17:00:02.00)	57.3	70.1	54.6
(2026/02/10 17:15:02.00)	57.3	71.4	54.4
(2026/02/10 17:30:02.00)	56.7	65.6	54.3
(2026/02/10 17:45:02.00)	56.3	66.7	53.7
(2026/02/10 18:00:02.00)	57.2	74	53.9
(2026/02/10 18:15:02.00)	56.9	67.1	53.5
(2026/02/10 18:30:02.00)	56	66.4	52.3
(2026/02/10 18:45:03.00)	56.5	79.7	52.6
(2026/02/10 19:00:02.00)	56.6	69.6	52.1
(2026/02/10 19:15:02.00)	55.2	64.3	50.9
(2026/02/10 19:30:02.00)	55.1	64.2	51.7
(2026/02/10 19:45:02.00)	54.4	60.9	50.2
(2026/02/10 20:00:02.00)	54.5	69.4	49
(2026/02/10 20:15:02.00)	55.5	74.1	47.8
(2026/02/10 20:30:02.00)	53.1	62.6	47.6
(2026/02/10 20:45:02.00)	52.1	63.7	46.7
(2026/02/10 21:00:02.00)	52.4	61.1	46.4
(2026/02/10 21:15:02.00)	52.2	67.9	46.4
(2026/02/10 21:30:02.00)	55.6	75	46.3
(2026/02/10 21:45:02.00)	51.2	67.5	44
(2026/02/10 22:00:02.00)	52.9	68.2	46.7
(2026/02/10 22:15:02.00)	51.8	61.2	44.8
(2026/02/10 22:30:02.00)	50.1	63.7	41.7
(2026/02/10 22:45:02.00)	51.8	72.5	43.7

(2026/02/10 23:00:02.00)	50.2	64.8	41.7
(2026/02/10 23:15:02.00)	48.4	62.6	41.3
(2026/02/10 23:30:02.00)	48.6	61.9	40.6
(2026/02/10 23:45:02.00)	50.7	73	40.7
(2026/02/11 00:00:02.00)	46.3	63.5	39.1
(2026/02/11 00:15:02.00)	46.7	59.1	38.6
(2026/02/11 00:30:02.00)	43.6	60.3	37.2
(2026/02/11 00:45:02.00)	46	62	38
(2026/02/11 01:00:02.00)	46.2	62.8	40.5
(2026/02/11 01:15:02.00)	45.5	61.2	38.4
(2026/02/11 01:30:02.00)	45	60.7	39.7
(2026/02/11 01:45:02.00)	43.5	60.9	38.5
(2026/02/11 02:00:02.00)	42.3	53.9	38.9
(2026/02/11 02:15:02.00)	45.5	60.3	40.3
(2026/02/11 02:30:02.00)	44.1	63.1	39
(2026/02/11 02:45:02.00)	44.1	58.7	40.7
(2026/02/11 03:00:02.00)	43.8	58.5	39.7
(2026/02/11 03:15:02.00)	42.9	58	39.5
(2026/02/11 03:30:02.00)	42.9	58	38.3
(2026/02/11 03:45:02.00)	45.4	71.5	39
(2026/02/11 04:00:02.00)	52.8	70.4	39.8
(2026/02/11 04:15:02.00)	55.2	70.4	41
(2026/02/11 04:30:02.00)	51.2	68.8	38.4
(2026/02/11 04:45:02.00)	53.5	68.9	41.2
(2026/02/11 05:00:02.00)	53.5	68	41
(2026/02/11 05:15:02.00)	52.6	69	44.5
(2026/02/11 05:30:02.00)	53.5	67.6	44.8
(2026/02/11 05:45:02.00)	53.5	64.3	47.6
(2026/02/11 06:00:02.00)	53.6	69	45.9
(2026/02/11 06:15:02.00)	54.2	67.8	48.8
(2026/02/11 06:30:02.00)	55.8	70.5	51.4
(2026/02/11 06:45:02.00)	56	67.8	51.3
(2026/02/11 07:00:02.00)	56.3	66.7	52.8
(2026/02/11 07:15:02.00)	60.5	78.7	55.2
(2026/02/11 07:30:02.00)	57.9	65	55.5
(2026/02/11 07:45:02.00)	58.1	71	55.1
(2026/02/11 08:00:02.00)	57.1	67.1	53.9
(2026/02/11 08:15:02.00)	58.1	67.8	55.3
(2026/02/11 08:30:02.00)	57.5	71.7	54.8
(2026/02/11 08:45:02.00)	57.5	67.2	54.6
(2026/02/11 09:00:02.00)	56.6	67.8	54.4
(2026/02/11 09:15:02.00)	56.3	65.9	53.4
(2026/02/11 09:30:02.00)	61.6	79.5	53.4
(2026/02/11 09:45:02.00)	57.1	64.3	54.7
(2026/02/11 10:00:02.00)	56.6	75.8	53.5

(2026/02/11 10:15:02.00)	56.4	72.9	53.2
(2026/02/11 10:30:02.00)	55.8	70.4	52.4
(2026/02/11 10:45:02.00)	56.8	78.1	53.7
(2026/02/11 11:00:02.00)	57.5	72.4	54.3
(2026/02/11 11:15:02.00)	56.7	68.7	53.4
(2026/02/11 11:30:02.00)	56.5	64.8	53.8
(2026/02/11 11:45:02.00)	56.4	79.5	52.8
(2026/02/11 12:00:02.00)	56.4	74.2	53.4
(2026/02/11 12:15:02.00)	56	74.5	53.4
(2026/02/11 12:30:02.00)	56.6	68.9	53.4
(2026/02/11 12:45:02.00)	56	64.6	53.5
(2026/02/11 13:00:02.00)	59.5	83	53.5
(2026/02/11 13:15:03.00)	55.9	63.8	52.4
(2026/02/11 13:30:02.00)	55.7	66.5	52.7
(2026/02/11 13:45:02.00)	56.8	69.4	53.5
(2026/02/11 14:00:02.00)	56.7	70.2	53.4
(2026/02/11 14:15:02.00)	56.9	82.6	52.5
(2026/02/11 14:30:02.00)	56.2	71.1	53.3
(2026/02/11 14:45:02.00)	55.5	74.3	52.5
(2026/02/11 15:00:02.00)	56.6	79.3	53.4
(2026/02/11 15:15:02.00)	55.9	70	52.9
(2026/02/11 15:30:02.00)	57.4	65.1	54.4
(2026/02/11 15:45:02.00)	57.7	69.9	54.8
(2026/02/11 16:00:02.00)	58.2	67.5	55.8
(2026/02/11 16:15:02.00)	58.4	85	55.7
(2026/02/11 16:30:02.00)	57.6	69.9	55.3
(2026/02/11 16:45:02.00)	57.8	80.7	55.1
(2026/02/11 17:00:02.00)	58.1	68.5	55.8
(2026/02/11 17:15:02.00)	57.6	67.5	55.3
(2026/02/11 17:30:02.00)	57.9	65	55.7
(2026/02/11 17:45:02.00)	58.1	73.8	55.7
(2026/02/11 18:00:02.00)	70.1	93.6	55
(2026/02/11 18:15:02.00)	57.6	67.8	54.8
(2026/02/11 18:30:02.00)	57.6	73.9	54.7
(2026/02/11 18:45:02.00)	56.9	72.5	53.6
(2026/02/11 19:00:02.00)	56.3	68.3	53
(2026/02/11 19:15:02.00)	55	74.6	50.9
(2026/02/11 19:30:02.00)	54.2	71	49.2
(2026/02/11 19:45:02.00)	54.5	65	50.3
(2026/02/11 20:00:02.00)	54	67.2	49.3
(2026/02/11 20:15:02.00)	53	61.6	48.2
(2026/02/11 20:30:02.00)	52.5	61.4	46.9
(2026/02/11 20:45:02.00)	53	61.5	47
(2026/02/11 21:00:02.00)	52	67.7	45.3

(2026/02/11 21:15:02.00)	52.2	60.9	45.9
(2026/02/11 21:30:02.00)	51.5	60.8	46
(2026/02/11 21:45:02.00)	53.5	77.7	45.5
(2026/02/11 22:00:02.00)	51.6	65.2	45.6
(2026/02/11 22:15:02.00)	50.6	59.9	43.9
(2026/02/11 22:30:02.00)	50.1	61.1	43.3
(2026/02/11 22:45:02.00)	49	60.7	42.3
(2026/02/11 23:00:02.00)	48.8	69.3	42.3
(2026/02/11 23:15:02.00)	49.4	69.1	40.4
(2026/02/11 23:30:02.00)	49.4	74.1	40.6
(2026/02/11 23:45:02.00)	47.4	61.7	40.4
(2026/02/12 00:00:03.00)	46.8	60.8	39.8
(2026/02/12 00:15:02.00)	45.3	58.7	39.6
(2026/02/12 00:30:02.00)	46.2	60.2	39.5
(2026/02/12 00:45:02.00)	45.5	63.2	39.8
(2026/02/12 01:00:02.00)	45.1	58.3	38.5
(2026/02/12 01:15:02.00)	43.7	58.5	38.4
(2026/02/12 01:30:02.00)	43	57.5	38
(2026/02/12 01:45:02.00)	44.8	59.5	40.2
(2026/02/12 02:00:02.00)	44.1	58	39.5
(2026/02/12 02:15:02.00)	44	58.9	39.5
(2026/02/12 02:30:02.00)	44.9	62.1	39.8
(2026/02/12 02:45:02.00)	42.3	58.9	38.6
(2026/02/12 03:00:02.00)	44.6	57.9	39.5
(2026/02/12 03:15:02.00)	43.1	59.3	38.5
(2026/02/12 03:30:02.00)	43.3	56.1	38.7
(2026/02/12 03:45:02.00)	42.9	56.2	38
(2026/02/12 04:00:02.00)	42.9	55.7	38.6
(2026/02/12 04:15:02.00)	51.7	68.4	38.7
(2026/02/12 04:30:02.00)	53.4	69.9	39.9
(2026/02/12 04:45:02.00)	54.2	68.2	41.2
(2026/02/12 05:00:02.00)	53.6	68.7	41.3
(2026/02/12 05:15:02.00)	54.6	69.7	42.5
(2026/02/12 05:30:02.00)	69.4	103.2	44.6
(2026/02/12 05:45:02.00)	54.5	69.2	46.3
(2026/02/12 06:00:02.00)	53.7	71.6	46.7
(2026/02/12 06:15:02.00)	56.6	70.6	49.9
(2026/02/12 06:30:02.00)	57.2	68.2	50.6
(2026/02/12 06:45:02.00)	57.8	70.8	53.1
(2026/02/12 07:00:02.00)	56.9	69.8	52.8
(2026/02/12 07:15:02.00)	57.9	71.4	54.4
(2026/02/12 07:30:02.00)	58.8	73.5	55.5
(2026/02/12 07:45:02.00)	58	67.4	55.2
(2026/02/12 08:00:02.00)	58.4	74.5	55.7
(2026/02/12 08:15:02.00)	57.6	68.2	55.1

(2026/02/12 08:30:02.00)	58.1	73	54
(2026/02/12 08:45:02.00)	57.8	69.1	55.1
(2026/02/12 09:00:02.00)	57.6	72.2	54.4
(2026/02/12 09:15:02.00)	57.5	72	54.6
(2026/02/12 09:30:02.00)	56.5	66.9	53.1



Time Period	LAeq	LAmax	LA90
(2026/02/15 19:15:03.00)	55.3	68.1	51.4
(2026/02/15 19:30:02.00)	54.4	63.1	49.1
(2026/02/15 19:45:02.00)	54.6	69.1	49.2
(2026/02/15 20:00:02.00)	55.2	72.8	49.6
(2026/02/15 20:15:02.00)	54.9	67.6	50.6
(2026/02/15 20:30:02.00)	53.2	62.1	47.1
(2026/02/15 20:45:02.00)	53	61.5	47.9
(2026/02/15 21:00:02.00)	51.7	62.3	45.8
(2026/02/15 21:15:02.00)	53.1	69.1	45.5
(2026/02/15 21:30:02.00)	52.8	71.4	46.4
(2026/02/15 21:45:02.00)	50.9	61.8	45.1
(2026/02/15 22:00:02.00)	51.4	62	43.7
(2026/02/15 22:15:02.00)	51.7	67.2	44.8
(2026/02/15 22:30:02.00)	49.9	68.9	43.3
(2026/02/15 22:45:02.00)	52.4	74.2	43.1
(2026/02/15 23:00:02.00)	51.8	67.7	42.7
(2026/02/15 23:15:02.00)	47.2	61.1	40.3
(2026/02/15 23:30:02.00)	46.6	60.2	39.2
(2026/02/15 23:45:02.00)	46.3	60.1	38.4
(2026/02/16 00:00:03.00)	48.2	67.3	39
(2026/02/16 00:15:02.00)	45.7	58.8	41.4
(2026/02/16 00:30:02.00)	50	72.4	37.5
(2026/02/16 00:45:02.00)	45.9	61.2	37
(2026/02/16 01:00:02.00)	45.1	58.2	38.9
(2026/02/16 01:15:02.00)	44.7	59.9	39.1
(2026/02/16 01:30:02.00)	45.1	62.5	36.6
(2026/02/16 01:45:02.00)	43.1	58.4	38
(2026/02/16 02:00:02.00)	42.2	56.9	36.9
(2026/02/16 02:15:02.00)	43.5	61.9	38.6
(2026/02/16 02:30:02.00)	44.6	56.8	39.1
(2026/02/16 02:45:02.00)	44.5	61.7	38.1
(2026/02/16 03:00:02.00)	44.7	60.9	37.7
(2026/02/16 03:15:02.00)	43.7	58.2	38.3
(2026/02/16 03:30:02.00)	42.3	57.3	36.3
(2026/02/16 03:45:02.00)	46.4	58.4	38.3
(2026/02/16 04:00:02.00)	47.6	59.3	41.6
(2026/02/16 04:15:02.00)	45.4	58.8	41
(2026/02/16 04:30:02.00)	46.4	59	41.3
(2026/02/16 04:45:02.00)	49	68.2	38.4
(2026/02/16 05:00:02.00)	48.3	66.4	40.1
(2026/02/16 05:15:02.00)	55.1	69.9	43.6
(2026/02/16 05:30:02.00)	54.1	68.8	44
(2026/02/16 05:45:02.00)	55.6	68.5	46.8

(2026/02/16 06:00:02.00)	55.9	67.8	48.7
(2026/02/16 06:15:02.00)	55.2	69.6	49.6
(2026/02/16 06:30:02.00)	55.9	71.7	51.4
(2026/02/16 06:45:02.00)	56.2	70.6	51.6
(2026/02/16 07:00:02.00)	56.5	67.3	53.1
(2026/02/16 07:15:02.00)	57.4	64.9	54.3
(2026/02/16 07:30:02.00)	57.8	67	54.5
(2026/02/16 07:45:02.00)	57.3	66.4	54.1
(2026/02/16 08:00:02.00)	57.4	66.8	54.2
(2026/02/16 08:15:02.00)	57	64.5	53.9
(2026/02/16 08:30:02.00)	57	71.9	53.9
(2026/02/16 08:45:02.00)	57	64.8	53.7
(2026/02/16 09:00:02.00)	56.4	64.3	53.4
(2026/02/16 09:15:02.00)	56.5	62.7	53.8
(2026/02/16 09:30:02.00)	56	64.9	53
(2026/02/16 09:45:02.00)	55.9	66.4	52.6
(2026/02/16 10:00:02.00)	55.6	66.5	52.3

