

McAuley Place

Acoustic Design Statement
10 March 2026

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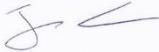
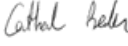





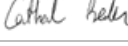

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Executive Summary

Wave Dynamics were engaged by MDO Architects as the acoustic consultants to undertake an Inward Noise Impact Assessment for the planning application for the proposed new residential development at McAuley Place, Sallins Road, Naas, Co. Kildare.

The development comprises the construction of a residential development for older persons located at 13 & 18 Sallins Road, Beaufort Cottage and Beaufort, Sallins Road, Naas West, Naas, Co. Kildare.

Beaufort (house) is proposed to be retained and repurposed to facilitate a community room for the proposed residents and the demolition of the non-original fabric alterations and additions is proposed. Demolition of the three existing terraced cottages fronting Sallins Road is proposed.

The residential development will provide 44 no. 1 and 2-bedroom units across 3 interconnecting 4 storey blocks on a 0.48ha site. The development will also include a single storey rear garden pavilion, a single storey plant room, associated communal and public open spaces and 4 surface car parking spaces. Additional car parking (20 spaces) will be made available within the existing town centre car park located opposite the site. A pedestrian crossing is proposed at the front of the site, across Sallins Road.

Vehicular access is proposed from Sallins Road via a right of way from Father Murphy's Terrace along the southern boundary. A bridge is proposed across the Mill Lane stream connecting the rear of the site with the Luisne Gardens public open space.

Noise Impact Assessment

A Stage 1 and Stage 2 ProPG assessment have been undertaken. As part of the stage one assessment to categorise the site, a baseline noise survey was undertaken to measure the existing noise levels. Following a review of the noise levels on the site, including the L_{AFmax} and L_{Aeq} , the site has been characterised as medium to high risk for day and night for the Eastern boundary and medium to low risk for the day and night period across the rest of the site therefore, mitigation measures are required to control the onset noise levels.

Consideration was given to the onset noise levels and the Kildare County Council Noise Action Plans. The noise levels on the most exposed façade exceed 70 dBA L_{den} and 57 dBA L_{night} . Consideration was given to noise abatement measures including a noise wall. However given the location of the development, the height of the development and the context of the development providing a noise wall to mitigate the onset façade noise levels would not be a practical solution. Therefore, the façade has been designed to insure adequate internal noise levels.

Internal Noise Levels

Following the baseline survey, a noise impact assessment was undertaken, this included break-in noise calculations to predict the internal noise levels from road traffic noise. Consideration has also been given to the future growth of the roads. The noise measurements were taken during the summertime period, consideration has been given to peak traffic during school times. Following the assessment, the building envelope performance requirements were determined. The performance specification for the building envelope has been provided in this report which includes the external walls, glazing, roof and ventilation requirements.

External Amenity Noise Levels

The external amenity spaces on the development includes balconies along with communal space at ground level to the west of the development and to the east of the development. Appropriate amenity has been provided on the development for residents using a combination of the balconies on suitable facades and the communal amenity spaces. This is in line with element 3(v) of ProPG.

Based on the recommendations in this report it is predicted that the internal and external noise levels will achieve the targeted noise levels in line with BS 82233:2014 and ProPG 2017 guidance.

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1 Introduction

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Appendix A outlines a glossary of the acoustic terminology used in this report.

1.1 Statement of Competence

This report was completed by Wave Dynamics, an acoustic consultancy that specialises in noise and vibration. Our consultants have completed numerous similar projects in the Ireland the UK and Europe.

This assessment and report were completed by Cathal Reck | Acoustic Consultant, Cathal has experience of numerous planning stage assessments. Cathal's qualifications include; BSc (Hons) in Music Technology & Production, IOA Certificate of Competence in Environmental Noise Measurement. Cathal is a member of the Institute of Acoustics.

This report was peer reviewed by James Cousins, Managing Director | Principal Consultant with Wave Dynamics who has extensive experience in assessing noise and vibration from road and rail infrastructure on commercial and residential developments. James is an experienced consultant. His qualifications include; BSc (Hons) in Construction Management and Engineering, Pg Cert in Construction Law and Diploma in Acoustics and Noise Control (Institute of Acoustics) and an IOA Competence Cert in Building Acoustic Measurements. James is a member of both Engineers Ireland (MIEI) and the Institute of Acoustics (MIOA) and is the current SITRI Chairman.

2 Site Description

The site is located at McAuley Place, Sallins Road, Naas, Co. Kildare. The site is bounded by residential properties to the North, commercial properties to the East and West, and Mercy Convent Catholic Primary School to the South.



Figure 1: Site Location, measurement locations A1, logger locations L1, and the surrounding area.

3 Project Criteria

The acoustic criterion for the project is set out in this section, the purpose of the criteria is to ensure reasonable:

- Internal noise levels and
- External amenity noise levels.

To provide adequate conditions Wave Dynamics have developed the project criteria for:

- Façade sound insulation performance,
- Ventilation requirements and,
- External amenity requirements.

Assessment Standards

The criteria for the project have been developed based on the following industry standards:

- ✓ BS 8233:2014 Guidance on sound insulation and noise reduction for buildings.
- ✓ Kildare County Council – Noise Action Plan 2019-2023.
- ✓ Dublin Agglomeration Noise Action Plan 2024-2028.
- ✓ ProPG 2017 Professional Practice Guidance on Planning & Noise.
- ✓ ISO 1996-1:2016 Acoustics — Description, measurement and assessment of environmental noise — Part 1: Basic quantities and assessment procedures
- ✓ Previous experience on similar projects.

3.1 Noise Assessment Criteria

The internal ambient noise levels requirements have been developed from the following standards:

Kildare County Council Noise Action Plan

The Kildare County Council Noise Action Plan 2019 – 2023: Kildare County Council states the following with respect to assessing the noise impact on new residential development:

“In the scenario where new residential properties or other noise sensitive premises are introduced into an existing climate of environmental noise, there is currently no clear national planning guidance on noise from the Department of Housing, Planning and Local Government (DHPLG). Kildare Local Authority may develop and publish its own set of guidance on noise assessment and control which would be applicable throughout the county. In the interim, Kildare Local Authority shall require quantifiable noise assessments to be carried where any part of the residential developments is located within 150m of a rail corridor or adjacent to the “Major Roads” within the county.”

“There are no specific noise limit values currently in place within the country except for those arbitrary threshold values indicated in this Plan which are as follows:

Day-Evening Night time Noise Value: 70dB (A) L_{den}
Night time Noise Value: 57 dB (A) L_{night}

ProPG: Professional Practice Guidance on Planning & Noise

ProPg 2017 is used to assess airborne noise from transport sources including road, rail and aircraft noise. The aim of the document is to provide a good design process which considers the internal acoustic environment at an early stage in the design process. The guidance was prepared by the Institute of Acoustics, the Association of Noise Consultants and the Chartered Institute of Environmental Health and is based on the findings by the World Health Organisation in

relation to noise impact on humans. Its adoption is considered best practice for assessing the potential noise impact on the future occupants for residential developments.

The guidance is primarily designed for residential developments however it can be applied to other development types including developments where people require appropriate noise levels for rest and sleep. This includes residential care homes, hospitals etc. The guidance advocates a holistic design process which considers the site, its location and likely suitability for the development at an early stage.

The two primary stages of the ProPg design approach are summarised as follows:

Stage 1 – The first stage is to undertake an initial high-level noise risk assessment of the proposed site considering the noise levels (measured and or predicted) to identify any noise risks. This would include consideration of the current noise environment, future use and future noise levels ; and,

Stage 2 –The second stage is a full detailed assessment of the proposed development covering the “*Four Key Elements*”:

1. *“Good Acoustic Design Process,*
2. *Internal Noise Level Guidelines,*
3. *External Amenity Area Noise Assessment; and*
4. *Assessment of Other Relevant Issues.”*

As part of the process an Acoustic Design Statement is produced and submitted to the planning authority. This document sets out the design process used to come to the conclusions and recommendations in the report.

Following the ProPg the following conclusions are recommended by ProPG in relation to the findings of the Acoustic Design Statement based on the recommendations of the Acoustic Consultant:

- a. *“Planning consent may be granted without any need for noise conditions;”*
- b. *“Planning consent may be granted subject to the inclusion of suitable noise conditions; “*
- c. *“Planning consent should be refused on noise grounds in order to avoid significant adverse effects (“avoid”); or, “*
- d. *“Planning consent should be refused on noise grounds in order to prevent unacceptable adverse effects (“prevent”).”*

Section 3 of the ProPG outlines the recommended approach decision makers should following in coming to their conclusions based on the recommendations of the Acoustic Design Statement. Figure 1 on the next page illustrates the ProPG approach.

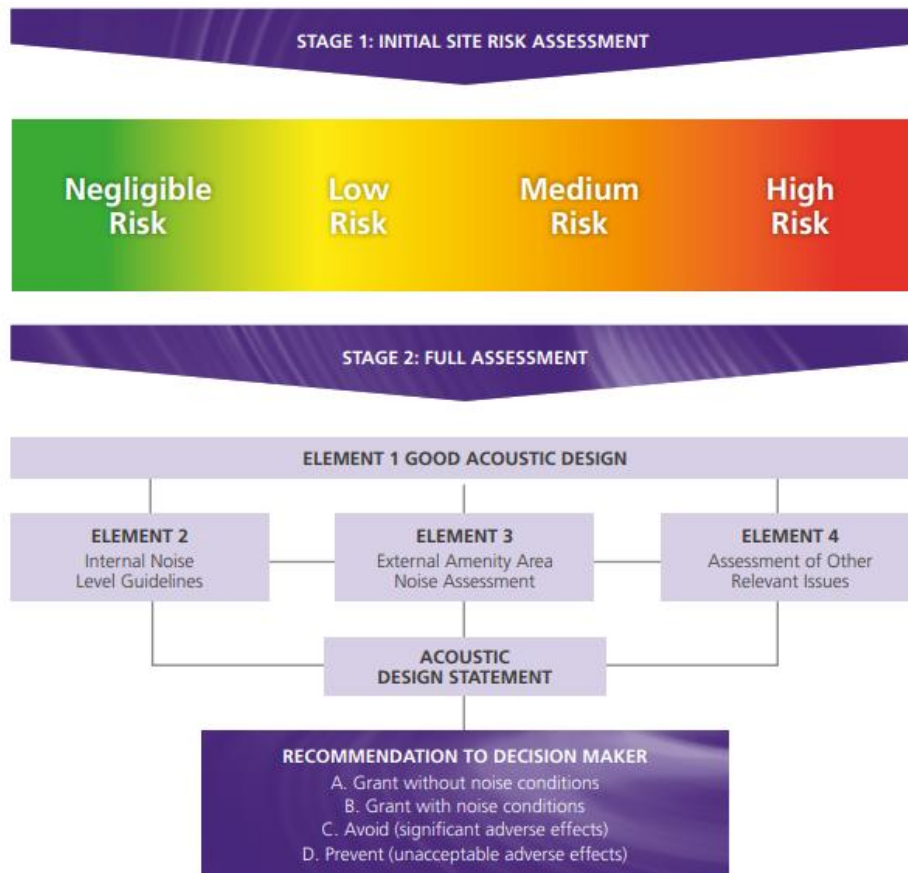


Figure 2: Summary of overall ProPG approach

Internal Noise Levels

Table 1 below outlines the recommended internal noise levels from BS 8233:2014 within living accommodation for residential buildings for dining, resting and sleeping. These limits are in line with the ProPG and the World Health Organisation Guidelines.

Table 1: BS 8233:2014 internal noise criteria –Residential Buildings.

Activity	Location	07:00 to 23:00 Hrs	23:00 to 07:00 Hrs
Resting	Living Room	35 dB $L_{Aeq, 16 \text{ hour}}$	-
Dining	Dining Room/Area	35 dB $L_{Aeq, 16 \text{ hour}}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq, 16 \text{ hour}}$	30 dB $L_{Aeq, 8 \text{ hour}}$ 45dB L_{AFmax} (See Note 1)

1: Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values. In most circumstances in noise sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB L_{AFmax} more than 10 times a night.

External Amenity Space Noise Levels

With regard to noise levels in external amenity spaces ProPG 2017 refers to the BS8233:2014 guidance which states that:

“the acoustic environment of external amenity areas that are an intrinsic part of the overall design should always be assessed and noise levels should ideally not be above the range 50 – 55 dB L_{Aeq,16hr}”.

It also states that:

“These guideline values may not be achievable in all circumstances where development might be desirable. In such a situation, development should be designed to achieve the lowest practicable noise levels in these external amenity spaces but should not be prohibited.”

After mitigation/with mitigation if the adverse noise impacts are still above the recommended noise levels they can be offset by providing an alternative amenity space to partially offset the noise impact by providing access to:

- *“a relatively quiet facade (containing openable windows to habitable rooms) or a relatively quiet externally ventilated space (i.e. an enclosed balcony) as part of their dwelling; and/or*
- *a relatively quiet alternative or additional external amenity space for sole use by a household, (e.g. a garden, roof garden or*
- *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, publically accessible, external amenity space (e.g. a public park or a local green space designated because of its tranquillity) that is nearby (e.g. within a 5 minutes walking distance). The local planning authority could link such provision to the definition and management of Quiet Areas under the Environmental Noise Regulations.”*

BS 8233:2014 elaborates on this further, it acknowledges that it may not always be necessary or feasible to ensure that noise levels remain within the guideline values. In respect of gardens and patios, BS 8233:2014 states:

“however it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces but should not be prohibited.”

Both BS8233:2014 and ProPG 2017 do not advise that development should be restricted in areas with undesirable noise levels. The standards recommend that mitigation measures are put in place where practicable to achieve the recommended noise levels for the external amenity spaces. It notes that this may not be practical in all situations and local or governmental policy should take precedence in these situations.

4 ProPG Stage 1 – Assessment

The stage one risk assessment is used to assess the site for potential risks that may occur in terms of noise impact. The ProPG sets out four categories of risk: 1) negligible, 2) low, 3) medium or 4) high risk. Figure 2 below illustrates the ProPG risk assessment and the values associated with each risk category.

The risk assessment also considers the risk based on the number of L_{AFmax} events per night as follows;

- A site should not be considered a negligible risk if more than 10 L_{AFmax} events exceed 60 dB during the night period and;
- A site should be considered a high risk if the L_{AFmax} events exceed 80 dB more than 20 times per night.

Paragraph 2.9 of ProPG states that,

“The noise risk assessment may be based on measurements or prediction (or a combination of both) as appropriate and should aim to describe noise levels over a “typical worst case” 24 hour day either now or in the foreseeable future.”

To assess the noise impact with the ProPG risk categories a baseline noise survey was undertaken on the site to quantify the existing noise environment.

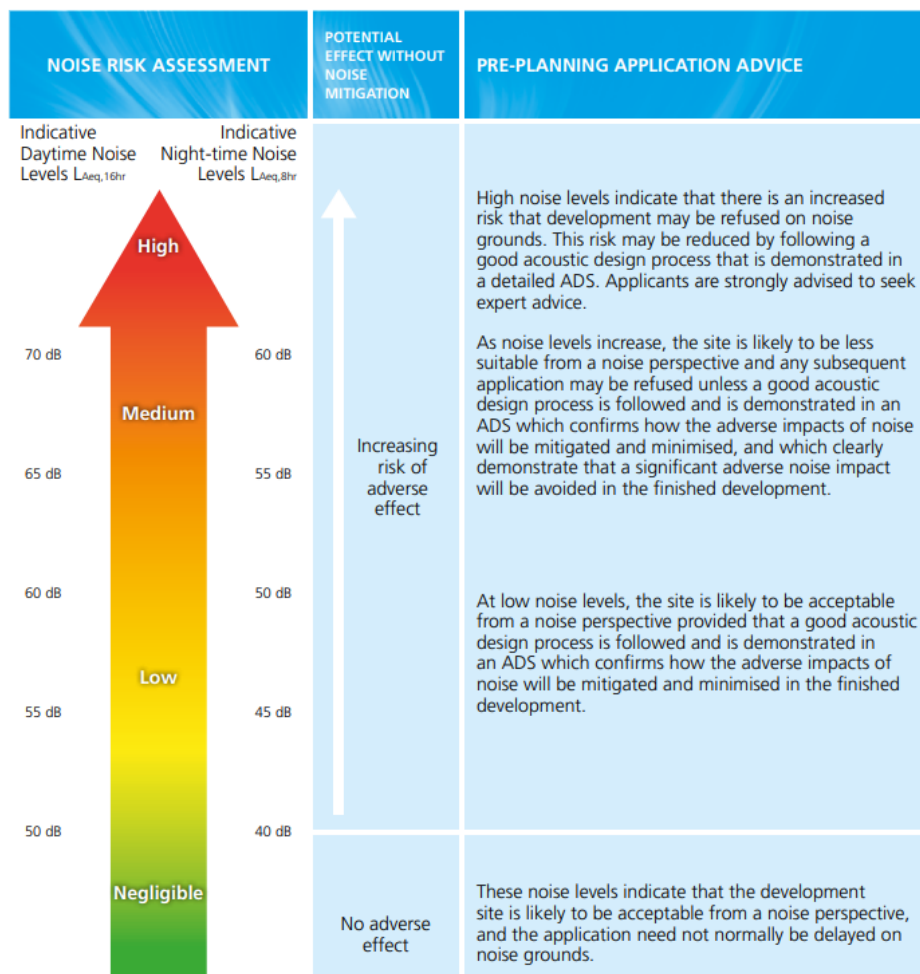


Figure 3: ProPG Risk Analysis

4.1 Baseline Noise Survey

An unattended and attended noise survey was conducted to quantify the existing noise environment. The attended measurement survey included measurements across the site and attended measurements of traffic noise from Sallins Road. The purpose of the measurements was to quantify the existing noise environment to assess the break in noise.

4.1.1 Site Description and Measurement Locations

The site is located at McAuley Place, Sallins Road, Naas, Co. Kildare. The site is bounded by residential properties to the North, commercial properties to the East and West, and Mercy Convent Catholic Primary School to the South.



Figure 4: Site location and measurement locations L1 and A1.

4.1.2 Survey Methodology and Personnel

The attended and unattended survey was completed by Daniel Cousins (Field Engineer), the unattended logger was deployed on the 5th of July 2024 and collected on the 11th of July 2024.

Unattended Noise Measurements

An unattended noise logger was deployed in location L1. The monitor was deployed on the 5th of July at 10:45hrs and collected on the 11th of July 2024 at 10:40hrs. The logger was fixed to the side of an existing dwelling and extended upwards approximately 4.5m above the ground. The logger was calibrated before and after the measurements and no significant drift was noted. Measurements were filtered for periods of unsuitable weather conditions (where appropriate).

Attended Noise Measurements

Noise measurements were undertaken in general accordance with ISO 1996-1:2016 using ISO Class 1 sound analysers. Attended measurements were taken for a duration of 15 minutes in the locations A1 and L1 as noted in Figure 4. Care was taken to avoid any effect on the measurement of extraneous noise, acoustic vibration, or interference. During the attended noise measurements, the sound level meter was positioned at approximately 1.5m above the ground level. The weather conditions were calm (wind less than 5m/s) with no rain, a wind shield was used for the duration of the attended surveys. The noise logger was calibrated before and after the survey and no significant drift was noted.



Figure 5: Attended Measurement Setup.

4.1.3 Survey Period

The attended noise measurements were undertaken on the 5th of July 2024, the unattended logger was deployed on the 5th of July 2024 and collected on the 11th of July 2024.

4.1.4 Noise Measurement Equipment

A Class 1 sound level meter/noise logger in general accordance with IEC 61672-1:2013 was used for the attended measurements. Table 2 below summarises the measurement equipment used.

Table 2: Noise Measurement Equipment

Description	WD Asset Number	Model	Serial No.	Calibration Certificate No.	Calibration Due Date
Calibrator	CAL4	Larson Davis CAL200	21085	AC240249	29/06/2025
Sound Level Meter	SLM1	Nor 140	1405554	U45343/ U45344/ U45342	27/07/2025
Sound Level Meter	SLM2	NOR140	1406532	SLM230218	27/09/2025

4.1.5 Subjective Noise Environment

During the attended noise survey, the following noise sources were identified:

- Birdsong,
- Road traffic noise,
- Low wind-generated noise on foliage.

4.2 Noise Measurement Results

Attended measurements were taken to measure the noise levels across the site. This section outlines the results of the attended noise measurements.

Attended Measurement Results

Table 3 outlines the results of the attended measurement survey.

Table 3: Attended Noise Measurement Results

Measurement				Measured Noise Levels		
Location	Date	Time (hrs)	Duration (mins)	L _{Aeq} dB	L _{AFmax} dB	L _{A90} dB
L1	05/07/2024	10:23	15:00	65	86	57
A1	05/07/2024	10:36	15:00	46	66	41
A1	05/07/2024	10:52	15:00	48	77	42

Unattended Monitoring Results

Table 4 outlines the results of noise measurements at the unattended monitoring location L1.

Table 4: Unattended Measurement Results

Start Date	L _{Aeq,16hour} 07:00 - 23:00 dB	L _{night} (L _{Aeq,8hour} 23:00 - 07:00) dB	L _{den} (00:00 - 00:00) dB	10th highest night-time L _{AFmax}	L _{A90} (23:00 - 07:00) dB
05/07/2024	67 ¹	63	70	83	40
06/07/2024	67	65	71	81	42
07/07/2024	67	63	72	81	37
08/07/2024	66	62	70	81	38
09/07/2024	69	63	72	80	39
10/07/2024	68	62	71	81	39
11/07/2024	69 ¹	N/A	N/A	N/A	N/A

- (1) Shortened measurement duration.
- (2) Where night-time period is referred to the date is the date the measurement commenced on at 23:00hrs and finished at 07:00hrs on the following calendar day.
- (3) Arithmetic average of L_{AF90}.

4.2.1 L_{AFmax} Noise Levels

Based on the project criteria outlined in Section 3, the internal L_{AFmax} 15min inside the dwelling bedrooms cannot exceed 45dBA more than 10 times per night. With regard to the maximum noise levels ProPG states:

“A site should not be regarded as negligible risk if the L_{Amax,F} exceeds, or is likely to exceed 60 dB more than 10 times a night. A site should be regarded as high risk if the L_{Amax,F} exceeds, or is likely to exceed 80 dB more than 20 times a night.”

Figure 6 below highlights the average number of L_{AFmax} events recorded on the noise logger per night based on a 15min measurement interval. Based on the ProPG risk assessment of the L_{AFmax} noise levels, the site is not considered high risk as there are not typically more than 20 occurrences exceeding 80dB L_{AFmax}.

The façade specification outlined in 5.2.3 has been determined in accordance with achieving the internal noise levels for both L_{Aeq} and the L_{AFmax} incident noise levels below.

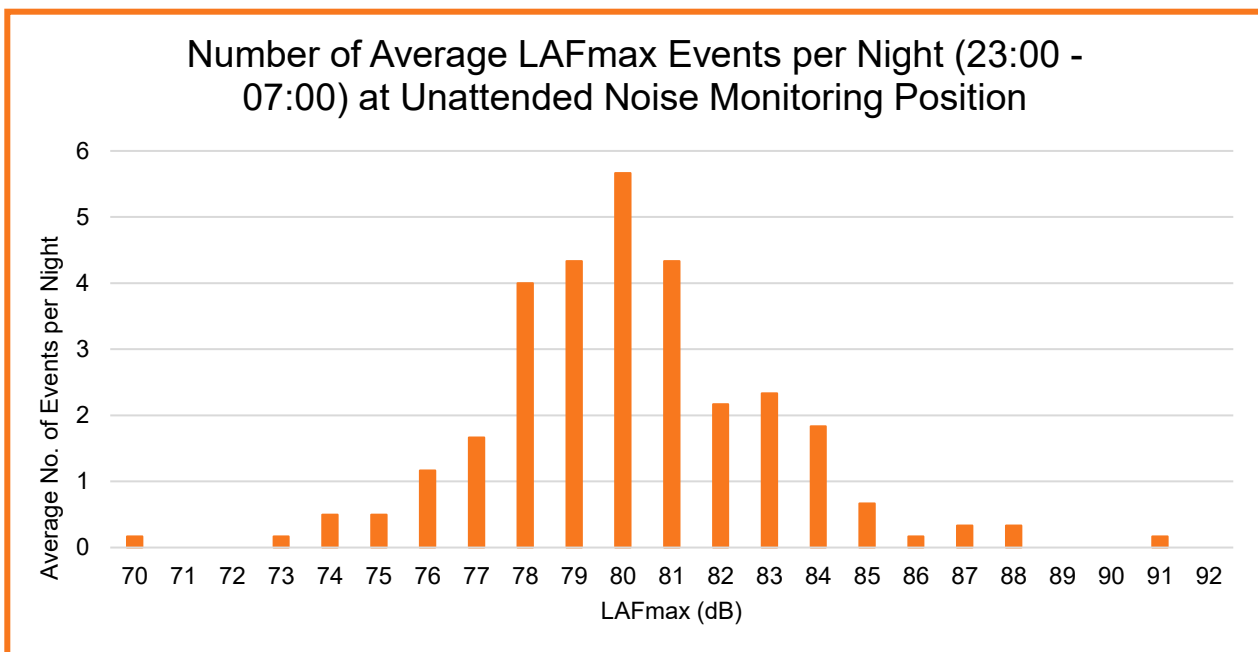


Figure 6: Average recorded L_{AFmax} events per night based on 15min measurement intervals.

Discussion of Measurement Results

The measurements were taken on weekdays and the weekend to provide an understanding of the noise climate around the site. From the noise levels recorded it can be seen that the levels were steady for the duration of the full survey.

The ambient noise consisted of traffic noise from all immediate surrounding roads.

Other sources of noise that impacted on the noise climate were the low wind generated noise on foliage, birdsong, dogs barking, and church bells.

Based on the ProPG risk assessment of the L_{AFmax} noise levels, the site is not considered high risk as there are not typically more than 20 occurrences exceeding 80dB L_{AFmax}.

4.1 Weather Conditions for Monitoring Period

Good weather conditions were noted in general during the deployment and collection during the attended survey, with winds of less than 5 m/s and no rain for the attended surveys.

Where weather conditions during the unattended survey impacted on the results they were filtered where required.

4.2 Future Noise Levels

Based on data from the TII (2017) the average rate of growth on Irish roads is a 3.9%. Assuming linear growth of 3.9% over the next 10 years an increase in noise levels from road traffic of 3 dB would be expected. WDA have allowed for this growth in our assessment.

4.3 ProPG Stage 1 – Initial Risk Assessment

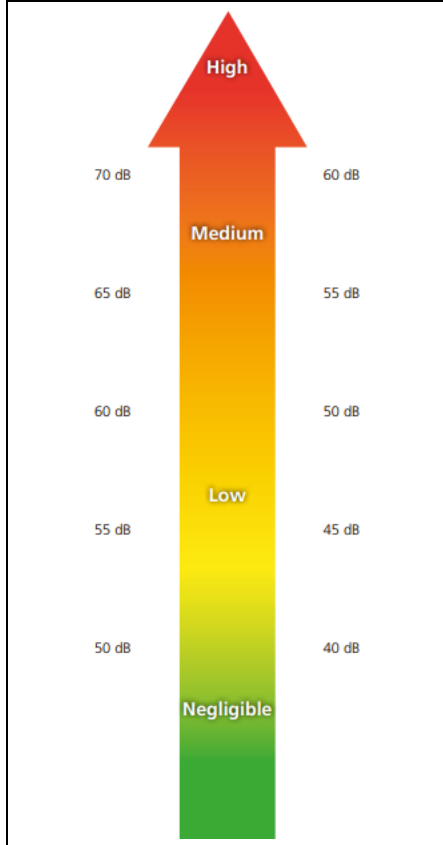
The measured noise levels on the site and future noise levels have been predicted for road traffic noise to assess the probability of an adverse impact.

Table 5 below identifies the Noise Risk Categorisation of the site based on the predicted free field façade noise levels. The site has been categorised as medium to high risk in accordance with the ProPg risk assessment. Considering this risk categorisation of the development mitigation measures will be required to mitigate the noise risk in following with ProPG guidance and good acoustic design process.

It should be noted that the ProPG 2017 states the following with regard to how the initial site noise risk is to be used:

“2.12 It is important that the assessment of noise risk at a proposed residential development site is not the basis for the eventual recommendation to the decision maker. The recommended approach is intended to give the developer, the noise practitioner, and the decision maker an early indication of the likely initial suitability of the site for new residential development from a noise perspective and the extent of the acoustic issues that would be faced. Thus, a site considered to be high risk will be recognised as presenting more acoustic challenges than a site considered as low risk. A site considered as negligible risk is likely to be acceptable from a noise perspective and need not normally be delayed on noise grounds. A potentially problematical site will be flagged at the earliest possible stage, with an increasing risk indicating the increasing importance of good acoustic design.”

Table 5: ProPG Stage 1 Risk Assessment of Existing Noise Levels

Noise Risk Assessment		Risk Assessment Rating	
Indicative Daytime Noise Levels $L_{Aeq,16hour}$	Indicative Night-time Noise Levels $L_{Aeq,8hour}$	Daytime Noise Levels	Night-time Noise Levels
 <p>The diagram shows a vertical scale from 40 dB to 70 dB. It is divided into four risk levels: Negligible (40-45 dB, green), Low (45-55 dB, yellow-green), Medium (55-65 dB, orange), and High (65-70 dB, red). A large red arrow points upwards, indicating increasing risk with higher noise levels.</p>		High Risk	High Risk
		The Eastern boundary of the site is within the medium to high contour for daytime noise. Good acoustic design should be considered.	The Eastern boundary of the site is within the medium to high contour for night time noise. Good acoustic design should be considered.
		Medium Risk	Medium Risk
		The Northeast and Southeast boundaries closest to Sallins Road are within the medium risk contour for daytime noise. Good acoustic design should be considered.	The Northeast and Southeast boundaries closest to Sallins Road are within the medium risk contour for night time noise. Good acoustic design should be considered.
		Low Risk	Low Risk
		The remainder of the site is at low risk from noise.	The remainder of the site is at low risk from noise.
		Negligible Risk	Negligible Risk
		N/A	N/A

5 ProPG Stage 2- Full Assessment

This section outlines the full acoustic design assessment in line with ProPG guidance.

5.1.1 Element 1: Good Acoustic Design Process

ProPg States the following in relation to Good Acoustic Design Process:

“A good acoustic design process takes a multi-faceted and integrated approach to achieve optimal acoustic conditions, both internally (inside noise-sensitive parts of the building(s)) and externally (in spaces to be used for amenity purposes).”

“Good acoustic design should avoid “unreasonable” acoustic conditions and prevent “unacceptable” acoustic conditions (these terms are defined in Element 2). Good acoustic design does not mean overdesign or gold plating of all new development but seeking to deliver the optimum acoustic outcome for a particular site”

The following considerations are recommended by ProPG:

- *“Check the feasibility of relocating, or reducing noise levels from relevant sources.*
- *Consider options for planning the site or building layout.*
- *Consider the orientation of proposed building(s).*
- *Select construction types and methods for meeting building performance requirements.*
- *Examine the effects of noise control measures on ventilation, fire regulation, health and safety, cost, CDM (construction, design and management) etc.*
- *Assess the viability of alternative solutions.*
- *Assess external amenity area noise.”*

5.1.2 Discussion of Good Acoustic Design

Mitigation of Sources

The development is located close to the road noise sources which are not on or part of the development therefore it is not possible to reduce or relocate the relevant noise sources.

Site Layout and Orientation

The Eastern elevation is the most exposed to road traffic noise. The Eastern block of apartments provides a high degree of noise screening to the remainder of the development which is predicted to have lower onset noise levels.

Construction Methods

Section 5.2.3 considers the construction methods required to meet the building performance control measures. The construction measures are in general robust, providing standard external wall and façade details to meet thermal, fire and weathertightness requirements will in general provide adequate performance to achieve good levels of sound insulation.

Impact of Noise Control Measures

The effects for noise control measures on other building elements including ventilation are considered in Section 5.2.3. It is generally impractical to provide ventilation via openable windows in urban/built up areas. An open window will provide 10-15dB of attenuation which in built-up urban areas is not practical. In general, the good acoustic design process in these areas is to provide ventilation via attenuated natural vents or mechanical ventilation. This allows the occupants to have adequate ventilation with adequate noise levels.

External Amenity

ProPG states the following with regard to external amenity spaces:

“The acoustic environment of external amenity areas that are an intrinsic part of the overall design should always be assessed and noise levels should ideally not be above the range 50 – 55 dB LAeq,16hr.”

The external amenity source noise levels are considered in section 5.4.

5.2 Element 2 – Assessment of Internal Noise Levels

This section outlines the assessment of the building envelope including the façade noise modelling, and specification of the glazing requirements.

A noise intrusion assessment for the proposed development has been completed in accordance with the methodology outlined International Standard *ISO EN 12354-3:2017 Building acoustics — Estimation of acoustic performance of buildings from the performance of elements — Part 3: Airborne sound insulation against outdoor sound*. The standard provides a method for calculating the indoor noise levels due to for instance Rail Traffic Noise.

The calculation method accounts for multiple factors including:

- The external noise level at the affected building façade.
- The frequency characteristics of the specific noise source (i.e. Railway Noise).
- The sound insulation performance of each façade element (i.e. Windows, Walls, Roof...).
- The area of each façade element.
- Direct and flanking transmission paths.

5.2.1 Noise Prediction Modelling

Following the survey, a computational noise model of the development using SoundPLAN 9.1 modelling software was developed to establish the noise levels from the development in a worst-case scenario. The software implements the algorithms contained in ISO 9613-1 and ISO 9613-2. The noise model considers:

- Distance attenuation,
- Source and receptor locations,
- Barrier effects (buildings, walls etc)
- Topographical elevations,
- Ground effects and absorption,
- Source sound power levels,
- Directivity and orientation of the source,
- Atmospheric attenuation and meteorological effects,

The noise model has been calibrated against the attended and unattended noise measurements. SoundPLAN 9.1 software predicts road traffic noise levels in accordance with *Calculation of Road Traffic Noise* (UK Department for Transport, 1998). This is the recognised appropriate standard for road traffic noise prediction as per TII (Transport Infrastructure Ireland).

The following information was input into the model:

- Development layout provided by architects drawings.
- Google Maps terrain and elevation data of surrounding area.
- Traffic speed of 50km/hr as per local signage and onsite observation.
- Percentage of HGV assumed at 4% based on assessment of similar local roads.
- Assessment conducted during off peak traffic times (Summertime), peak traffic volumes during school times has also been considered.
- Annual traffic growth rate of 3.9%.
 - This has been assessed based on pre-covid traffic growth data.

5.2.2 Predicted Road Noise Levels

Incident road traffic noise levels have been predicted across all facades of the development for both the day and nighttime period.

Daytime Noise Levels

Figure 7, Figure 8 and Figure 9 below outline the predicted road traffic noise levels across the proposed site for the day time period at 1.5m, 4m and 6.5m height respectively.

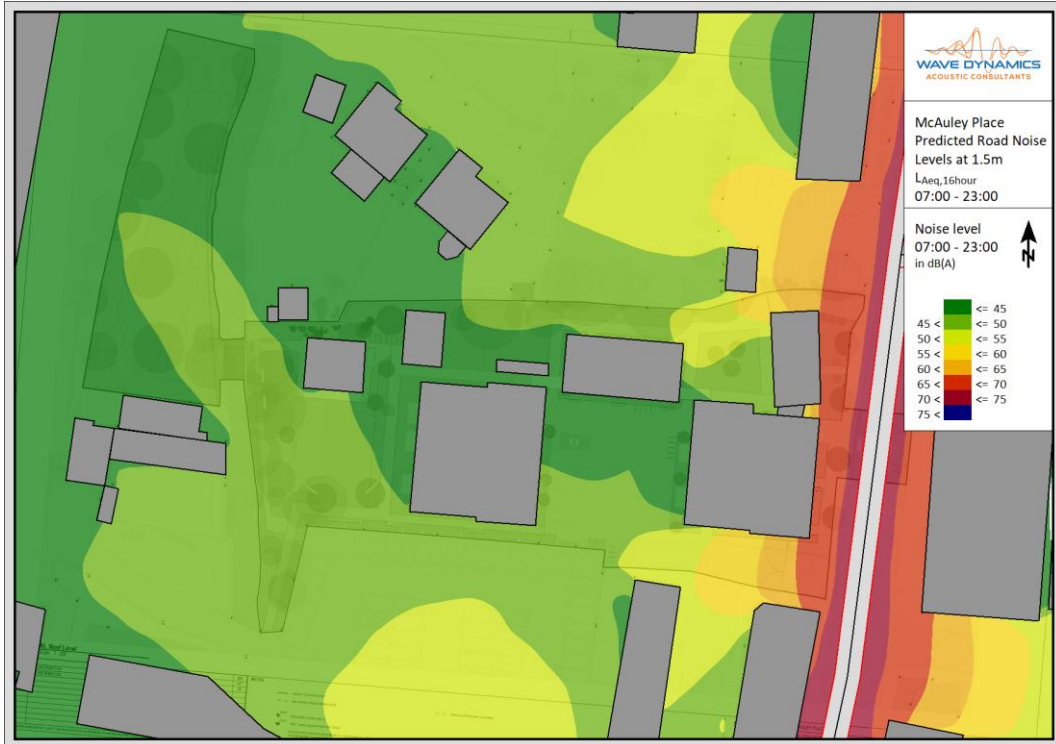


Figure 7: Predicted $L_{Aeq,16hour}$ (07:00Hrs – 23:00Hrs) at 1.5m height for the future development.

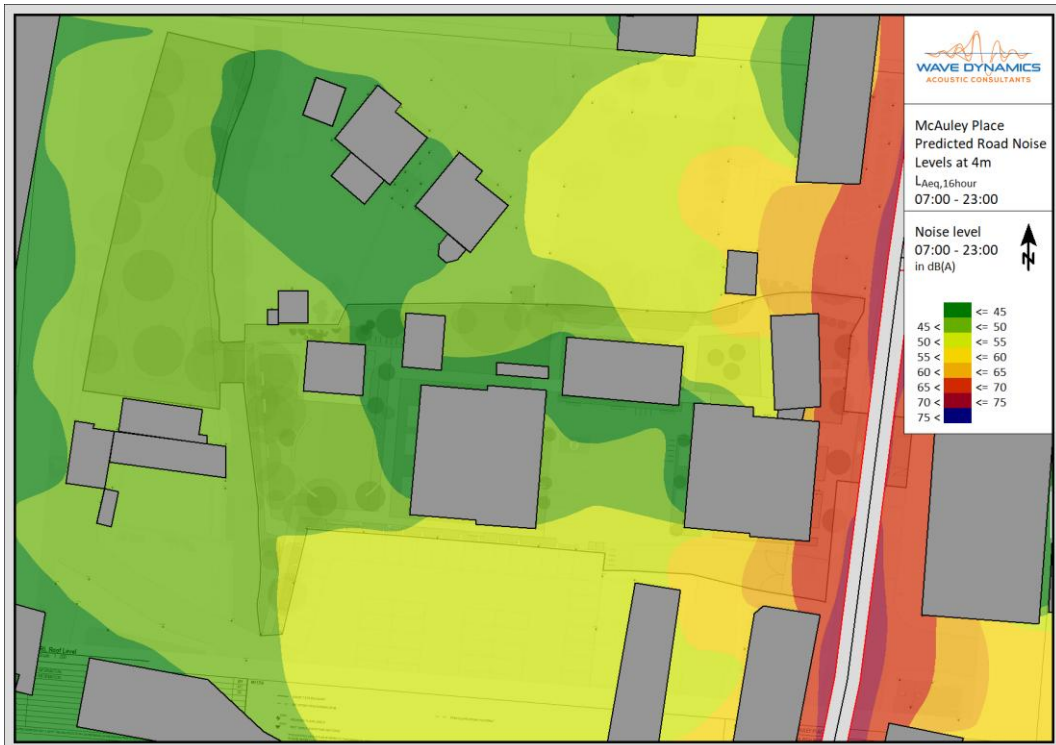


Figure 8: Predicted $L_{Aeq,16hour}$ (07:00Hrs – 23:00Hrs) at 4m height for the future development.

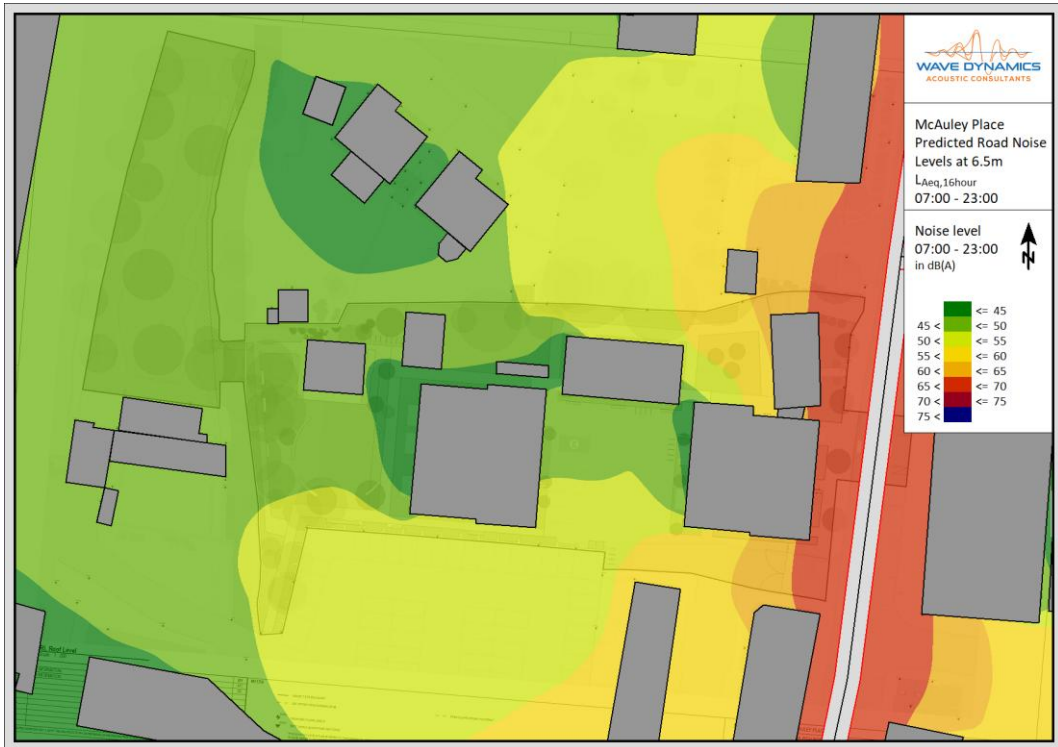


Figure 9: Predicted $L_{Aeq,16hour}$ (07:00Hrs – 23:00Hrs) at 6.5m height for the future development.

Nighttime Noise Levels

Figure 10, Figure 11 and Figure 12 below outline the predicted road traffic noise levels across the proposed site for the nighttime period at 1.5m, 4m and 6.5m height respectively.

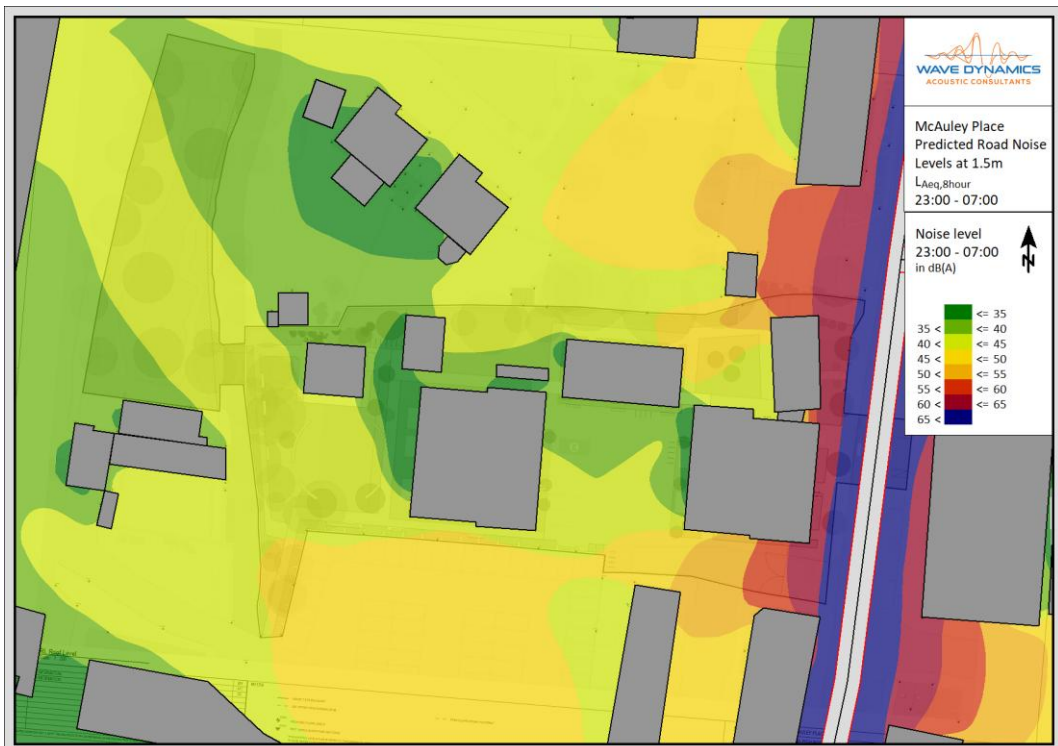


Figure 10: Predicted $L_{Aeq,8hour}$ (23:00Hrs – 07:00Hrs) at 1.5m height for the future development.

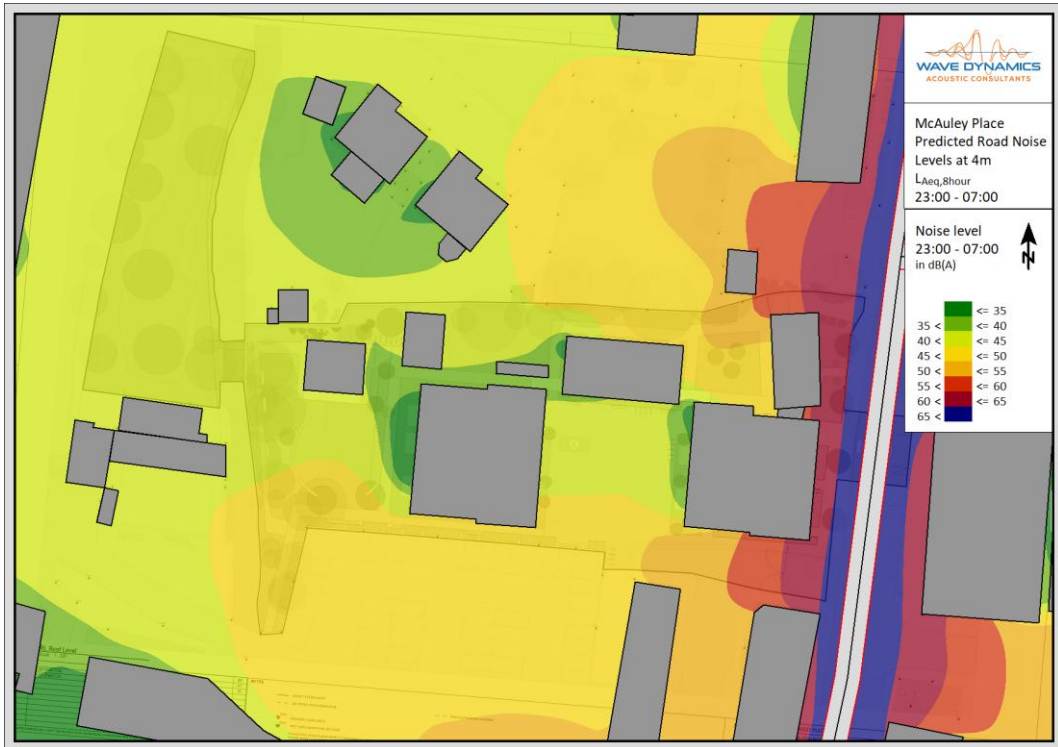


Figure 11: Predicted $L_{Aeq,8hour}$ (23:00Hrs – 07:00Hrs) at 4m height for the future development.

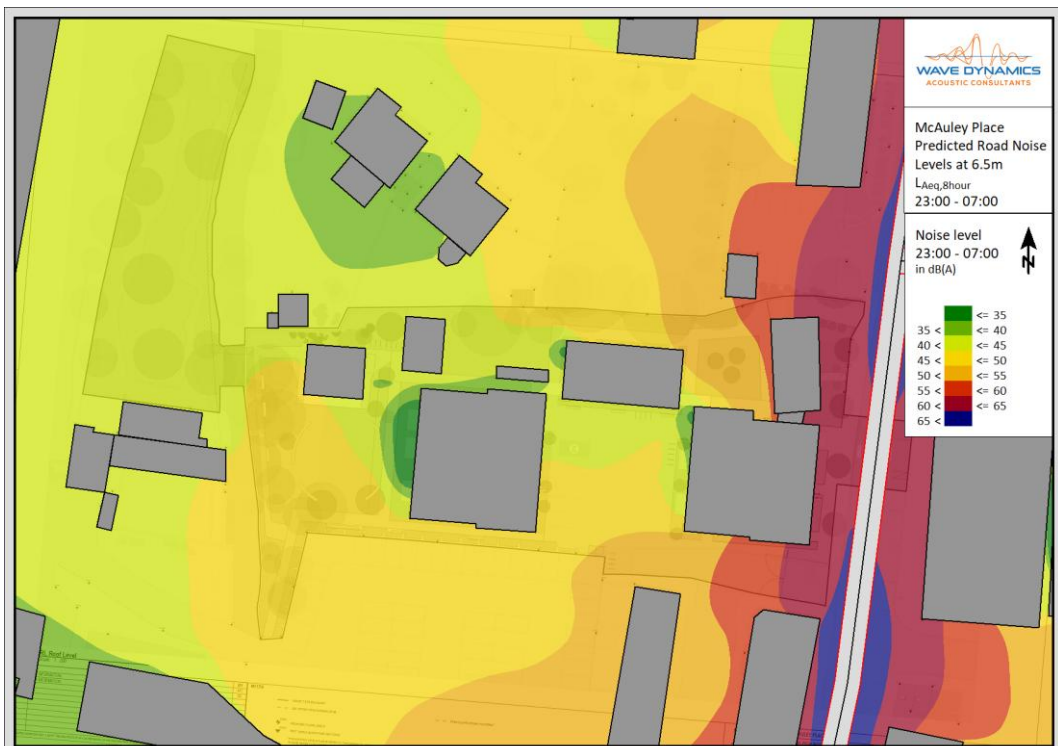


Figure 12: Predicted $L_{Aeq,8hour}$ (23:00Hrs – 07:00Hrs) at 6.5m height for the future development.

5.2.3 Building Envelope Specification

This section outlines the building envelope requirements based on the measurements outlined in Section 3. Façade, wall, glazing, roof and ventilation specifications have been determined to achieve the internal noise level criteria for the development. The specification has been determined in accordance with EN ISO 12354-3: 2017 based on the predicted façade day and night noise levels, the room and facade dimensions from the drawings provided.

The building envelope specification should be confirmed by the acoustic consultant at design stage once the internal layouts and design development has been completed. Any changes to the assumed ventilation strategy and glazing requirement should be considered as part of the review and it should be based on the internal noise levels cited in this report.

Glazed Elements and Ventilation

The glazed elements and ventilation openings are typically the acoustically weakest elements of any façade. The required sound insulation performance of façade glazed elements and ventilation openings is outlined in Table 6 below.

It is required that the glazing, frame and seals as a whole achieve the performance when the window is in the closed position. The performance requirements outlined in Table 6 below are considered to provide adequate sound insulation to achieve the relevant day and night internal design goals respectively. A markup outlining the performance requirements for each façade are included in Appendix B.

Table 6: Sound Insulation performance requirements for glazed elements and ventilation.

Façade	Glazed Elements (Frame & Glazing) Sound Insulation Requirements (Indicative requirements equal or approved)							Façade Ventilation Requirement
	Octave Band Frequency Requirements ¹ R dB						Glazing Acoustic Performance dB R _w	
	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz		
RED	21	25	35	41	49	46	37dB R _w	40dB D _{n,e,w} ⁽¹⁾ Natural Ventilation
BLUE	28	20	28	35	40	42	32dB R _w	35dB D _{n,e,w} ⁽¹⁾ Natural Ventilation

- (1) Natural ventilation assumed throughout, the performance cited for the ventilator is in the open position. Should this change to mechanical ventilation the above specification may be reduced. An acoustic consultant should be engaged to assess the level of reduction appropriate to maintain the internal noise level criteria.

It is important to note that the requirements outlined above are minimum requirements for the glazed element as a whole. The octave band values are indicative and specific to the assessed glazing type, equal or approved to meet the minimum project requirements is acceptable.

We understand the ventilation strategy is proposed as a natural ventilation system. Based on the information provided to us on the ventilation system, it has been assumed that this system is a natural ventilation system with passive openings or trickle vents. Should the ventilation strategy change to mechanical ventilation strategy Wave Dynamics should be engaged to provide an appropriate mechanical ventilation sound insulation performance requirement. Typically, the use of a mechanical ventilation strategy will lead to a reduced glazing specification compared to a natural ventilation system. This assessment is based on the windows in closed position.

External Wall Construction

The façade wall construction has been assumed to achieve a minimum sound insulation performance of 56dB R_w. Typical façade construction such as concrete, blockwork, timber frame and brick offer high levels of sound insulation and will meet this requirement.

Roof Construction

The roof construction has been assumed to achieve a minimum sound insulation performance of 50dB R_w . Any skylights and glazing in the roof system to corridor or communal areas should be of standard double-glazed construction to meet a performance of minimum 29 dB R_w . If there are any skylights to habitable bedrooms Wave Dynamics should be informed to provide specific guidance in each case.

5.3 Consideration of L_{den} and L_{night}

The majority of the site is within the 70 dBA L_{den} and 57 dBA L_{night} as requested by KCC on similar applications. Given that the development is on the Sallins Road and it is up to 5 storeys in height in some places it is not practical to achieve these noise levels on the most exposed façade. The use of screening via noise walls etc was considered, however screening was not considered practical given that this development is located on Sallins Road. Figure 13 below outlines the L_{den} contours across the site at 4m height. The noise strategy for the project has been to deal with the inward noise impact via the façade ie windows, external walls roof etc.

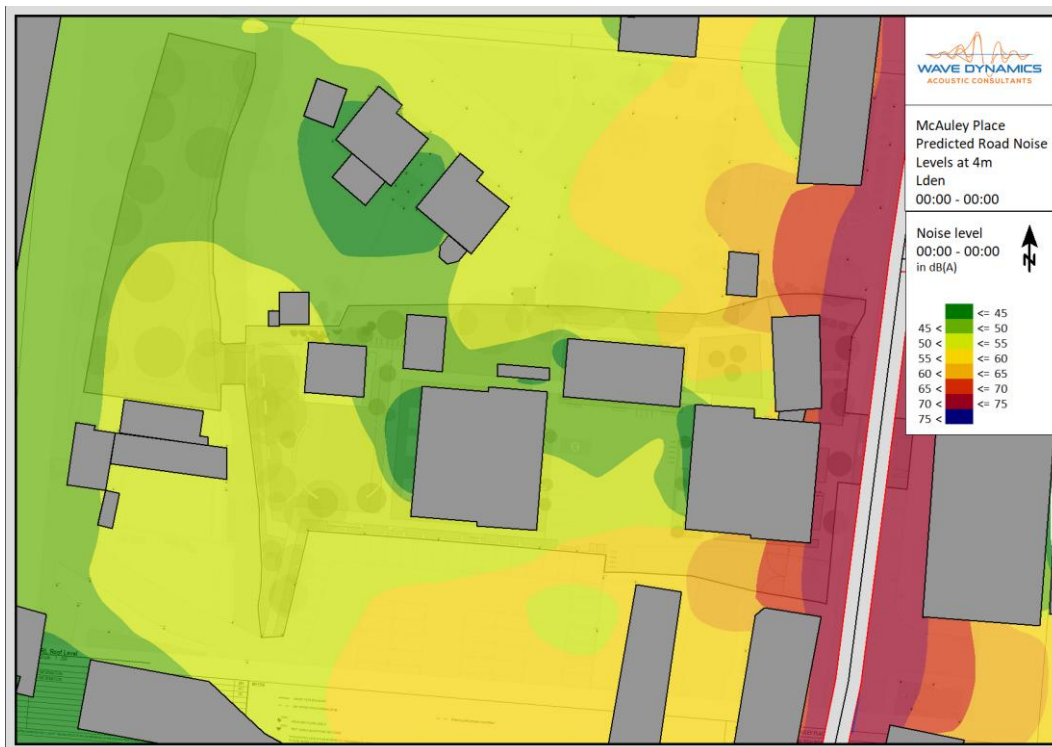


Figure 13: Predicted L_{den} (00:00Hrs – 00:00Hrs) at 4m height for the future development.

5.4 Element 3- External Amenity Spaces

The external amenity spaces on the development include private amenity in the form of balconies, communal amenity spaces at ground level. Based on the assessment the balconies on the Eastern boundary are above the levels recommended in ProPG and BS 8233. However, appropriate amenity has been provided on the development for these residents with the amenity spaces on the ground level to the rear of the development. These spaces are predicted to comply with the recommended external amenity noise criteria as outlined in ProPG and BS8233. In addition all remaining balconies are predicted to achieve the desirable external amenity noise levels without mitigation. This is in line with element 3(v) of ProPG which states:

“Where, despite following a good acoustic design process, significant adverse noise impacts remain on any private external amenity space (e.g. garden or balcony) then that impact may be partially off-set if the residents are provided, through the design of the development or the planning process, with access to:”

“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, publicly accessible, external amenity space (e.g. a public park or a local green space designated because of its tranquillity) that is nearby (e.g. within a 5 minutes walking distance)”.

Based on the measured noise levels at the site it is predicted that the external noise levels in both the ground level amenity spaces and all balconies aside from those to the Eastern boundary will achieve the ProPG recommendations for desirable external amenity noise levels of 50-55dBA L_{Aeq,16hour}. Figure 14 outlines the amenity space provided across the development.



Figure 14: Ground level and roof level amenity spaces.

5.5 Element 4- Assessment of Other Relevant Issues

This section of the acoustic design report considered the other relevant issues. Element 4 considers other issues which may remain relevant to the assessment, these issues are as follows:

- 4(i) compliance with relevant national and local policy.
- 4(ii) magnitude and extent of compliance with ProPG .
- 4(iii) likely occupants of the development.
- 4(iv) acoustic design v unintended adverse consequences and;
- 4(v) acoustic design v wider planning objectives.

5.5.1 Compliance with Relevant National and Local Policy

There are no specific noise guidance or policy documents for residential developments. The Kildare County Council Noise Action Plan refers to the ProPG as the relevant document for assessment of the noise impact on new residential developments as followed in this acoustic design statement.

5.5.2 Magnitude and Extent of Compliance with ProPG

This report demonstrates that all dwellings will meet the specified internal noise level requirements provided the guidance in this report is followed. External amenity spaces have been provided in line with the guidance set out in ProPG. Based on this the development is in general compliance with the ProPG requirements.

5.5.3 Likely Occupants of The Development

Additional needs of the future occupants are not known at this stage however the needs of all potential occupants have been considered with the assessment of adequate internal noise levels and provision of adequate external amenity spaces to meet the needs of potential occupants.

5.5.4 Acoustic Design v Unintended Adverse Consequences

The design has considered the impact of adverse consequences, mitigation has been provided by specification of the sound insulation and ventilation requirements.

5.5.5 Acoustic Design v Wider Planning Objective

Where possible the wider planning objectives have been considered including the need for residential housing with good transport links. It is assumed that the wider planning objectives have been adhered to by following the ProPG guidance.

5.6 Stage 2 Assessment Conclusion

The stage 2 assessment considers all four (4) elements, the principals of good acoustic design have been followed.

The element 2 assessment has considered the measures required to provide an adequate acoustic environment with appropriate noise levels for internal spaces. The sound insulation and ventilation requirements have been specified based on the predicted façade noise levels.

The element 3 assessment of external amenity spaces has considered the noise impact on the development and the external amenity spaces. The appropriate provision of external amenity space has been provided through the use of balconies and ground level communal garden in line with the ProPG guidance.

Other relevant issues have been considered including, local policy, unintended consequences and the wider planning objectives.

6 Conclusion

Wave Dynamics were engaged by MDO Architects as the acoustic consultants to undertake an Inward Noise Impact Assessment for the planning application for the proposed new residential development at McAuley Place, Sallins Road, Naas, Co. Kildare.

The development comprises the construction of a residential development for older persons located at 13 & 18 Sallins Road, Beaufort Cottage and Beaufort, Sallins Road, Naas West, Naas, Co. Kildare.

Beaufort (house) is proposed to be retained and repurposed to facilitate a community room for the proposed residents and the demolition of the non-original fabric alterations and additions is proposed. Demolition of the three existing terraced cottages fronting Sallins Road is proposed.

The residential development will provide 44 no. 1 and 2-bedroom units across 3 interconnecting 4 storey blocks on a 0.48ha site. The development will also include a single storey rear garden pavilion, a single storey plant room, associated communal and public open spaces and 4 surface car parking spaces. Additional car parking (20 spaces) will be made available within the existing town centre car park located opposite the site. A pedestrian crossing is proposed at the front of the site, across Sallins Road.

Vehicular access is proposed from Sallins Road via a right of way from Father Murphy's Terrace along the southern boundary. A bridge is proposed across the Mill Lane stream connecting the rear of the site with the Luisne Gardens public open space.

Noise Impact Assessment

A Stage 1 and Stage 2 ProPG assessment have been undertaken. As part of the stage one assessment to categorise the site, a baseline noise survey was undertaken to measure the existing noise levels. Following a review of the noise levels on the site, including the L_{AFmax} and L_{Aeq} , the site has been characterised as medium to high risk for day and night for the Eastern boundary and medium to low risk for the day and night period across the rest of the site therefore, mitigation measures are required to control the onset noise levels.

Consideration was given to the onset noise levels and the Kildare County Council Noise Action Plans. The noise levels on the most exposed façade exceed 70 dBA L_{den} and 57 dBA L_{night} . Consideration was given to noise abatement measures including a noise wall. However given the location of the development, the height of the development and the context of the development providing a noise wall to mitigate the onset façade noise levels would not be a practical solution. Therefore, the façade has been designed to insure adequate internal noise levels.

Internal Noise Levels

Following the baseline survey, a noise impact assessment was undertaken, this included break-in noise calculations to predict the internal noise levels from road traffic noise. Consideration has also been given to the future growth of the roads. The noise measurements were taken during the summertime period, consideration has been given to peak traffic during school times. Following the assessment, the building envelope performance requirements were determined. The performance specification for the building envelope has been provided in this report which includes the external walls, glazing, roof and ventilation requirements.

External Amenity Noise Levels

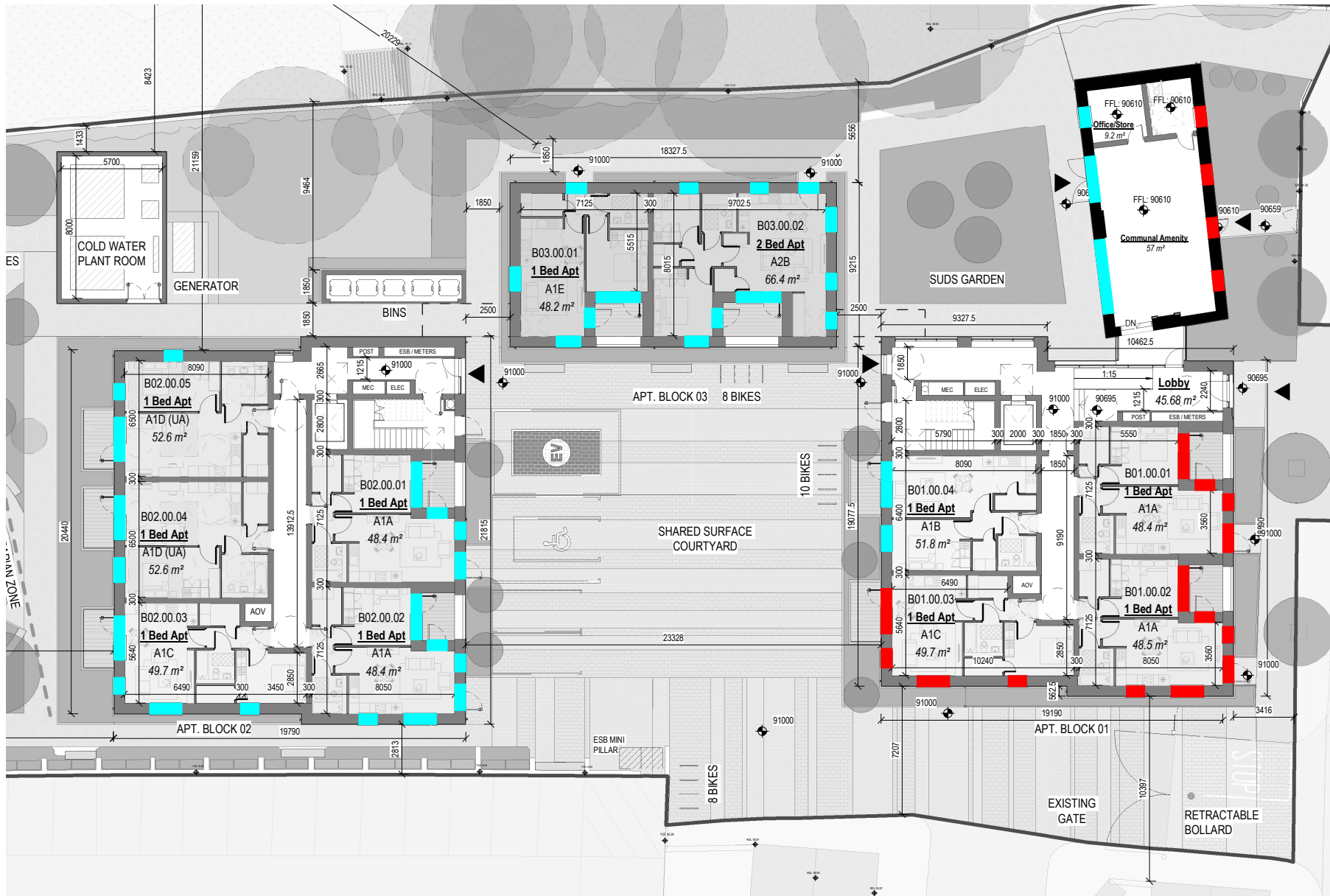
The external amenity spaces on the development includes balconies along with communal space at ground level to the west of the development and to the east of the development. Appropriate amenity has been provided on the development for residents using a combination of the balconies on suitable facades and the communal amenity spaces. This is in line with element 3(v) of ProPG.

Based on the recommendations in this report it is predicted that the internal and external noise levels will achieve the targeted noise levels in line with BS 82233:2014 and ProPG 2017 guidance.

Appendix A- Glossary of Terms

Ambient Noise	The totally encompassing sound in a given situation at a given time, usually composed of sound from all the noise sources in the area.
Background Noise	The steady existing noise level present without contribution from any intermittent sources. The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90 per cent of a given time interval, T ($L_{AF90,T}$).
dB	Decibel - The scale in which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the RMS pressure of the sound field and the reference pressure of 20 micro-pascals (20 μ Pa).
dB(A)	An 'A-weighted decibel' - a measure of the overall noise level of sound across the audible frequency range (20 Hz – 20 kHz) with A-frequency weighting (i.e. 'A'-weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
Hertz	The unit of sound frequency in cycles per second.
L_{A90}	A-weighted, sound level just exceeded for 90% of the measurement period and calculated by statistical analysis. See also the background noise level.
L_{Aeq}	A-weighted, equivalent continuous sound level.
L_{AFmax}	A-weighted, maximum, sound level measured with a fast time-constant - maximum is not peak
L_{den}	day-evening-night noise level, the A-weighted, L_{eq} (equivalent noise level) over a whole day, but with a penalty of 10 dB(A) for night-time noise (23:00-07:00) and 5 dB(A) for evening noise (19:00-23:00), also known as the day evening night noise indicator

Appendix B- Façade Mark Ups



Glazed Elements Specification

- 37 dB R_w
- 32 dB R_w



Project: McAuley Place

Title: Glazing Markup - Ground Floor

Prepared By: Cathal Reck

Reviewed By: James Cousins

Date: 03/03/206



Glazed Elements Specification

- █ 37 dB R_w
- █ 32 dB R_w



Project: McAuley Place

Title: Glazing Markup -
First to Third Floors

Prepared By: Cathal Reck

Reviewed By: James Cousins

Date: 03/03/2026