Residential Development Noise Impact Assessment

Talbot Green

Talbot Green Developments Ltd

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01	20 October 2025	V.Taylor MIOA	S. Skingle MIOA	S. Skingle MIOA
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Basis of Report

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Executive Summary

This document has been prepared for Talbot Green Developments Ltd by SLR Consulting Limited to support an outline application for residential development at Talbot Green.

This assessment has been prepared in review of noise impacts from transportation and commercial noise sources on the intended occupiers of the proposed development.

An assessment of existing and potential future commercial retail noise impact has been undertaken with respect to the Agent of Change principal under Welsh Government policy.

It has subsequently been developed in accordance with Professional Practice Guidance (ProPG) *Planning and Noise – New Residential Development* (2017), and TAN11.

A study of environmental sound levels has been reported within Section 4.0 and confirms Stage 1 assessment in accordance with ProPG and Tan 11 has provided that the Site is otherwise dominated by transportation noise with worst case noise levels falling within ProPG “medium” and TAN11 “Cat B” categories.

Stage 2 assessment completed in accordance with ProPG has followed a good acoustic design process, considering internal ambient noise levels, external amenity areas and other matters. Commensurate design specifications have been established considering current industry guidance against the proposed scheme layout. It has been realised that suitable internal and external amenity standards can be readily achieved by the development with a suitable scheme of mitigation, as outlined.

On the basis that design guidance within this report has been adopted, it follows that any significant adverse noise impacts will be avoided in the finished development as to accord with overarching national and local planning requirements for new residential development.

A recommendation is made to the decision maker to grant with noise conditions where necessary to ensure that significant adverse effects will be avoided for the proposed dwellings, by use of a commensurate scheme of control as outlined within this report.

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Acronyms and Abbreviations

ADO	The Building Regulations 2010 Approved Document O (2022 edition – for use in Wales)
ADF	The Building Regulations 2010 Approved Document F: Volume 1 (2022 edition – for use in Wales)
ANC	Association of Noise Consultants
CIEH	Chartered Institute of Environmental Health
IOA	Institute of Acoustics
NIA	Noise Impact Assessment
NSAP	Noise and Soundscape Action Plan
NSR	Noise Sensitive Receptor
ProPG	Professional Practice Guidance
PPW	Planning Policy Wales
SLR	SLR Consulting Limited
SQP	Suitably Qualified Person
TAN	Technical Advice Note

1.0 Introduction

Talbot Green Developments Ltd has appointed SLR Consulting Limited(SLR) to undertake a noise impact assessment for a proposed residential development on Talbot Green (the Site).

This document has been prepared to support the following proposal within Rhondda Cynon Taf County Borough Council (RCTCBC):

> *"Outline application for the erection of up to 180 dwellings with all associated open space, landscaping, drainage, engineering and servicing."*

This assessment has been prepared in review of noise impacts from transportation sources and commercial premises on the intended occupiers of the proposed development. It has been developed in accordance with Professional Practice Guidance (ProPG) Planning and Noise – New Residential Development (2017).

This report has been prepared and checked by suitably qualified persons as defined in Section 10.0. Whilst reasonable effort has been made to ensure that this report is easy to understand, it is technical in nature. To assist the reader, a glossary of terminology has been included in Appendix A**.**

2.0 Site Description

The development Site defines land south of the A473, to the west of the existing Sainsburys building.

Figure A below has been prepared to highlight the geolocated development masterplan in aerial view for context.

Figure A: Site Plan and Aerial View

2.1 Incident Noise Sources

The Site is bound by local transportation sources as including the A473 to the north, and Cowbridge Road to the west.

Existing sources of commercial noise include:

- Leekes Llantrisant to the west
- Sainsburys to the east.

2.2 Proposed Development

The proposed development has included for erection of up to 180 dwellings with all associated open space, landscaping, drainage, engineering and servicing, as part of the wider masterplan commercial development is understood to be facilitated by a separate application, nonetheless this aspect of the wider scheme should still be considered as a future noise source impacting on the residential elements being facilitated by the application which this noise impact assessment supports.

In respect to timelines, it is understood both aspects of the scheme are being delivered simultaneously with respect to the planning system. Thus, recommendations herein may be relevant to the concurrent or subsequent application.

This noise assessment has been based on the highlighted development proposals as obtained at the earliest opportunity of development planning.

The below Figure B has been considered as part of this noise impact assessment, based on proposed scheme development plans within Appendix B.

Figure B: Proposed Development

3.0 Planning and Noise Guidance

3.1 Overview

A summary of the standards and guidance relevant to noise and the proposed development is provided below:

- Welsh Government (2021) Planning Policy Wales (PPW)
- Welsh Office (1997) Technical advice note (TAN) 11: Noise (TAN11)
- ANC, IOA & CIEH (2017) Professional Planning Guidance (ProPG): Planning & Noise, New Residential Development, Supplementary Document 2, Good Acoustic Design
- The British Standards Institution (2014) BS 8233:2014 Guidance on sound insulation and noise reduction for buildings
- World Health Organisation (1999) Guidelines for Community Noise
- The British Standards Institution (2014) BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites
- Department of Transport Welsh Office (1988) Calculation of Road Traffic Noise (CRTN)
- Design Manual for Roads and Bridges (DMRB), Sustainability & Environmental Appraisal LA111 Noise and Vibration, Version 2. Standards for Highways, May 2020

3.2 Planning Policy Context

3.2.1 Planning Policy Wales (PPW) (Welsh Government, February 2024

Section 6.76 of PPW States*:*

"In proposing new development, planning authorities and developers must, therefore: • address any implication arising as a result of its association with, or location within, air quality management areas, noise action planning priority areas or areas where there are sensitive receptors162; • not create areas of poor air quality or inappropriate soundscape; and • seek to incorporate measures which reduce overall exposure to air and noise pollution and create appropriate soundscapes."

In respect to the Agent of Change Principal, PPW states:

> *"The agent of change principle says that a business or person responsible for introducing a change is responsible for managing that change. In practice, for example, this means a developer would have to ensure that solutions to address air quality or noise from nearby pre-existing infrastructure, businesses or venues can be found and implemented as part of ensuring development is acceptable."*

PPW also states,

> *"For more information on the principles of good acoustic design, readers are referred to Professional Planning Guidance (ProPG) Supplementary Document 2, produced by the Association of Noise Consultants, the Institute of Acoustics and the Chartered Institute of Environmental Health (http://www.association-of-noise-consultants.co.uk/propg/). ProPG has been written principally to assist with the planning process in England, but the design principles put forward in Supplementary Document 2 may also be adopted in Wales."*

PPW is supplemented by a number of technical advice notes, including technical advice note (TAN) 11: Noise (TAN11) (Welsh Office, 1997)

3.2.2 Noise and Soundscape Plan for Wales 2023-2028

In 2018, Welsh Government published the Noise and Soundscape Action Plan 2018-2023 (NSAP), which reframed noise policy in Wales in terms of the Well-being of Future Generations (Wales) Act 2015 ("the WFG Act"). It resulted in Wales being recognised as the first nation to include soundscapes in national policy, and it was referenced in the United Nations Environment Programme's Frontiers 2022 report.

Earlier this year, Wales introduced the Environment (Air Quality and Soundscapes) (Wales) Bill, which will require to production of a national strategy on soundscapes.

In 2018, Wales did this voluntarily in the form of the NSAP, giving the new Noise and Soundscape Plan 2023-2028 a more solid legal foundation raising its profile and increase its effectiveness in guiding informed decision-making.

The draft Noise and Soundscape Plan 2023-2028 retains and refines the core messages of the NSAP, which include:

- appropriate soundscapes;
- commitment to embed the five ways of working in the WFG Act; and
- commitment to join up action on noise and air quality wherever it makes sense to do so.

3.3 Rhondda Cynon Taf County Borough Council (RCTCBC)

It has been understood that RCTCBC are preparing a revised Local Development Plan (2022 – 2037) that will replace the current Local Development Plan (LDP) for Rhondda Cynon Taf (2006 – 2021). The current LDP will remain in force given that, at the time of writing, the Revised LDP has not been adopted.

3.3.1 LDP for Rhondda Cynon Taf (2006 – 2021)

It has been acknowledged within the current LDP that pollution may cause significant damage to human health, quality of life and residential amenity, in addition to impacting on the natural and built environment.

Policy AW 10 has been provided to ensure that new development would not result in unacceptably high levels of pollution, including noise:

> *"Policy AW 10 – Environmental Protection and Public Health*
>
> *Development proposals will not be permitted where they would cause or result in a risk of unacceptable harm to health and / or local amenity because of:-*
>
> *… 2. Noise pollution ... Or any other identified risk to the environment, local amenity and public health or safety unless it can be demonstrated that measures can be taken to overcome any significant adverse risk to public health, the environment and / or impact upon local amenity."*

3.4 Technical Guidance and Standards

3.4.1 Technical Advice Note 11 (TAN11)

Noise bands defining categories A-D of TAN11 (Welsh Office, 1997) are set in terms of dB $L_{Aeq,16hr}$ daytime and $L_{Aeq,8hr}$ night time levels for noise from Road and Air Traffic, free field 1.2 – 1.5 m above ground level as follows in Table A.

Table A: Recommended Noise Exposure Categories (NEC)

Recommended noise exposure categories for new dwellings near existing noise sources (ref Table 2 of TAN 11 (Wales) October 1997)					
Noise Source	**Time**	**Noise Exposure Categories**			
		A	**B**	**C**	**D**
Road Traffic	07:00 – 23:00	< 55	55 – 63	63 – 72	> 72
	23:00 – 07:00	< 45	45 – 57	57 – 66	> 66
Air Traffic	07:00 – 23:00	< 57	57 – 66	66 – 72	> 72
	23:00 – 07:00	< 48	48 – 57	57 – 66	> 66

3.4.1.1 Assessment Practice Notes-Noise levels:

The noise level(s) (dB $L_{Aeq,T}$) used when deciding the NEC of a site should be representatives of typical conditions.

Night-time noise levels (2300-0700): sites where individual noise events regularly exceed 82 dB L_{Amax} (S time weighting) several times in any hour should be treated as being in NEC C, regardless of the night dB $L_{Aeq,8hr}$ (except where it already puts the site in NEC D).

Aircraft noise: daytime values accord with the contour values adopted by the Department of Transport which relate to levels measured 1.2 m above open ground.

For the same amount of noise energy, contour values can be up to 2 dB(A) higher than those of other sources because of ground reflection effects.

Mixed sources: this refers to any combination of road, rail, air and industrial noise sources.

The "mixed source" values are based on the lowest numerical values of the single source limits in the table. The "mixed source" NECs should only be used where no individual noise source is dominant.

To check if any individual noise source is dominant (for the purposes of this assessment) the noise level from the individual sources should be determined and then combined by decibel addition (remembering first to subtract 2 dB(A) from any aircraft noise contour values).

If the level of any one source, then lies within 2 dB(A) of the calculated combined value, that source should be taken as the dominant one and the site assessed against the appropriate NEC for that source, rather than using the "mixed source".

NECs: If the dominant source is industrial noise see paragraph B17 of Annex B.

If the contribution of the individual noise sources to the overall noise level cannot be determined by measurement and/or calculation, then the overall measured level should be used, and the site assessed against the NECs for "mixed sources".

Local planning authorities should then have regard to the advice in the appropriate NEC, as below:

Table B: TAN11 Noise Exposure Category Advice Summary

NEC	Summary
A	Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as desirable.
B	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection.
C	Planning permission should not normally be granted. Where it is considered that permission should be granted, for example because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.
D	Planning permission should normally be refused.

3.4.2 Professional Planning Guidance (ProPG)

ProPG Supplement 2 (ANC, IOA & CIEH, 2017) as referenced above in TAN11 discusses the general principles of Good Acoustic Design, including the following hierarchy of noise management measures in descending order of preference;

- Maximising the spatial separation of noise source(s) and receptor(s).
- Investigating the necessity and feasibility of reducing existing noise levels and relocating existing noise sources.
- Using existing topography and existing structures (that are likely to last the expected life of the noise-sensitive scheme) to screen the proposed development site from significant sources of noise.
- Incorporating noise barriers as part of the scheme to screen the proposed development site from significant sources of noise.
- Using the layout of the scheme to reduce noise propagation across the site.
- Using the orientation of the buildings to reduce the noise exposure of noise-sensitive rooms.
- Using the building envelope to mitigate noise to acceptable levels.

For the purposes of this assessment the noise categorisation thresholds from TAN11 will be used in tandem with the above guidelines in relation to design optimisation for the site.

3.4.3 British Standard 8233:2014

BS 8233:2014 (The British Standards Institute, 2014) includes internal noise criteria of habitable rooms in residential dwellings, as shown below in Table C;

Table C: BS 8233:2014 Internal Ambient Noise Criteria for Habitable Rooms

Space	07:00 to 23:00	23:00 to 07:00
Living room	35 dB $L_{Aeq,16hr}$	-
Dining room/area	40 dB $L_{Aeq,16hr}$	-
Bedroom	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$

3.4.3.1 Notes to Table C

> *"Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5dB and reasonable internal conditions still achieved."*

In addition, it states*:*

> *"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."*

Reference is therefore made to World Health Organisation (WHO) 'Guidelines for Community Noise' (WHO, 1999) which states *"For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45dB L_{Amax} more than 10-15 times per night (Vallet & Vernet 1991)".*

Section 7.7.3.2 of BS 8233:2014 entitled 'Design criteria for external noise' states;

> *"For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$ with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognised 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 to 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.".*

3.4.4 BS 4142:2014 +A1:2019

The British Standard BS 4142:2014 +A1:2019 *Methods for Rating and Assessing Industrial and Commercial Sound* (BS 4142) notably describes methods for rating and assessing sound of an industrial or commercial nature. It has been referenced where required in policy and guidance documents to assess the potential impact of sound of an industrial and/or commercial nature, at existing and proposed noise-sensitive receptor locations within the context of the existing sound environment.

Certain acoustic features can increase the significance of impact from a comparison of the specific sound level to the background sound level where these features are likely to affect perception and response. Where such features are present at the assessment location, a character correction (or penalty) to the specific sound level is made to obtain the rating level. This can be approached from subjective, objective and reference methods.

- Tonality: A correction of 0 dB to + 6 dB for sound ranging from not tonal to prominently tonal.
- Impulsivity: A correction of up to + 9 dB can be applied for sound that is impulsive.
- Intermittency: A penalty of + 3 dB can be applied if on/off conditions are readily distinctive within the reference time interval over the period of the greatest amount of on-time.
- Other characteristics: A penalty of + 3 dB can be applied in the absence of all other defined characteristics, where the specific sound contains a distinctive feature in the residual acoustic environment.
- The rating sound level is equal to the specific sound level if there are no acoustic features present or expected to be present.

The significance of sound depends upon both the margin by which the rating level exceeds the background sound level and the context in which the sound occurs. An initial estimate of the impact of the specific sound is made by subtracting the measured background sound level from the rating level.

- Typically, the greater the difference, the greater the magnitude of the impact;
- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context; and
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background level, this is an indication that the specific sound source will have a low impact, depending on the context.

BS 4142 has stipulated that context is important when assessing the impact of sound of a commercial and/or industrial nature. Amongst a range of advocated considerations, this can include mitigation, residual sound levels, location and absolute sound levels in the consideration of context.

The scope of BS 4142 recognises that human response to sound can be subjective as affected by many factors, both acoustic and non-acoustic. The significance of its impact can depend on various factors such as the exceedance to the background level, its absolute level, time of day and change in environment, as well as local attitudes to the source of sound and character of the neighbourhood.

4.0 Environmental Survey Summary

The following section has referred to a study of environmental sound levels carried out between Friday 8th August 2025 to Tuesday 12th August 2025.

This included sound level measurements and observations to characterise the sound levels from incident sources of transportation, or potentially of industrial and/or commercial nature.

4.1 Equipment and Measurements

Sound pressure level measurements were carried out using the following equipment listed in Table D, of Class 1 acoustic accuracy for sound level meters and matched calibrators.

The sound level meters were calibrated before the measurements using the handheld acoustic calibrator and further checked upon completion of the survey. No significant drift was observed with calibration offsets of ≤ 0.5 dB.

The calibration chain of equipment has been maintained traceably to national standards, no greater than one year for sound calibrators and two years for sound level meters.

Table D: Sound Monitoring Equipment

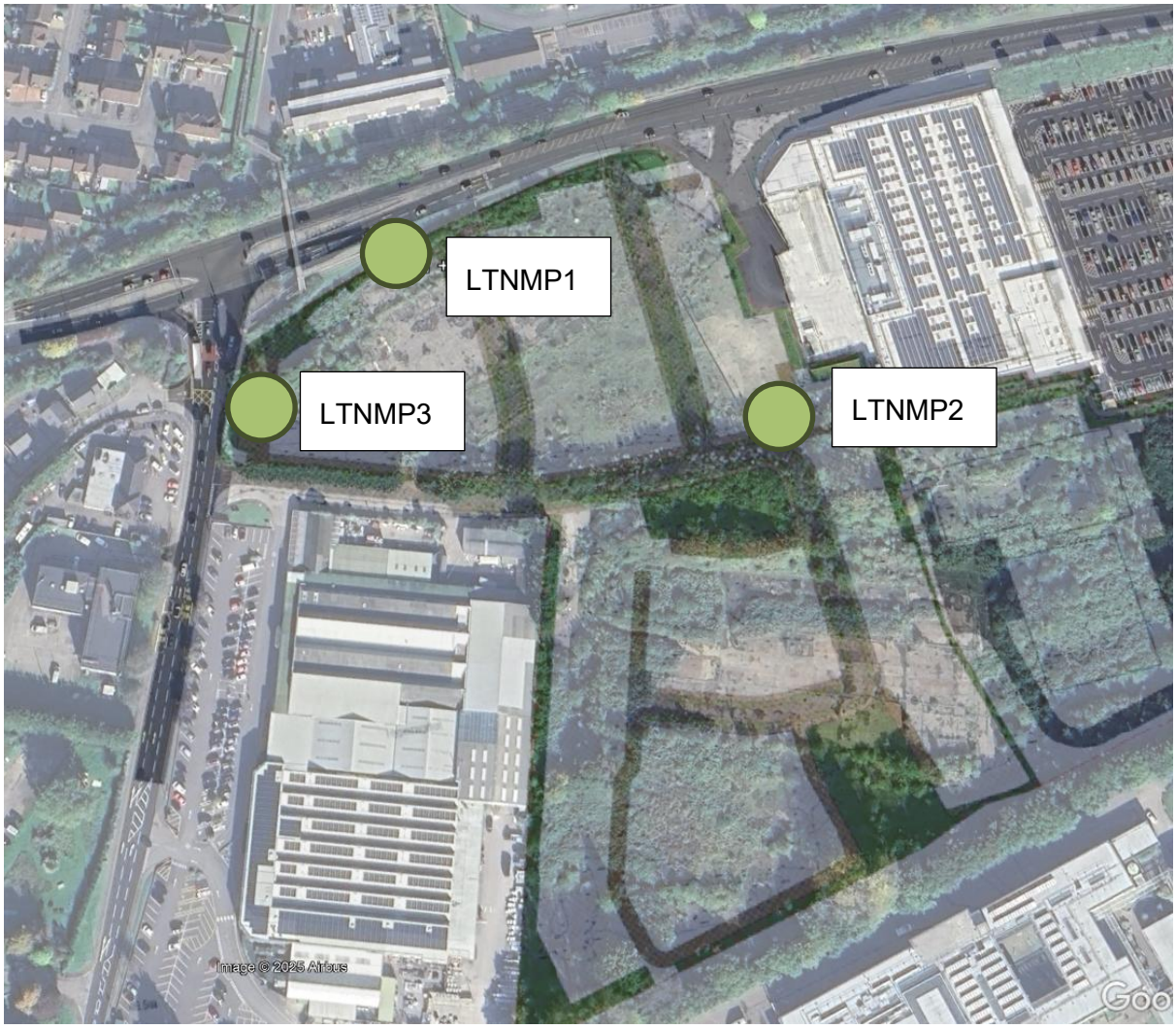
Location	Description	Manufacturer	Type	Serial Number	Laboratory Calibration Date	Certificate Number
LT1	Sound Level Meter	Cirrus	CR:171B	G400059	12/02/2025	TCRT25/1139
	Pre-Amplifier	Cirrus	MV:200F	12872F		TCRT25/1139
	½" Microphone	Cirrus	MK:224	216587D		TCRT25/1139
	Outdoor kit	Cirrus	MK172	2546	13/02/2025	TCRT25/1143
	Calibrator	Cirrus	CR:515	99960	12/02/2025	TCRT25/1129
LT2	Sound Level Meter	Acoem	Fusion	16431	17/07/2025	DTE-L-25-PVE-92525
	Pre-Amplifier		Combined SLM and Pre-amp			
	½" Microphone	GRAS	40CD	632476		Inc.
	Outdoor kit	Acoem	DMK01	2506075	17/07/2025	DTE-L-25-PVE-92525
	Calibrator	RION	NC-74	34167510	02/06/2025	TCRT25/1431
LT3	Sound Level Meter	Cirrus	CR:171B	G300561	24/03/2025	236673
	Pre-Amplifier	Cirrus	MV:200F	11887F		236673
	½" Microphone	Cirrus	MK:224	217658A		236673
	Outdoor kit	Cirrus	MK172	2312	24/03/2025	236673
	Calibrator	Cirrus	CR:515	87922	23/09/2024	222845

Sound pressure levels were measured on and about the Site with respect to incident noise sources and location of the proposed residential development.

The location and purpose of each measurement have been described below and illustrated on the aerial Site plan of Figure C further below.

- Location 1: Representative of the northern area of the site, with road traffic noise being dominant from the A473, and to a lesser extent Cowbridge Road.
- Location 2: Representative of southeastern area of the site, on boundary with Sainsburys.
- Location 3: Representative of the south western area of the site. Representative of boundary incident noise levels from Leekes Llantrisant delivery yard.

Figure C: Baseline Monitoring Locations



The following sound level indices have been reported at varying intervals in decibels (dB):

- $L_{Aeq,T}$ – The A-weighted equivalent continuous level over the measurement period.
- $L_{A90,T}$ – The A-weighted level exceeded for 90% of the measurement period.
- $L_{A10,T}$ – The A-weighted level exceeded for 10% of the measurement period.
- $L_{Amax(F)}$ – The maximum A-weighted level during the measurement period.

Graphical results describing unattended data have been provided for the above-listed sound level metrics at 15-minute histories within Appendix C. The sound level meters at Locations

1 to 3 were otherwise configured to record one-second time history as allowing the recalculation of other time-history metrics in following of overarching guidance.

4.2 Weather Conditions

Data from the weather station has been provided within Appendix C to explain the range of monitored conditions.

- Temperatures ranged from 12 – 26 °C.
- Average wind speeds always fell below 2 m/s with gusts no greater than 5 m/s.
- Rainfall was not present.
- A westerly wind direction was prominent throughout the study as providing a neutral vector from the prevailing transportation source to the north.

Weather conditions were viewed to be generally acceptable for environmental sound level measurements. No data has been filtered from the measured dataset when reviewing typical background and residual sound level conditions.

4.3 Soundscape

4.3.1 Overview

A full witnessed log of events has been obtained to describe main sound sources incident on the Site during times of Site attendance. Routine audio recordings were otherwise recorded to retrospectively understand the prevailing sound climate in unattended conditions.

Observations in and around the Site have included the following notes summarised below:

- Transportation noise was dominant to the north from the A473.
- Sound from the natural environment, including biophony, birdsong, in addition to insects such as grasshoppers birds etc. was evident but not dominant.
- Geophonic sound such as wind through trees was limited due to the conditions of the survey but may be more present during periods of higher wind.

Note: sources from the natural environment, of non-human living organisms (biophony) or non-biological natural sources (geophony), can contribute positively to a soundscape.

This is outside the scope of noise impact assessment to ProPG and TAN11 where typically noise sources associated to those from human activity (anthropophony) are of principal interest.

Given that road traffic provided the dominant sound levels at all monitoring Locations 1 to 4, the time history of measured data within Appendix C has reflected a typical diurnal pattern.

4.4 Baseline Survey Results

4.4.1 Period Averages and Maxima

Period average summaries for the purposes of transportation noise considerations have been provided within Table E below.

Table E: Summary of Period Typical Sound Levels- Daytime

Location	Time Period	Log Average dB L_{Aeq}	n^{th} Highest dB $L_{AFmax, n=10}$
	Daytime (07:00 – 23:00) T = 16-hours		
LTNMP1	Friday 8th August; 07:00 - 23:00	59	76
	Saturday 9th August; 07:00 – 23:00	61	82
	Sunday 10th August; 07:00 – 23:00	61	84
	Monday 11th August; 07:00 – 23:00	62	80
	Tuesday 12th August 07:00-23:00	62	75
LTNMP2	Friday 8th August; 07:00 - 23:00	50	63
	Saturday 9th August; 07:00 – 23:00	53	75
	Sunday 10th August; 07:00 – 23:00	50	72
	Monday 11th August; 07:00 – 23:00	51	69
	Tuesday 12th August 07:00-23:00	52	64
LTNMP3	Friday 8th August; 07:00 - 23:00	52	64
	Saturday 9th August; 07:00 – 23:00	55	74
	Sunday 10th August; 07:00 – 23:00	54	74
	Monday 11th August; 07:00 – 23:00	54	72

Table F: Summary of Period Typical Sound Levels- Night Time

Location	Time Period	Log Average dB L_{Aeq}	n^{th} Highest dB $L_{AFmax, n=10}$ (2 minute)
	Night Time (23:00 – 07:00) T = 8-hours		
LTNMP1	Friday 8th August / Saturday 9th August; 23:15 - 06:45	55	73
	Saturday 9th August / Sunday 10th August; 23:15 - 06:45	54	74
	Sunday 10th August / Monday 11st August; 23:15 - 06:45	56	74
	Monday 11st August / Tuesday 12nd August; 23:15 - 06:45	57	75
LTNMP2	Friday 8th August / Saturday 9th August; 23:00 - 06:45	46	64
	Saturday 9th August / Sunday 10th August; 23:00 - 06:45	46	67
	Sunday 10th August / Monday 11st August; 23:00 - 06:45	47	63
	Monday 11st August / Tuesday 12nd August; 23:00 - 06:45	47	64
LTNMP3	Friday 8th August / Saturday 9th August; 23:15 - 06:45	48	65
	Saturday 9th August / Sunday 10th August; 23:15 - 06:45	47	64
	Sunday 10th August / Monday 11st August; 23:15 - 06:45	49	64
	Monday 11st August / Tuesday 12nd August; 23:15 - 06:45	50	65

Night-time maxima levels have been established based on the 15-minute time history. A recent opinion paper[1] described that such approach would be expected within 2 dB of the 1-minute data per night.

A difference of greater than 15 dB between dB $L_{Amax(F)}$ and dB $L_{Aeq,8h}$ night values has been noted at Locations LTNMP1-3. This has promoted the potential significance of maximum sound levels beyond the average equivalent levels within residential design.

Table G, Table H and Table I below summarise the baseline residual and background sound levels in terms of dB $L_{Aeq,T}$ and dB $L_{A90,T}$ respectively, as applicable for assessments to BS 4142.

[1] Conlan, N. Wei, W. et al. Empirical relationship between L_{night} and L_{Amax}. Proceedings of the Institute of Acoustics. Volume 43, Part 1, 2021.

Table G: Summary of Background and Residual Sound Levels LTNMP1

Measurement Details			Residual sound level dB $L_{Aeq,T}$		Background sound level dB $L_{A90,T}$	
Day Date Range	Period	Time HH:MM	Range	Typical*	Range	Typical*
Fri 08/08/2025 - Tue 12/08/2025	Day	07:00 - 19:00	56 - 71	61	40 - 59	55
	Evening	19:00 - 23:00	55 - 66	60	37 - 55	48
	Night	23:00 - 07:00	44 - 63	53	33 - 55	35
*Based on modal values occurring within each stated time period.						

Table H: Summary of Background and Residual Sound Levels LTNMP2

Measurement Details			Residual sound level dB $L_{Aeq,T}$		Background sound level dB $L_{A90,T}$	
Day Date Range	Period	Time HH:MM	Range	Typical*	Range	Typical*
Fri 08/08/2025 - Tue 12/08/2025	Day	07:00 - 19:00	46 - 57	53	38 - 51	49
	Evening	19:00 - 23:00	46 - 57	50	38 - 48	42
	Night	23:00 - 07:00	40 - 54	44	36 - 49	38
*Based on modal values occurring within each stated time period.						

Table I: Summary of Background and Residual Sound Levels LTNMP3

Measurement Details			Residual sound level dB $L_{Aeq,T}$		Background sound level dB $L_{A90,T}$	
Day Date Range	Period	Time HH:MM	Range	Typical*	Range	Typical*
Fri 08/08/2025 - Tue 12/08/2025	Day	07:00 - 19:00	49 - 65	55	40 - 53	51
	Evening	19:00 - 23:00	47 - 61	51	36 - 49	48
	Night	23:00 - 07:00	37 - 56	49	30 - 51	33
*Based on modal values occurring within each stated time period.						

4.4.2 Dominance of Industrial and Commercial Sound

A Site walkaround at different times of attendance (in addition to the post-measurement review of audio recordings) highlighted that industrial and commercial sound was somewhat limited in presence on the application Site mainly due to dominance of road traffic noise of moderate magnitude evidenced through the diurnal patten of the noise climate at all measurement positions.

Nonetheless it is reasonable to undertake risk assessments of commercial noise incident on the propsoed residential development giving consideration to the following:

- Existing Leekes Llantrisant to the South West of the Proposed Development.
- Existing Sainsburys to the East of Proposed Development
- Emerging Commercial Development within the wider masterplan being assessment within a separate application.

5.0 Agent of Change Assessment (BS4142)

The site lies in a mixed area in regard to existing development in the immediate vicinity.

5.1 The “Agent of Change” Principle

The 'agent of change principle' encapsulates the position that a person or business (i.e. the agent) introducing a new land use is responsible for managing the impact of that change, in following of PPW.

The practical issue that has arisen on occasion is that in circumstances where residents move into an area where noise is emanating from a long-standing commercial operation, this may have resulted in the Local Planning Authority (LPA) imposing additional licensing restrictions on the established licensed and/or permitted business.

PPW provides guidance on the implementation of an 'agent of change' principle’ to place the responsibility for noise management measures on the incoming 'agent of change' in this instance the developer for which this application is being made.

The guidance states that consideration should be given to additional mitigation where an existing commercial development may give risk to a “significant adverse impact” constituting a valid reason for complaint from future occupants of the Proposed Development.

In respect to the existing retail units the following is considered:

The predominant source of noise in respect to the existing Leekes Llantrisant, and Sainsburys store retail unit would be car park traffic noise and HGV deliveries, in the context the site experiences higher noise levels of road traffic noise of a similar character and higher magnitude from the A473 in respect to car parking noise, on this basis any mitigation measures proposed would similarly control delivery noise emanating of a similar character, furthermore such noise generation is already effectively captured within the baseline surveys undertaken.

Mechanical plant and services noise is likely controlled by planning conditions associated with the existing schemes and as such given that there are residential receptors immediately north of Sainsburys, and west of Leekes Llantrisant it is considered that fixed plant and services noise would not be further constrained by the Proposed Development which is at a greater or similar distance.

However, in respect to protecting existing commercial interests as per the PPW it is considered appropriate to undertake a BS4142 noise impact assessment in respect to HGV delivery cycles. This is summarised below.

The impact of noise on the proposed development will depend on several factors, including (but not limited to) the time of day, frequency of occurrence and nature of sound source. Delivery activities on site site will naturally pose greater noise risk where they occur during noise sensitive periods of the evening and night where the likelihood of annoyance or sleep disturbance increases. Human response to noise depends on sociological factors, attitudes and perceptions which can be difficult to define and account for any individual case.

The recognised methodology for assessment of operational phase impacts has been taken from BS 4142:2014 + A1:2019 *Methods for rating and assessing industrial and commercial sound*. This standard has been noted to include consideration of sound from loading and unloading of goods and mobile plant that is intrinsic to deliveries at the existing commercial premises (such as produce or stock cages and trucks/trolleys).

The numerical assessment has been provided below for relevant periods of proposed operation, following the definition of specific sound levels.

5.2 Specific Sound Level Calculations

Given the proposal for employment use development, which is yet to come forward, a level of assumption has been necessary to describe the likely noise emissions based on similar and approved schemes. All established assumptions and limitations have been outlined herein this section.

A previous revision of the development masterplan has been used as a baseline for assessing emissions to the nearest dwelling within the scheme. It should be noted that the layout is a reserved matter & masterplan is illustrative only, so details such as orientation are yet to be confirmed in detail.

This has included considerations of the following components based on industry standard methods and measurements of similar situations.

- HGV Vehicle movements along the access routes
- Movement of HGVs, with a brief period of idling time, and produce cages around external loading bays.

The quantification of noise impacts has been considered with extended operation of the scheme over day (07:00 – 19:00), evening (19:00 – 23:00) and night (23:00 – 07:00) periods, where relevant variation in baseline conditions has been noted within the baseline survey data captured at NMP3 deemed representative of background sound levels at closest receptors within the Proposed Development.

The noise model assumes all sites as below operating simultaneously:

- Exisitng Leekes Llantrisant to the South West of the Proposed Devleopment.
- Existing Sainsburys to the East of Proposed Development.
- Emerging Commercial Development within the wider masterplan being assessment within a separate application.

The assessment is undertaken against the lowest background sound levels captured at the most relevant measurement position to the identified receptors to provide an assessment when it is anticipated ongoing deliveries would have likely not occurred during the baseline noise survey.

Background sound levels at the site vary greatly over the diurnal cycle and therefore this approach is considered robust for the purposes of Agent of Change assessment.

5.2.1 Movement of HGVs and Produce Cages Around External Loading Bays

Line sources have been provided in model space as to define the operation of HGVs reversing into loading bays at 2.7m/s, idling for a brief period and additional external movements from produce cage trucks in each loading bay. The quantity of HGVs has followed the assumptions of completion of 1 delivery cycle in any 1-hour daytime and a delivery cycling continuing through a 15-minute night time period, considering operation at the nearest delivery bay to the proposed dwellings.

At Sainsburys and Unit 1 (as currently proposed) it has been assumed a produce cage truck or stock trolley which is similar in nature would be in use in the service bay entrance for the remainder of the assessment duration once the HGV is stationary except for the HGV departure which is also accounted for within the daytime delivery noise impact assessment.

Table J: Vehicle Movements Within External Loading Bays

Speed		Vehicle Type	Duration	Time of Day	Input Sound Level, dB
km/h	**m/s**	HGV Reversing/Idling/manoeuvring into delivery bay	120 seconds manoeuvring to delivery bay. 120 seconds idling. (Arrivals and departures within 1 hour period).	Day & Evening	90 dB L_{WA}
10	2.7		60 seconds manoeuvring to delivery bay. 60 seconds idling. (Arrivals only in any 1.no 15 minute period).	Night	
		Movement of Produce Cages or stock trucks.*	15 minutes (3360 seconds).	Day And Evening	67 dB Sound Pressure Level @3m. 85dB L_{WA}
			13 minutes (780 seconds)	Night	

Some level of assumption has been necessary to define the on-time of each activity of Table J.

Reversing of HGVs has been considered as short-lived and slow events, with produce cage operations as in operation for several trips during the remainder of any hour daytime, and the remainder of the 15-minutes night time period at the delivery bay access, this has been modelled as a vertical area source at the delivery bay doors, noting observations that delivery HGVs reverse up to the Aldi buildings eastern facade.

It is considered the use of trolley is only applicable at Leekes Llantrisant and the newly proposed Retail Unit 1 as part of the wider masterplan,

Sainsburys and Unit 2 appear to have formal docking bay arrangements to which a HGV will reverse up to the warehouse threshold.

This is considered robust in that no additional allowance is made for screening by the HGV, and that in reality produce cage movement might only occur intermittently during the delivery period.

All sources have been considered at 1.5 m height.

5.3 Modelling Outputs

To understand specific sound levels for the purposes of assessment, a noise model has been created using CadnaA with input sound power level data from Section 5.2. The on time for all activities and equipment has been accounted for in the defined sound power levels.

The modelling process has followed the technical requirements of ISO 9613 Parts 1 and 2, accounting for all plant items at their developed location. The format of calculations has included all noise sources 1.5 m above ground with receptor locations of 1.5 m and +3.0 m per upper floor as appropriate to the receptor. Propagation over mixed ground (G = 0.5) has been used to define soft and hard ground types an along with a reflection order of 2, with each building comprising a reflecting element in model space.

The specific sound level occurring from the development has been equated on listed assumptions during different times of the day, evening and night.

The following specific sound levels have been estimated from the described modelling process, with results illustrated in F

Figure D and Figure E below.

Results have highlighted the highest level on the façade, at either ground or upper floor level appropriate to the height of the receptor.

Table K: Specific Sound Levels – Leekes Llantrisant

Source	NSR	Predicted Specific Sound Level dB $L_{Aeq,T}$		
		07:00 – 19:00 (T = 1 hour)	19:00 – 23:00 (T = 1 hour)	23:00 – 07:00 (T = 15 minute)
Leekes Llantrisant Sainsburys Proposed Masterplan Retail Development (Unit 1 &2)	Nearest New Dwelling within Proposed Development to Leekes Llantrisant.	37	37	39
	Nearest New Dwelling within Proposed Development to Sainsburys	42	42	47
	Nearest New Dwelling within Proposed Development to Unit 1 and Unit 2 of wider masterplan.	52	57	57

Figure D: Noise Map dB $L_{Aeq, T}$– Daytime/Evening- 1.5m Grid Height

Figure E: Noise Map dB $L_{Aeq,T}$– Night- 4.0m Grid Height

5.4 BS 4142 Assessment

The following numerical assessments have been provided in Table L below in accordance with BS 4142 to provide a comparison between the rating sound levels of the proposal against the typical sound levels existing prior to development at the proposed location of future noise sensitive receptors within the Proposed Development boundary indicated to have the highest incident specific sound level based upon the noise models produced.

Table L: BS 4142 Assessment of Proposed Development – Proposed Development -nearest Dwelling to Leekes Llantrisant

Results	Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00	Commentary
Residual sound level, dB $L_{Aeq,T}$	55	51	49	Representative residual and background sound levels for proposed Receptors. Background sound levels selected based on lowest recorded levels at LTNMP3 for robustness as provided in free-field conditions and shown within Table F.
Background sound level, dB $L_{A90,T}$	51	48	33	
Reference time interval	1-hour	1-hour	15-minutes	
Specific sound level, dB $L_{Aeq,T}$	37	37	40	Highest dwelling off-site values from noise modelling results.
Acoustic feature correction, dB	0	0	+3	No feature correction has been applied during the day and evening on the basis the specific level is low, and below lowest background sound levels to remain indistinguishable in the residual sound climate. During the night time a general +3dB feature correction has been applied.
Rating level, dB $L_{Ar,Tr}$	37	37	43	Specific sound level plus acoustic feature correction.
Excess of rating over background sound level	-14	-11	+10	Where the Agent of Change under NPPF (and assumed similarly PPW) indicates adverse impacts would be avoided (+5dB to background sound levels).
Assessment indicates likelihood of *depending on context	Low Impact	Low Impact	Adverse Impact tending to Significant Adverse.	During the daytime and evening here the rating level does not exceed the background level, this is an indication that the specific sound source will have a low impact, depending on the context. The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. During the Night here the rating level does exceed the background level, this is an indication that the specific sound source will have an adverse to significant adverse impact depending on the context. The higher the rating level is relative to the measured background sound level, the more likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Embedded mitigation should be considered within the residential design scheme
Uncertainty of the assessment	Not significant			See statement of uncertainty in Section 5.7.2.

Table M: BS 4142 Assessment of Proposed Development – Proposed Development -nearest Dwelling to Sainsburys

Results	Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00	Commentary
Residual sound level, dB $L_{Aeq,T}$	61	60	53	Representative residual and background sound levels for proposed Receptors. Background sound levels selected based on lowest recorded levels at LTNMP1 for robustness as provided in free-field conditions and shown within Table F.
Background sound level, dB $L_{A90,T}$	55	48	35	
Reference time interval	1-hour	1-hour	15-minutes	
Specific sound level, dB $L_{Aeq,T}$	42	42	47	Highest dwelling off-site values from noise modelling results.
Acoustic feature correction, dB	0	0	+3	No feature correction has been applied during the day and evening on the basis the specific level is low, and below lowest background sound levels to remain indistinguishable in the residual sound climate. During the night time a general +3dB feature correction has been applied.
Rating level, dB $L_{Ar,Tr}$	37	37	50	Specific sound level plus acoustic feature correction.
Excess of rating over background sound level	-18	-11	+15	Where the Agent of Change under NPPF (and assumed similarly PPW) indicates adverse impacts would be avoided (+5dB to background sound levels).
Assessment indicates likelihood of *depending on context	Low Impact	Low Impact	Significant Adverse Impact.	During the daytime and evening here the rating level does not exceed the background level, this is an indication that the specific sound source will have a low impact, depending on the context. The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. During the Night here the rating level does exceed the background level, this is an indication that the specific sound source will have a significant adverse impact depending on the context. The higher the rating level is relative to the measured background sound level, the more likely it is that the specific sound source will have a significant adverse impact. Additional mitigation should be considered within the residential design scheme in regard to glazing ventilation and private amenity spaces.
Uncertainty of the assessment	Not significant			See statement of uncertainty in Section 5.7.2.

Table N: BS 4142 Assessment of Proposed Development – Proposed Development - nearest Dwelling to Proposed Unit 1 and Unit 2 Retail within Wider Masterplan

Results	Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00	Commentary
Residual sound level, dB $L_{Aeq,T}$	53	50	44	Representative residual and background sound levels for proposed Receptors. Background sound levels selected based on lowest recorded levels at LTNMP2 for robustness as provided in free-field conditions and shown within Table F.
Background sound level, dB $L_{A90,T}$	49	42	38	
Reference time interval	1-hour	1-hour	15-minutes	
Specific sound level, dB $L_{Aeq,T}$	49	49	54	Highest dwelling off-site values from noise modelling results.
Acoustic feature correction, dB	0	+3	+3	No feature correction has been applied during the day and evening on the basis the specific level is low, and below lowest background sound levels to remain indistinguishable in the residual sound climate. During the night time a general +3dB feature correction has been applied.
Rating level, dB $L_{Ar,Tr}$	49	52	57	Specific sound level plus acoustic feature correction.
Excess of rating over background sound level	+1	+13	+19	Where the Agent of Change under NPPF (and assumed similarly PPW) indicates adverse impacts would be avoided (+5dB to background sound levels).
Assessment indicates likelihood of *depending on context	Low Impact	Significant Adverse	Significant Adverse.	During the daytime here the rating level does not exceed the background level, this is an indication that the specific sound source will have a low impact, depending on the context. The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. During the Evening and Night here the rating level does exceed the background level, this is an indication that the specific sound source will have between an adverse to significant adverse impact in the evening, and night time respectively depending on the context. The higher the rating level is relative to the measured background sound level, the more likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Additional mitigation should be considered within the residential design scheme in regard to glazing ventilation and private amenity spaces.
Uncertainty of the assessment	Not significant			See statement of uncertainty in Section 5.7.2.

The numerical assessments above have highlighted the potential for:

- "Low" Impact during all operating hours of the day.
- "Low" to "Significant Adverse" impact during the evening.
- "Adverse" to "Significant Adverse" at night.

At the worst affected potential proposed dwellings within the Proposed Devleopment assuming the potential that all sites identified receive simultaneous day, evening and night deliveries.

Clearly there would be a need for mitigation measures to be incorporated into the design of the proposed residential development which would largely concern the design the closest plots to overcome the potential for any adverse or significant adverse impacts at night.

5.5 Mitigation Measures

ProPG advises a hierarchy of noise management measures that should be encouraged in the following and descending order of preference, as highlighted within Table O below. Whilst attributable to transportation sources in ProPG, these have been replicated where generally relevant to other sources of sound in this assessment.

Table O: Hierachy Table for Noise Management Measures

Order of Preference		Mitigating Measure	Summary Measure
Highest		Investigate feasibility of reducing existing noise levels and relocating existing noise sources.	Reduce at source
		Maximise spatial separation between noise source(s) and receiver(s).	Attenuate through the propagation path
		Use existing structures and land topography to screen the proposed development from existing and significant source(s) of noise.	
		Placement of lesser sensitive buildings closer to the noise source, where possible.	
		Inclusion of new structures (such as noise barriers) to cause a physical interruption between the source(s) and sensitive receiver(s).	
		Use the proposed layout of the scheme to reduce noise propagation across the site.	Mitigate at the receiver
		Use the orientation of noise-sensitive buildings to reduce the noise exposure of noise-sensitive rooms (e.g. bedrooms and living rooms) by facing them away from the significant source(s) of noise.	
Lowest		Use the acoustic design of the building to mitigate noise to acceptable levels inside, through façade design and insulation.	

It follows that the principles given in ProPG, and in general noise control, for management of noise should be focussed (in order) from the source(s), through the propagation path to the receiver(s). In context to proposed residential development on land adjacent to loading activities, there would be no realistic prospect to reduce the sound at the source unless

planning obligations were considered particularly in regard to the emerging Retail Devleopment to the east which is not yet consented.

The proposed scheme has provided a considerate layout with respect to industry, by providing a reasonable separation to industry as stepped back from overlooking the industrial area.

Consequently, the development may further take advantage of land topography by means of a scheme of boundary screening, which would be best placed closest to the proposed housing than the industrial site.

The inclusion of new structures, including purpose-built noise barriers, has therefore been one of the pertinent areas for noise mitigation, to cause a physical interruption between the commercial or industrial source and residential receiver.

The development can furthermore enhance the mitigation of commercial or industrial sound through mitigation at the receiver in regard to sound insulation measures embedded into the design of dwellings.

5.6 Barrier Mitigation Noise Modelling

It can be shown through noise modelling, that the acoustic effect of screening the adjacent commercial zones would have benefit for the proposed residential development, this is considered most feasible to the eastern boundary with Unit 1, Unit 2 and Sainsburys respectively.

Due to the present site layout this is not considered feasible at the south western boundary with Leekes Llantrisant, however it is noted that dwellings are orientated such that private amenity space is screened behind dwelling relative to the commercial noise source. It should also be noted as highlighted previously that layout is a reserved matter and the masterplan is illustrative only, as such details such as orientation are yet to be confirmed or defined in specific detail, there are therefore further opportunities to optimise the layout at reserved matters application state.

Consideration could similar be given to orientating bedroom windows into the site interior also wherever practical.

A proposed barrier/bund arrangement has been shown in the figures below with all modelling per the definition of parameters above in Section 5.3.

Indicative proposed mitigation has been generally illustrated with barrier and/or bund form constructed above ground level at a total +3.0 m on the site boundary to the east. This would be subject to development alongside the layout submitted at reserved matters discharge.

This mitigation should be discussed with the developer and coordinated with ownership boundaries appropriately, it is considered such a barrier may be limited in height due to the potential for land stability issues with the use of taller noise barriers.

In practice, a 3.0 m tall acoustic screen may be formed of some component of bunding in addition to some component of fencing, to achieve the total recommended height and to reduce the visual impact of the proposed screening solely by a fence.

Typically, acoustic fencing could be considered to nominally 3.0 m height by itself or with a 2.0 m tall structure with bunding underneath of 1.0 m created from topsoil strip or material elsewhere in the scheme, to avoid import of material from external sources and grossly sized earthworks.

The anticipated result would be a significant reduction in incident in commercial sound levels emanating from the east on dwellings within the proposed development.

Figure F: Mitigated Noise Map dB $L_{Aeq, T}$– Daytime/Evening- 1.5m Grid Height.

Figure G: Mitigated Noise Map dB $L_{Aeq,T}$– Night- 4.0m Grid Height

The layout of nearest dwellings could further reduce the noise exposure of noise-sensitive rooms (e.g. first floor bedrooms) by moving and/or facing them away from the significant source of noise as far as practical.

5.7 BS 4142 Assessment- Mitigated

The following numerical assessments have been provided in Table L below in accordance with BS 4142 to provide a comparison between the rating sound levels of the proposal against the typical sound levels existing prior to development at the proposed location of future noise sensitive receptors within the Proposed Development boundary indicated to have the highest incident specific sound level based upon the noise models produced..

Table P: BS 4142 Assessment of Proposed Development – Proposed Development - nearest Dwelling to Leekes Llantrisant (Mitigated)

Results	Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00	Commentary
Residual sound level, dB $L_{Aeq,T}$	55	51	49	Representative residual and background sound levels for proposed Receptors. Background sound levels selected based on lowest recorded levels at LTNMP3 for robustness as provided in free-field conditions and shown within Table F.
Background sound level, dB $L_{A90,T}$	51	48	33	
Reference time interval	1-hour	1-hour	15-minutes	
Specific sound level, dB $L_{Aeq,T}$	37	37	40	Highest dwelling off-site values from noise modelling results.
Acoustic feature correction, dB	0	0	+3	No feature correction has been applied during the day and evening on the basis the specific level is low, and below lowest background sound levels to remain indistinguishable in the residual sound climate. During the night time a general +3dB feature correction has been applied.
Rating level, dB $L_{Ar,Tr}$	37	37	43	Specific sound level plus acoustic feature correction.
Excess of rating over background sound level	-14	-11	+10	Where the Agent of Change under NPPF (and assumed similarly PPW) indicates adverse impacts would be avoided (+5dB to background sound levels).
Assessment indicates likelihood of *depending on context	Low Impact	Low Impact	Significant Adverse.	During the daytime and evening here the rating level does not exceed the background level, this is an indication that the specific sound source will have a low impact, depending on the context. The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. During the Night here the rating level does exceed the background level, this is an indication that the specific sound source will have a significant adverse impact depending on the context. The higher the rating level is relative to the measured background sound level, the more likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Additional mitigation should be considered within the residential design scheme in regards to glazing ventilation and private amenity spaces.
Uncertainty of the assessment	Not significant			See statement of uncertainty in Section 5.7.2.

Table Q: BS 4142 Assessment of Proposed Development – Proposed Development - nearest Dwelling to Sainsburys (Mitigated)

Results	Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00	Commentary
Residual sound level, dB $L_{Aeq,T}$	61	60	53	Representative residual and background sound levels for proposed Receptors. Background sound levels selected based on lowest recorded levels at LTNMP1 for robustness as provided in free-field conditions and shown within Table F.
Background sound level, dB $L_{A90,T}$	55	48	35	
Reference time interval	1-hour	1-hour	15-minutes	
Specific sound level, dB $L_{Aeq,T}$	42	47	47	Highest dwelling off-site values from noise modelling results.
Acoustic feature correction, dB	0	0	+3	No feature correction has been applied during the day and evening on the basis the specific level is low, and below lowest background sound levels to remain indistinguishable in the residual sound climate. During the night time a general +3dB feature correction has been applied.
Rating level, dB $L_{Ar,Tr}$	42	47	50	Specific sound level plus acoustic feature correction.
Excess of rating over background sound level	-13	-1	+15	Where the Agent of Change under NPPF (and assumed similarly PPW) indicates adverse impacts would be avoided (+5dB to background sound levels).
Assessment indicates likelihood of *depending on context	Low Impact	Low Impact	Significant Adverse.	During the daytime and evening here the rating level does not exceed the background level, this is an indication that the specific sound source will have a low impact, depending on the context. The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. During the Night here the rating level does exceed the background level, this is an indication that the specific sound source will have significant adverse impact depending on the context. The higher the rating level is relative to the measured background sound level, the more likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Additional mitigation should be considered within the residential design scheme in regard to glazing ventilation and private amenity spaces.
Uncertainty of the assessment	Not significant			See statement of uncertainty in Section 5.7.2.

Table R: BS 4142 Assessment of Proposed Development – Proposed Development - nearest Dwelling to Proposed Unit 1 and Unit 2 Retail within Wider Masterplan (Mitigated)

Results	Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00	Commentary
Residual sound level, dB $L_{Aeq,T}$	53	50	44	Representative residual and background sound levels for proposed Receptors. Background sound levels selected based on lowest recorded levels at LTNMP2 for robustness as provided in free-field conditions and shown within Table F.
Background sound level, dB $L_{A90,T}$	49	42	38	
Reference time interval	1-hour	1-hour	15-minutes	
Specific sound level, dB $L_{Aeq,T}$	44	50	50	Highest dwelling off-site values from noise modelling results.
Acoustic feature correction, dB	0	+3	+3	No feature correction has been applied during the day and evening on the basis the specific level is low, and below lowest background sound levels to remain indistinguishable in the residual sound climate. During the night time a general +3dB feature correction has been applied.
Rating level, dB $L_{Ar,Tr}$	44	53	53	Specific sound level plus acoustic feature correction.
Excess of rating over background sound level	-5	+11	+15	Where the Agent of Change under NPPF (and assumed similarly PPW) indicates adverse impacts would be avoided (+5dB to background sound levels).
Assessment indicates likelihood of *depending on context	Low Impact	Significant Adverse	Significant Adverse.	During the daytime here the rating level does not exceed the background level, this is an indication that the specific sound source will have a low impact, depending on the context. The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. During the Evening and Night here the rating level does exceed the background level, this is an indication that the specific sound source will have between an adverse to significant adverse impact in the evening, and night time respectively depending on the context. The higher the rating level is relative to the measured background sound level, the more likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Embedded mitigation should be considered within the residential design scheme.
Uncertainty of the assessment	Not significant			See statement of uncertainty in Section 5.7.2.

The numerical assessments above have highlighted the potential for some minor reduction in impacts, largely related to the daytime and evening period, with mitigation applied.

At night, a significant adverse impact has been established to remain, mainly due to the increased height of the assessment (1st floor window) where the benefit of an acoustic barrier is decidedly limited.

5.7.1 Context

The concept of "context" has been notably emphasised in Section 11 of BS 4142 when considering numerical impacts established from applying the standard.

The purpose of these predictions has been to understand the degree of risk posed by commercial sources in the application for new residential development, in following of overarching and local planning and noise requirements regarding Agent of Change.

During operational hours, and particularly when outdoor areas would be used, predictions have not shown differences in magnitude between the residual sound level over the specific sound level, such that in context, the ambient sound level would change by a perceptible degree.

It has subsequently been considered in context that the loading activities will have the potential to be distinguishable for some of the time at night, during the daytime and to some extent the evening masking will occur from the residual sound level.

At night. The degree of risk relates solely to first floor rooms of the proposed scheme, that may overlook commercial operations.

The night has been considered particularly sensitive periods of operation where it would normally be appropriate to consider that residents will likely be resting or sleeping within their homes.

During this time, it could be expected that residents may choose to leave windows open, where a level difference of approximately 10-13 dB would normally be expected inside the dwelling through a partially open window.

Within the worst affected dwellings, through a partially open window and accounting for a 13 dB loss, these would be expected in the region of ≤ 45 dB in the worst-case bedroom at night and would contain some component of the residual sound climate amongst the specific sound levels of this assessment.

In combination and at any time, the resulting ambient sound level could be likely of significant magnitude with open windows.

BS 4142 highlights that a contextual consideration should include *"the sensitivity of the receptor and whether dwellings …will already incorporate design measures that secure good internal and/or outdoor conditions"*.

Thus, the possibility of securing suitable design measures within the proposed residential buildings has been reflected as a pertinent point of context and further mitigation is warranted.

It has been anticipated that any sound insulation recommendations made in respect to glazing and ventilation for control of noise from transportation sources would also need to sufficiently attenuate the remaining levels of commercial sound to areas inside dwellings.

It has been considered in context that a suitable scheme of mitigation can still be adopted in the design of the residential housing scheme, as to avoid the likelihood of any adverse effects at any receiver, whether considered inside or outside of the dwellings and during the or night.

The use of mechanical supply and extract ventilation would be proposed outwardly for worst-affected plots with east and southern facing aspects. If necessary to secure suitable internal conditions at night, then uprated ventilation systems could be used to give future occupants the choice to close windows and secure internal conditions in these Plots.

If this strategy is favoured by the Local Authority, then a suitably worded planning condition could be used to enforce this additional mitigation measure, where necessary. Such mitigation would also be required for overheating risk and associated design for Building Regulations Part O (see Section 6.5.3).

The character of the specific sound level from loading activities have been considered of different spectral characteristics to the residual sound level, comprising of transportation noise.

Where any plant-related sound remains audible with the mitigation above embedded in the design requirements for the scheme, then it has been considered possible in context for some level of effect to result.

A significant adverse impact has potentially been indicated in the mitigated case outlined above, with impacts being mitigated to either low to significant adverse in the worst-case through a robust indicative estimation and advisory process.

The ethos and intents of the Agent of Change principle under PPW could however still be achieved with a commensurate scheme of mitigation for planning of the proposed residential development.

In following, a full scheme of noise mitigation measures can be readily adopted through a suitably worded planning condition to assist detailed design of mitigation measures for the proposed residential development.

A detailed schedule of dwelling fabric sound insulation recommendations to achieve these aims as well as control of incident road traffic noise is provided below in Section 6.5.2

5.7.2 Statement of Uncertainty

Uncertainty has been considered as a limit to the accuracy of any noise assessment, including associated steps of measurement, calculation, or prediction. Factors have been considered to include (but not limited to) the following:

- The inherent accuracy limitation of methodology in Standards and guidance.
- Variability in meteorological conditions.
- The accuracy of sound source input data of a calculation.

It has been a requirement of the assessment standard BS 4142 to minimise uncertainty to a level commensurate with the intention of the assessment objective. Measures taken in this assessment to minimise uncertainty have included:

- Baseline sound levels have been measured over a reasonably representative weekday and weekend period and therefore provide a good indication of representative background and residual sound levels.
- These baseline measurements were undertaken in accordance with recognised Standards, using an environmental windshield and have accounted for only acceptable weather conditions e.g. low wind speeds and precipitation.
- A direct measurement location was used to provide a representative basis for background sound levels at the nearest receiver locations.
- Field calibration checks were undertaken before and after measurements to record very low levels of equipment drift.

- The calculations have been based on measured data in similar situations, where possible, and provided as conservative in other areas as not to under-predict the resulting impacts.

Given the approximated nature of source input data for calculation, this has been viewed to provide a level of uncertainty that could be significant to the outcome of this assessment. Notwithstanding, the nature of assumptions made have been considered representative, based on reasonable assertions of likely sound level emission, nature, quantity, location and operating times of all items. Consequently, effort has been made to reduce uncertainty as far as practical, where there has remained some necessary level of assumption at this stage of development planning.

6.0 TAN 11 and ProPG Assessment

The assessment method of TAN11 ProPG has been applied to the development to understand the risks and design requirements to mitigate environmental transportation noise sources.

For the avoidance of doubt and given the findings of the Agent of Change assessment, the incident commercial noise predicted within Section 5.0 relating to commercial deliveries has been retained within this building fabric noise modelling exercise.

In addition, the subsequent mitigation recommendations in Section 5.6 have been included in the Stage 1 noise risk assessment.

6.1 Noise Model

A noise model has been developed using the results of Table E of this report to define the sound level outside of each façade of the residential development.

It should be noted that the noise modelling exercise is based upon an earlier revision of the illustrative masterplan, this however does not impact the findings of this assessment in a material way and is sufficient to demonstrate the typical suitable mitigation requirements across the site spatially. In addition, the layout is a reserved matter, and the masterplan is illustrative only, as such specific details such as orientation are yet to be confirmed formally.

The modelling has used industry standard calculation software CadnaA, with following inputs and configuration per Appendix D.

Modelling has shown parity with results of Table E, by placing façade receivers in model space relevant to sources of road traffic.

6.2 Proposed Development

The following noise level plots of Figure H and Figure I have been created for respective day and night time periods, based on the calibrated noise model. This has included the façade evaluation tool highlighting exposure by colours aligning with the risk hierarchy of ProPG.

No noise model has been created to explain night maxima across the Site given that propagation from a line source would not occur in the same manner for average equivalent and maximum noise levels.

Figure H: ProPG Noise Exposure Per Across Site dB $L_{Aeq\ 16\ hour}$ Day

Figure I: ProPG Noise Exposure Across Site- dB $L_{Aeq, 8\ hour}$- Night.

Figure J: TAN11 Noise Exposure Per Across Site dB $L_{Aeq\ 16\ hour}$ Day

Figure K: TAN11 Noise Exposure Across Site- dB $L_{Aeq, 8\ hour}$- Night.

6.3 ProPG Stage 1 – Initial Risk Assessment

The following period sound pressure levels of Table S have been used for an initial site risk assessment according to Stage 1 of ProPG from the nearest proposed receptor to key transport noise sources.

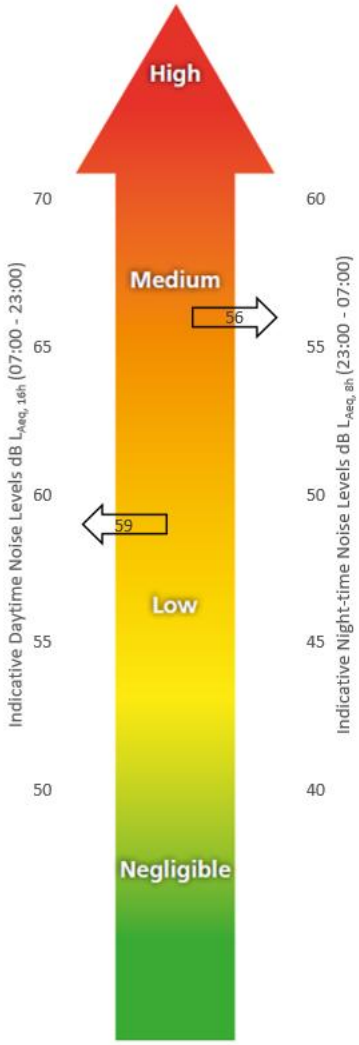
Table S: Summary Assessment of Worst-Case Façade Noise Levels

Location	Period	Hours	Indicative Noise Level
	Daytime	07:00 – 23:00	59dB $L_{Aeq,16h}$
	Night-Time	23:00 – 07:00	56dB $L_{Aeq,8h}$ 68dB $L_{Amax(F)}$

The dominant sound source across the site was noted from local and distant transportation sources, particularly the A473 to the north, with highest levels at the north of the Site and greatest impacts occurring at night.

There were also vehicle movements along Cowbridge Road to the west.

Table T: ProPG Indicative Risk Assessment

ProPG Noise Risk Assessment	Potential Effect Without Noise Mitigation	Pre-Planning Application Advice
	Increasing risk of adverse effect	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 acoustic design statement (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.** At low noise levels, the site is likely to be acceptable from a noise perspective provided that 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 in the finished development.
	No adverse effect	These noise levels indicate that the development site is likely to be acceptable from a noise perspective, and the application need not normally be delayed on noise grounds.

- Indicative noise levels should be assessed without inclusion of the acoustic effect of any scheme specific noise mitigation measures.
- Indicative noise levels are the combined free-field noise level from all sources of transport noise and may also include industrial/commercial noise where this is present but is “not dominant”.
- An indication that there may be more than 10 noise events at night (23:00 – 07:00) with $L_{Amax(F)}$ > 60 dB means the site should not be regarded as negligible risk.

The initial site noise risk assessment from transportation sources has been categorised in the worst-case, of ‘Medium risk’ on future occupants of the new noise sensitive development during the night, and ‘low risk’ on future occupants of the new noise sensitive development during the daytime.

Where a medium noise risk has been noted, the pre-planning application advice stated in ProPG has been provided as follows:

> *"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."*

Where a low noise risk has been noted, the pre-planning application advice stated in ProPG has been provided as follows:

> *"At low noise levels, the site is likely to be acceptable from a noise perspective provided that 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 in the finished development"*

6.4 TAN11 Initial Noise Risk Assessment

The initial TAN11 site noise risk assessment from transportation sources has been categorised in the worst-case, of 'CAT B' on future occupants of the new noise sensitive development during the night, and 'CAT A' on future occupants of the new noise sensitive development during the daytime.

TAN 11 states for CAT B:

> *"Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection*"

TAN11 states for CAT A:

> *"Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as desirable."*

On this basis further analysis remains warranted, and the remainder of this document forms the acosutic design statement (ADS) as per Stage 2 of ProPG which is an appropriate assessment methodology.

6.5 Stage 2 – Full Assessment

6.5.1 Good Acoustic Design Process

ProPG has stated it is imperative for acoustic design to be considered at an early stage of the development control process to avoid unreasonable acoustic conditions and prevent those which are unacceptable.

Given the limited range of measured sound levels across the developing land space occurring from local and distant sources, there has been minimal acoustic benefit in further moving residential rooms of the proposal by any significant degree beyond the standoff off which has already been created towards the southern boundary to accommodate existing leisure facilities between the site and the railway to the south.

The ability to provide boundary screening to the west of the Site in the direction of the West A43 has been considered and propsoed to be integrated into the site design.

Local screening to gardens has been considered important also, as well as localised screening afforded by clustered residential dwelling massing arrangement.

The plan layouts of each dwelling type have not been reviewed in this assessment because the application is made in outline with such details being reserved matters

. It has been acknowledged that 'good acoustic design' generally requires facing less-sensitive rooms (i.e. kitchens, utility rooms and bathrooms) towards the dominant incident noise sources.

For residential houses of at least three-bedrooms, it has been considered unavoidable that some bedrooms would remain facing towards incident noise sources.

It has been understood that all proposed dwellings are to be formed by traditional means with masonry insulated façades, along with an insulated and tiled roof.

The sound insulation of these components has been deemed least consequential to resulting internal ambient noise levels, where the acoustic performance of glazing and ventilation elements will typically remain as dictating.

6.5.2 Internal Noise Level Guidelines

6.5.2.1 Calculation Method

ProPG has provided a summary of internal noise level guidelines as part of Stage 2 assessment, that have been replicated within this assessment.

The method adopted to achieve suitable internal noise level guidelines has been based upon Annex G calculations of BS 8233[2] and Annex B of The AVO Guide[3], which have both been based on statistical methods originating from BS EN ISO 12354-3:2017[4].

Façade components have been estimated in terms of sound insulation from glazing and ventilation elements, where calculations have been carried out in single figure decibels. This has included a comparison between the normalised, A-weighted sound spectrum for day and night against the adaptation curves for C and C_{tr}, following ISO 717-1:2020[5]. The relevant spectrum adaptation term C_{tr} has been confirmed by comparison to the measured spectra.

Note the layout used may change but has been applied to acosutic modelling exercises art this stage to provide representative acoustic design mitigation recommendation mapping across the typical spread of building massing that may be applicable within the site boundary. Should the site layout change with subsequent design devleopment remodelling may be relevant to inform design mitigation applicable on a plot-by-plot basis.

6.5.2.2 Whole Dwelling Ventilation Strategy

The range of whole dwelling ventilation strategies for development has been taken from Requirement F1 of the Building Regulations (ADF)[6]. An outline appraisal for suitability has been provided using Table B2 of the AVO Guide, in Table U below.

[2] BS 8233:2014 Guidance on sound insulation and noise reduction for buildings. BSI, 2019.

[3] ANC/IOA Acoustic Ventilation and Overheating Residential Design Guide, Version 1.1. Association of Noise Consultants & Institute of Acoustics, January 2020.

[4] BS EN ISO 12354-3:2017 Building acoustics - Estimation of acoustic performance of buildings from the performance of elements. Airborne sound insulation against outdoor sound. BSI, 2017.

[5] BS EN ISO 717-1:2020 Acoustics — Rating of sound insulation in buildings and of building elements. Part 1: Airborne sound insulation, BSI, 2020.

[6] The Building Regulations 2010 Approved Document F Volume 1: Dwellings Requirement F1: Means of Ventilation (2022 edition – for use in Wales).

Table U: Outline Appraisal of Different Ventilation Strategies (Worst-Case)

Ventilation strategy according to ADF	Typical windows and vent	Higher acoustic performance windows and vent
Intermittent extract fans	×	✓
Passive stack ventilation	×	✓
Continuous mechanical extract (CMEV)	×	✓
Continuous mechanical supply and extract with heat recovery (MVHR)	×	✓

In higher noise level areas, minimising the quantity of penetrations through a building façade should be favoured to increase the sound insulation of the composite building facade. Any ventilation strategy has been viewed possible in this instance.

For any mechanical ventilation system, the ventilation routes should face away from the incident noise source. This provision would reduce noise travelling into the habitable room via the ductwork. Where this is not possible the intake and exhaust ducts should incorporate appropriate attenuation to control intrusive noise to meet the criteria in Table C.

6.5.2.3 Glazing and Ventilator Performance

The specification for sound insulation across the scheme has been provided in Figure L below. It has been illustrated that the highest specification is limited only to outward facing façades closest to transportation sources. Where a mixture of ventilation strategies has been implied as possible by Table U, then CMEV has been assumed for the development.

Table V: Specifications for Windows and Ventilators

Example Location (See Figure L)	Element	Specification	Typical Configuration
Scheme 1	Windows	≥ 27 dB $R_w + C_{tr}$	Double glazing 4-16-4 standard glass types
	Background ventilator	≥ 30 dB $D_{ne,w} + C_{tr}$	Standard* window trickle vent as rated
Scheme 2	Windows	≥ 27 dB $R_w + C_{tr}$	Double glazing 4-16-4 standard glass types
	Background ventilator	≥ 39 dB $D_{ne,w} + C_{tr}$	Single** acoustic window trickle vent as rated

* This specification has relied upon no greater than 2 No. ventilators per habitable room.

** In this case, single trickle ventilator accounted per habitable room, with entire plot adopting CME ventilation. If more than one ventilator is used per habitable room, then the specification would need to increase by a factor 10 x $\log_{10}(n)$ where n = ventilator quantity.

Figure L: Illustration of Sound Insulation Scheme Across Development

6.5.3 Overheating Risk

ProPG Stage 2 Element 1 considers internal noise levels guidelines where those criteria of Table C would occur under building ventilation conditions.

There is a further need to address if the overheating ventilation strategy impacts on indoor acoustic conditions or if a more-informed strategy is required in the mitigation of overheating.

The Welsh edition of Approved Document O, which took effect on 23 November 2022, has been approved and issued by the Welsh Ministers to provide practical guidance on ways of complying with the requirements of Part O of the Building Regulations 2010 for Wales, as amended, which are referred to throughout the remainder of this document *as 'the Building Regulations'*

The Welsh edition of the standard does not specify fixed acoustic performance values but states:

"A new residential building/unit must be designed and built to a minimum standard of performance to minimise the risk of summer overheating"

On this basis the advice in this section has so far considered the internal ambient noise level with closed windows under Building Regulations ventilation conditions.

Acoustic assessments should also be formed for the overheating ventilation condition, which in the first instance has been considered with open windows.

For the avoidance of doubt for the following assessment SLR have considered the internal ambient noise level guidance under the overheating condition as it is provided in the English version of ADO as a reasonable benchmark.

The following summary of Table W has been provided as a consideration of the worst-affected façades with both closed and open windows. Use of a 10 dB external to internal loss follows the Simplified Method for a Moderate Risk Location as per Approved Document O Noise Guide (2024).

Table W: Estimated IANLs from Different Ventilation Conditions

Ventilation Condition			Internal Ambient Noise Levels (IANLs)		
Location	**Windows**	**Ventilation Condition**	**Day dB $L_{Aeq,16h}$**	**Night dB $L_{Aeq,8h}$**	**Max dB $L_{Amax(F)}$**
Worst-affected plot	Closed (trickle vent(s) open)	Building	30	27	39
	Open (to 4% floor area at 10 dB)	Overheating	49	46	58

In case of closed windows, building ventilation conditions have been shown to provide suitable internal ambient noise levels following ProPG and AVO, given that predicted values in Table W do not exceed those in Table C.

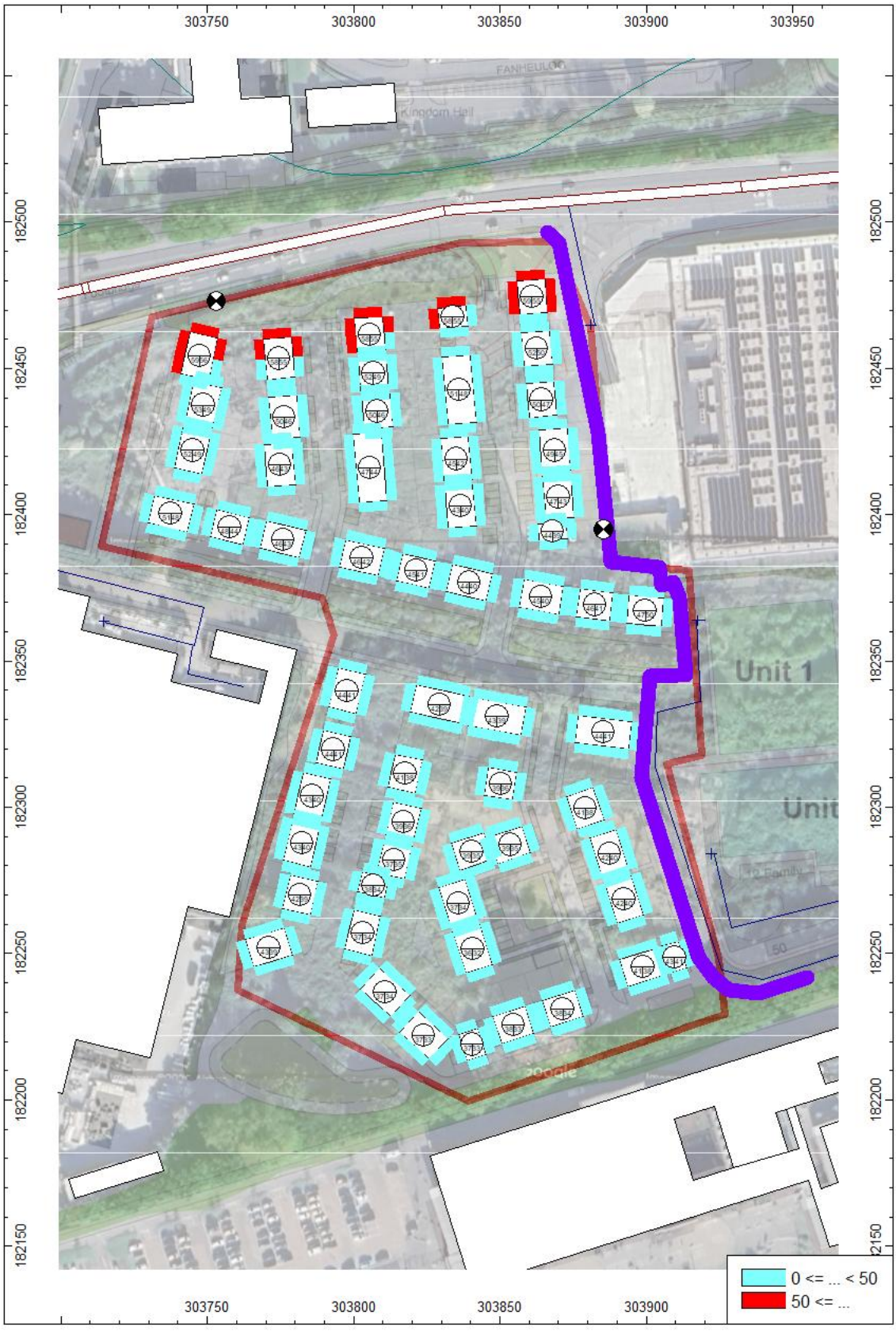
In the case of open windows to 4% floor area, the above listed sound levels have been compared against the simplified requirements for meeting Building Regulations Approved Document O: Overheating, provided at ≤ 40 dB $L_{Aeq,T}$ and 55 dB $L_{Amax(F)}$ at night (23:00 – 07:00) in all areas of the Site. It has been considered that:

Bedrooms will remain constrained by transportation noise to prohibit opening of windows. Achieving suitable IANL conditions with open windows (whether fully or partially open) would typically not be possible in some areas.

Figure M below has been prepared to demonstrate where additional provisions would be required to achieve compliance with ADO, where opening windows in accordance with a simplified method could not be appropriate.

To achieve compliance with ADO, opening windows in accordance with a simplified method would not be appropriate where shown in red, such that a more informed strategy would be necessary. As part of this, a full overheating assessment should be provided for room types and their orientation within the scheme.

Figure M: ADO Simplified Method Suitability



6.5.3.1 Potential Mitigation Strategy

It has been understood for mass market housing, that loft-mounted mechanical ventilation fans would likely be used to provide overheating airflow rates, where opening windows may not be feasible due to external noise ingress.

The location for any mechanical apertures has been considered most suitable on the appropriate façade or roof, facing away from adjacent transportation sources.

The noise from the mechanical system, combined with noise entering the building through supply and/or extract ducting, must not compromise the IANL conditions of a bedroom beyond 40 dB $L_{Aeq,T}$ and 55 dB $L_{Amax(F)}$ at night (23:00 – 07:00), in following of statutory guidance and noise limits from Section 3.3. of ADO.

7.0 External Noise Level Guidelines

Amenity areas have been provided within the scheme as garden and open spaces around the rear of the development. These have been notably positioned to the southeast as affording reduced exposure to road traffic noise behind the proposed development building.

Figure N below has been prepared to illustrate amenity levels with the proposed development from road traffic noise.

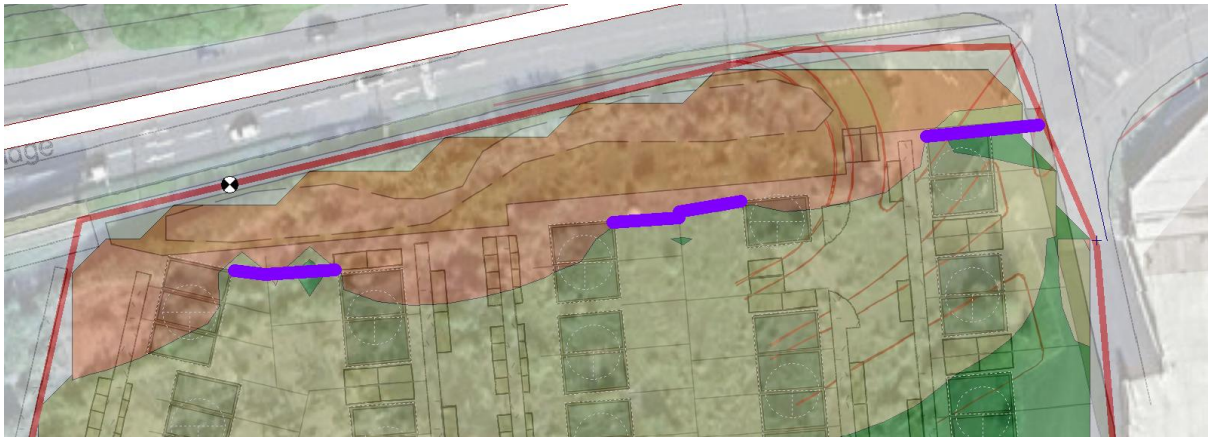
Figure N: External Amenity Area Noise Levels dB $L_{Aeq, 16\ hour}$

Figure N has indicated that ProPG guidance of 50 – 55 $L_{Aeq,16h}$ would be readily achieved for the majority of private amenity/ garden areas of the development site, where shielded from incident road traffic noise sources.

If necessary to secure suitable external conditions, to the north of the site, garden fencing could be used to demark garden areas and achieve ProPG guidance of 50 – 55 $L_{Aeq,16h}$ in all external amenity spaces.

The fencing should be specified at 2.5m and a minimum m surface area of 10kg/m^2 where indicated on the figure below in purple:

Figure O: Private Amenity Mitigation



Other amenity space fences may otherwise be of a standard configuration offering some minor acosutic benefit, alongside visual privacy.

8.0 Commentary on Retail Unit 1 and 2

8.1 Delivery Hours

Whilst it is understood that Retail Unit 1 and 2 of the masterplans are being reviewed and assessed under a separate planning application. It is clear there would be potential benefits to coexistence with the proposed residential development parcel if deliveries were restricted to the less sensitive periods

SLR have reviewed night time noise data at LTNMP3. It is evident that after 06:00 ambient average and background sound levels begin to increase due to traffic noise, thus rendering this period less sensitive. With background sound levels indicated to be 7dB higher than typical during the preceding period 23:00-06:00.

It may be advisable to condition delivery hours accordingly to allow coexistence of both developments without unreasonable restriction such as limiting deliveries to, between the hours of 06:00-19:00.

This is subject to the findings and methodologies of mitigation afforded by the project acoustician for Retail Units 1 and 2.

For example, SLR are aware of “quiet delivery systems” (QDS) which can mitigate delivery noise activity by as much as 10dB in certain operational scenarios.

8.2 Overview-Plant and Services Provision

The proposed adjacent retail development may incorporate mechanical ventilation, heating and cooling plant associated with its operation.

It is thus reasonable to advise in the knowledge of this future emerging devleopment that the authority consider the below appropriate design limits for mechanical plant and services, based on the existing pre-devleopment noise climate at LTNMP3 in relative proximity.

Based on the guidance provided in BS4142:2014+A1:2019, if plant and services were designed to the design rating level limit below this would also constitute a “Low Impact” when assessed in accordance with BS 4142 on the basis that:

> *“The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact.*
>
> *Where the rating level does not exceed the background level, this is an indication that the specific sound source will have a low impact, depending on the context.”*

At night, background sound levels do tend to decrease.

Consequently, it has been reasonable to consider noise within any dwelling in context to maintain a low impact.

Resulting noise levels would be at least 5 dB below the 30 dB $L_{Aeq,8h}$ Internal ambient noise time noise criteria for good sleeping conditions from ProPG and BS8233:2014.

the below acoustic criteria would be considered suitable based upon the typical dB $L_{A90,T}$ background sound levels as found at LTNMP3:

Table X: Derived Fixed Plant and Services Design Noise Limits-Existing Dwellings

Period	Proposed External dB $L_{Ar,Tr}$ BS 4142 Design Criterion
Daytime 07:00-19:00	49
Evening 19:00-23:00	42
Night 23:00-07:00	38

Based on the guidance provided, if plant and services were designed to the above design rating level limit would also constitute a “Low Impact” when assessed in accordance with BS 4142 on the basis that:

> *“The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background level, this is an indication that the specific sound source will have a low impact, depending on the context.”*

Note the acoustician representing the application for Retail Units 1 and 2 may have undertaken additional assessments or provided differing context such that alternative limits may be judged as suitable, nonetheless the emerging residential devleopment proposed herein provides reasonable context for application of the above design limits to protect residential amenity.

9.0 Conclusions

This document has been prepared for Talbot Green Developments Ltd by SLR Consulting Limited to support a proposed residential development on Talbot Green.

An assessment of existing and potential future commercial retail noise impact has been undertaken with respect to the Agent of Change principal under Welsh Government policy.

A study of environmental sound levels has been reported within Section 4.0 and confirms Stage 1 assessment in accordance with ProPG and Tan 11 has provided that the Site is otherwise dominated by transportation noise with worst case noise levels falling within PropG “medium” and TAN11 “Cat B” categories.

Stage 2 assessment completed in accordance with ProPG has followed a good acoustic design process, considering internal ambient noise levels, external amenity areas and other matters. Commensurate design specifications have been established considering current industry guidance against the proposed scheme layout. It has been realised that suitable internal and external amenity standards can be readily achieved by the development with a suitable scheme of mitigation, as outlined.

On the basis that design guidance within this report has been adopted, it follows that any significant adverse noise impacts will be avoided in the finished development as to accord with overarching national and local planning requirements for new residential development.

A recommendation is made to the decision maker to grant with noise conditions where necessary to ensure that significant adverse effects will be avoided for the proposed dwellings, by use of a commensurate scheme of control as outlined within this report.

10.0 Closure

The assessment has required a suitable level of technical ability and has been undertaken by a Suitably Qualified Person (SQP). An individual with all the following credentials has been considered a SQP for this assessment:

- Has a minimum of three years' verifiable experience (within the last five years) of providing noise impact assessments in planning. Such experience has clearly demonstrated a practical understanding of factors affecting acoustics in relation to the proposed development use and in the built environment in general, including acting in an advisory capacity to provide recommendations and design advice in planning, and;
- Holds a recognised acoustic qualification and membership of an appropriate professional body. The primary professional body for acoustics in the UK is the Institute of Acoustics.

This assessment has been led and managed by a SQP as defined above.

Where some elements of the assessment (e.g. measurements) have been carried out by an acoustician who does not meet the requirements above, this has been undertaken with the direct guidance and supervision of a SQP who has reviewed, agreed and overseen the measurement methodology and any results obtained.

The SQP confirms that the relevant measurements and calculations:

- Represent good industry practice in accordance with available guidance.
- Are appropriate given the development being assessed and scope of works proposed.
- Avoid invalid, biased, and exaggerated claims.

The checker and author of this document confirm that they both comply with the definition of a SQP defined in this Section.

Regards,

SLR Consulting Limited

Vince Taylor, BSc. MSc AMIOA
Technical Director – Acoustics & Vibration

Steve Skingle, BSc. (Hons) PGDip. MAES MIOA
Technical Director – Acoustics & Vibration

Appendix A Glossary of Terminology

Residential Development Noise Impact Assessment

Talbot Green

Talbot Green Developments Ltd

SLR Project No.: 416.066456.00001

30 January 2026

The human ear can detect a very wide range of pressure fluctuations, which are perceived as sound. In order to express these fluctuations in a manageable way, a logarithmic scale called the decibel, or dB scale is used. The decibel scale typically ranges from 0dB (the threshold of hearing) to over 120dB. An indication of the range of sound levels commonly found in the environment is given in the following table.

Table A1: Sound Levels Commonly Found in the Environment

Sound Level	Location
0 dB(A)	Threshold of hearing
20 to 30 dB(A)	Quiet bedroom at night
30 to 40 dB(A)	Living room during the day
40 to 50 dB(A)	Typical office
50 to 60 dB(A)	Inside a car
60 to 70 dB(A)	Typical high street
70 to 90 dB(A)	Inside factory
100 to 110 dB(A)	Burglar alarm at 1m away
110 to 130 dB(A)	Jet aircraft on take off
140 dB(A)	Threshold of Pain

A.1 Acoustic Terminology

dB (decibel) — The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (of 20 μPa).

dB(A) — A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.

$L_{Aeq,\,T}$ — $L_{Aeq,T}$ is defined as the notional steady sound level which, over a stated period T, would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.

$L_{A10,\,T}$ & $L_{A90,T}$ — If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The L_n indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L_{10} index to describe traffic noise.

$L_{Amax(F)}$ — $L_{Amax(F)}$ is the maximum A-weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall $L_{eq,T}$ noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.

Appendix B Scheme Drawings

Residential Development Noise Impact Assessment

Talbot Green

Talbot Green Developments Ltd

SLR Project No.: 416.066456.00001

30 January 2026


Site Application Boundary
Other land within Applicant's ownership
1 Illustrative Masterplan
1 : 1250
HolderMathias architects
Land off A473
Talbot Green
Talbot Green Developments Ltd
Illustrative Masterplan
4599 1 : 1250
PM_40_40_34 S0 P01
TLBG-HMA-ZZ-00-D-A-00020

Appendix C Survey Summary Results

Residential Development Noise Impact Assessment

Talbot Green

Talbot Green Developments Ltd

SLR Project No.: 416.066456.00001

30 January 2026

Figure C1: Time History Graph, Sound Pressure Level – LTNMP1

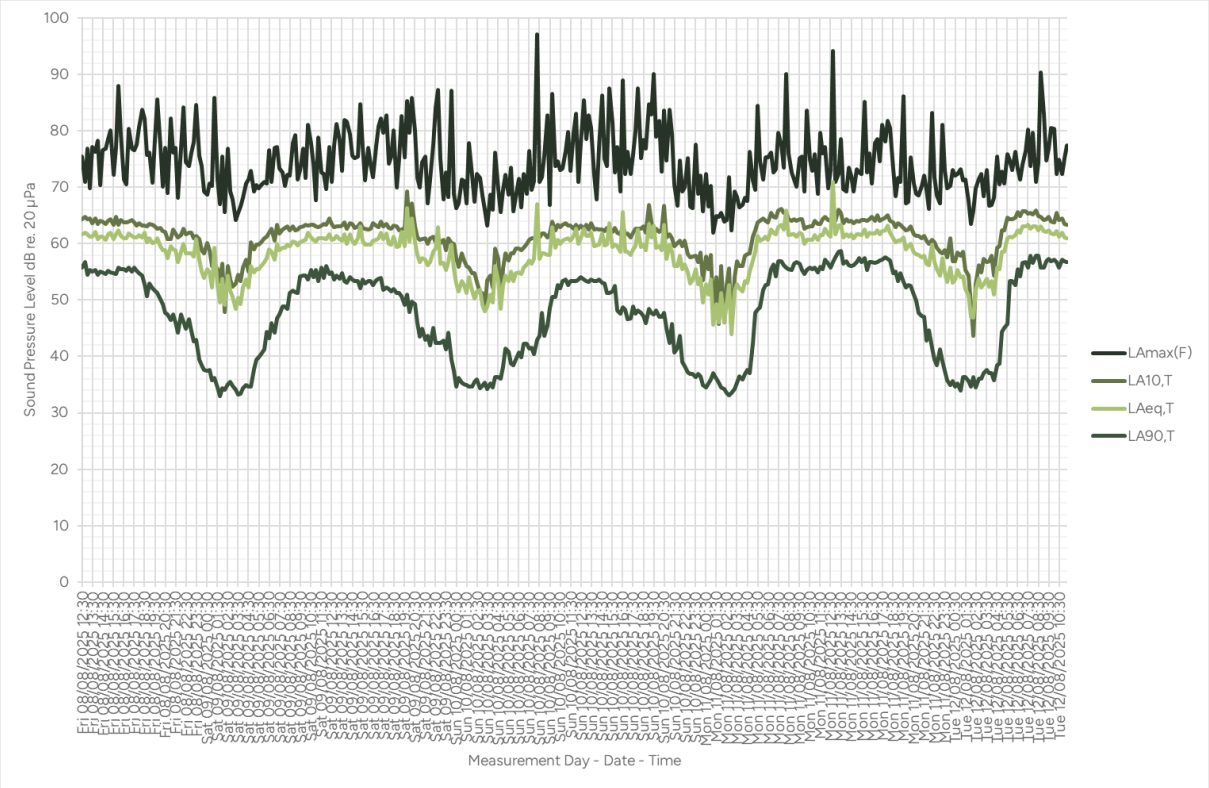


Figure C2: Background Sound Level Histogram – LTNMP1

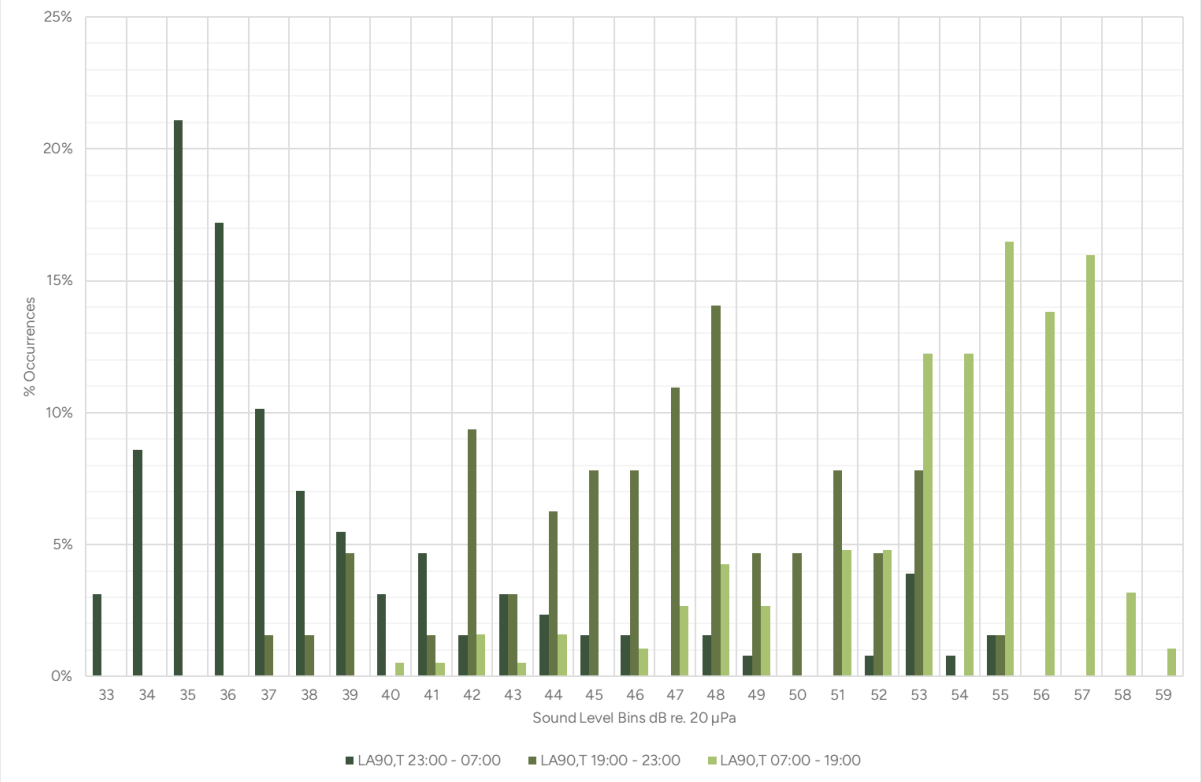


Figure C3: Time History Graph, Sound Pressure Level – LTNMP2

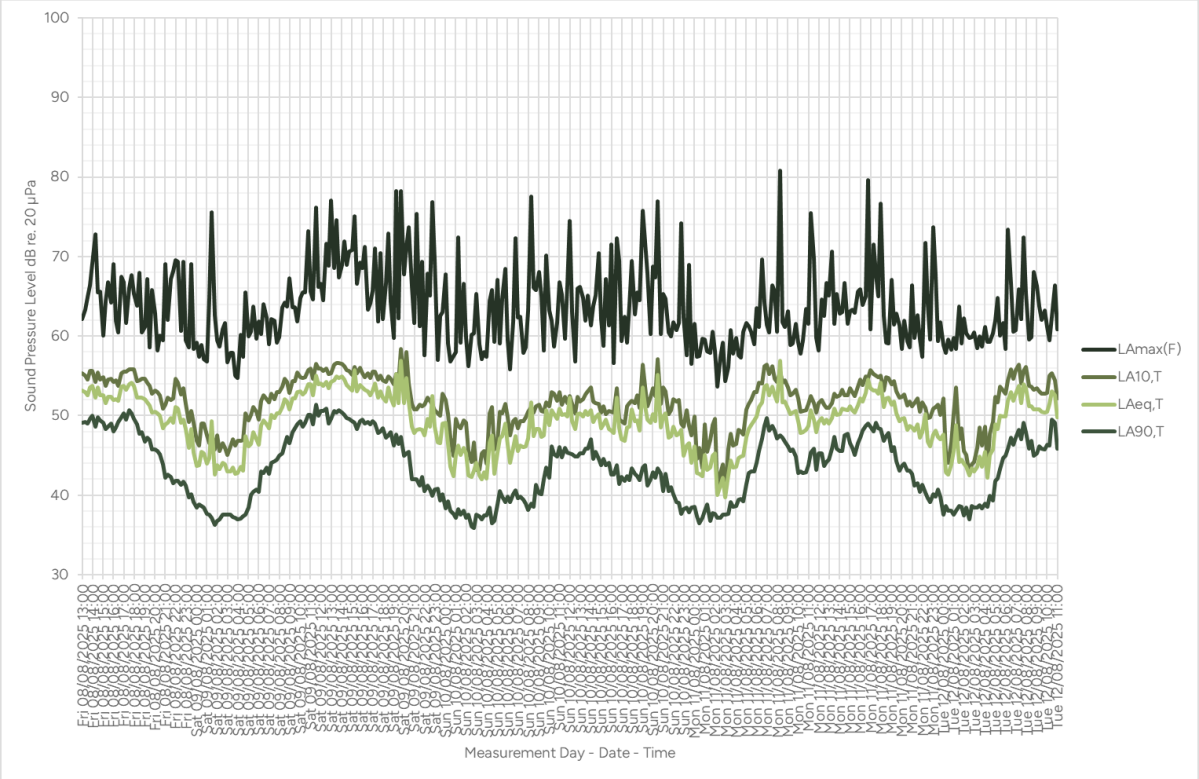


Figure C4: Background Sound Level Histogram – LTNMP2

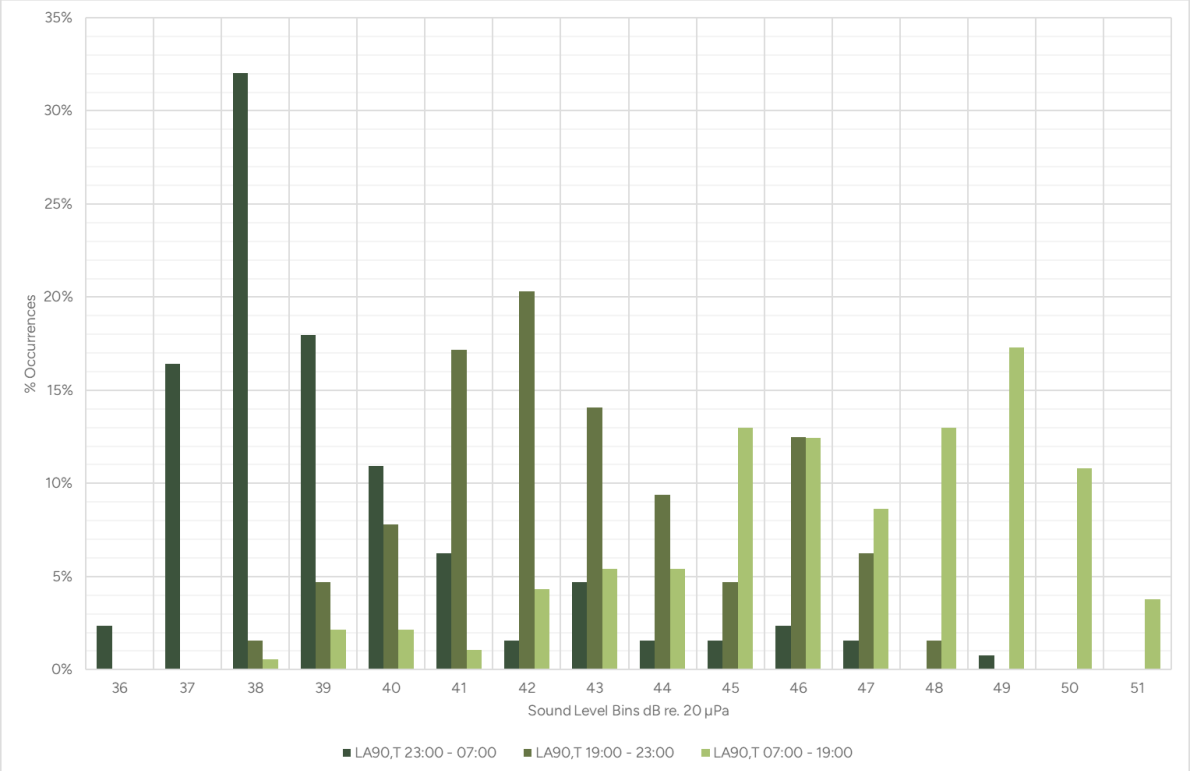


Figure C5: Time History Graph, Sound Pressure Level – LTNMP3

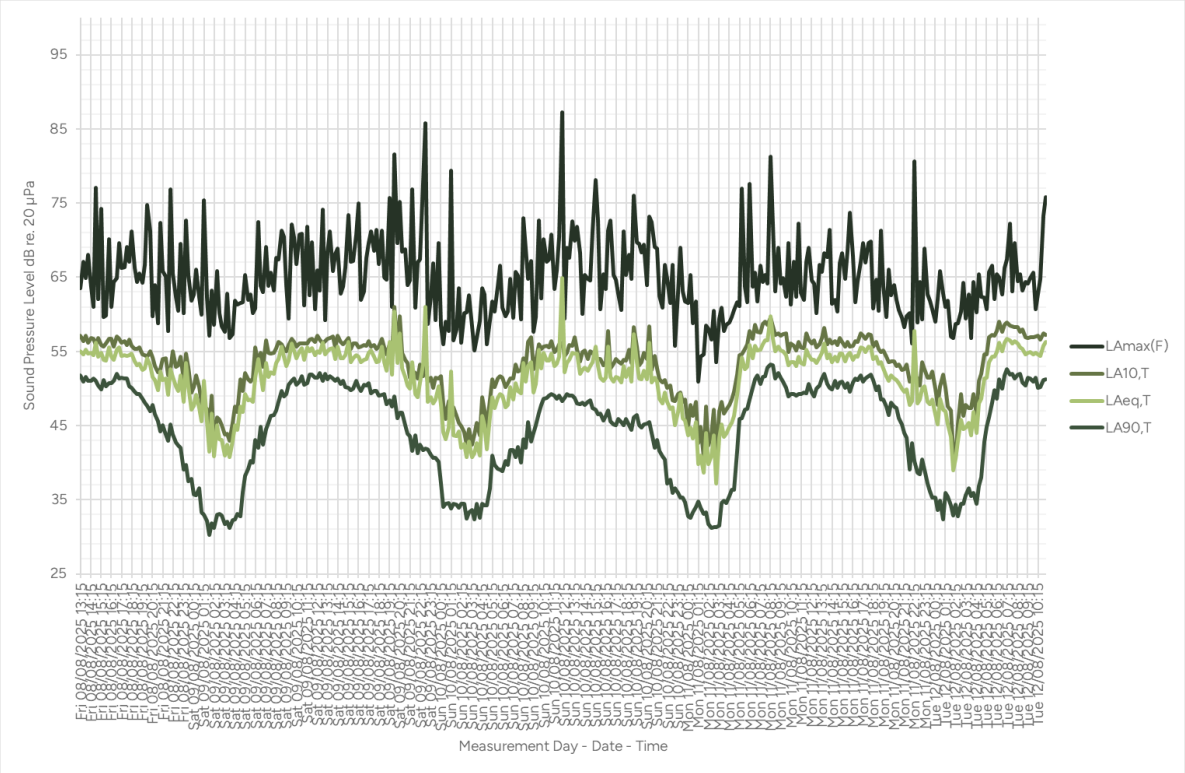


Figure C6: Background Sound Level Histogram – LTNMP3

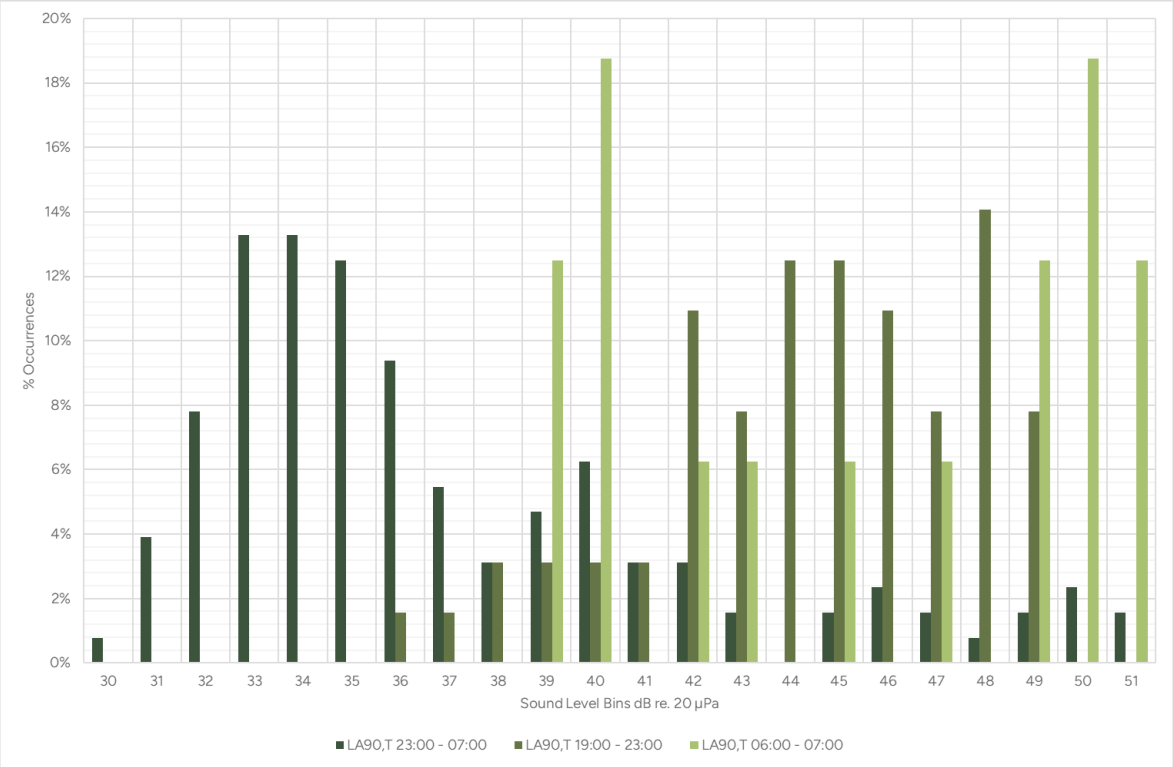


Figure C7: Time History Graph, Weather Conditions

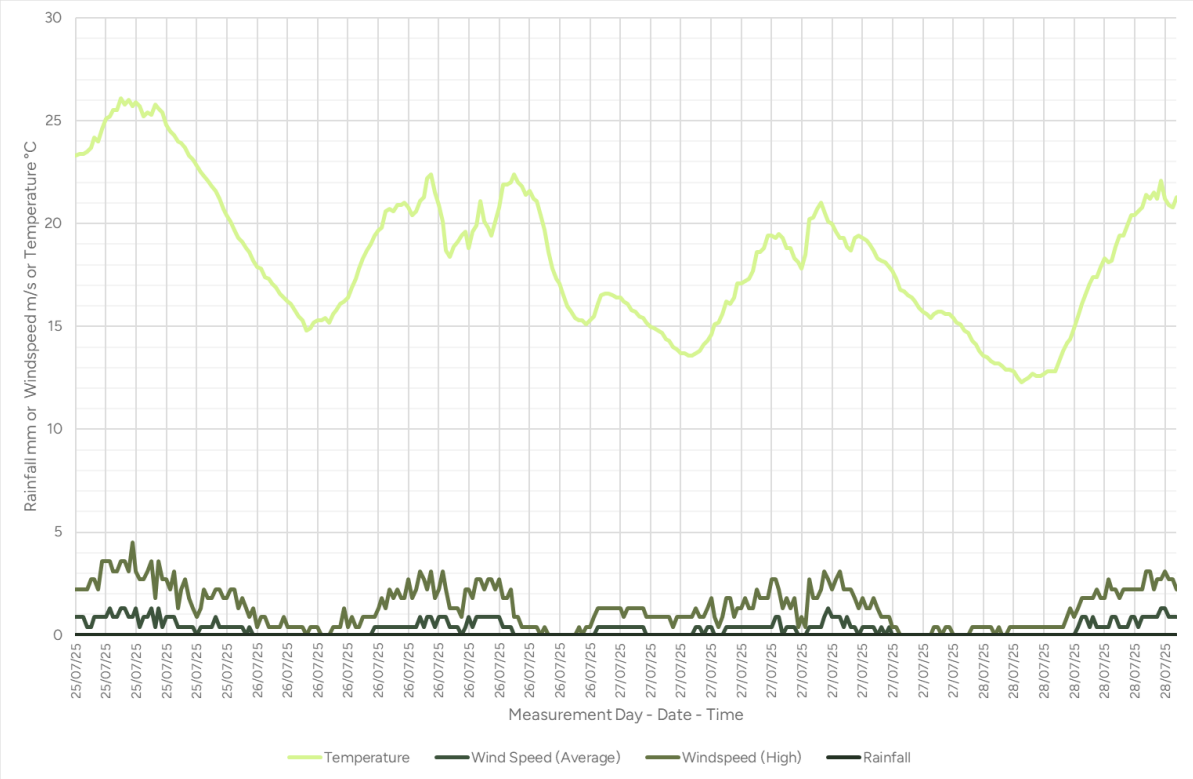
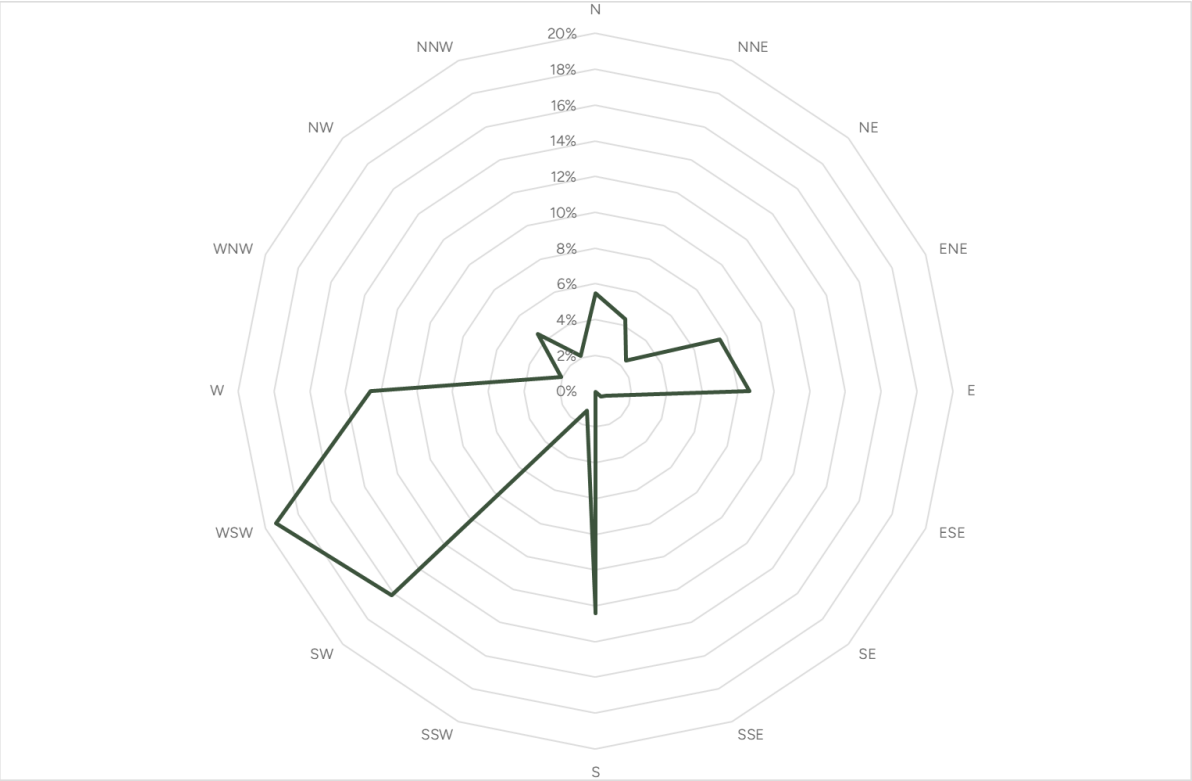


Figure C8: Wind Direction Polar Plot



Appendix D Noise Modelling Parameters

Residential Development Noise Impact Assessment

Talbot Green

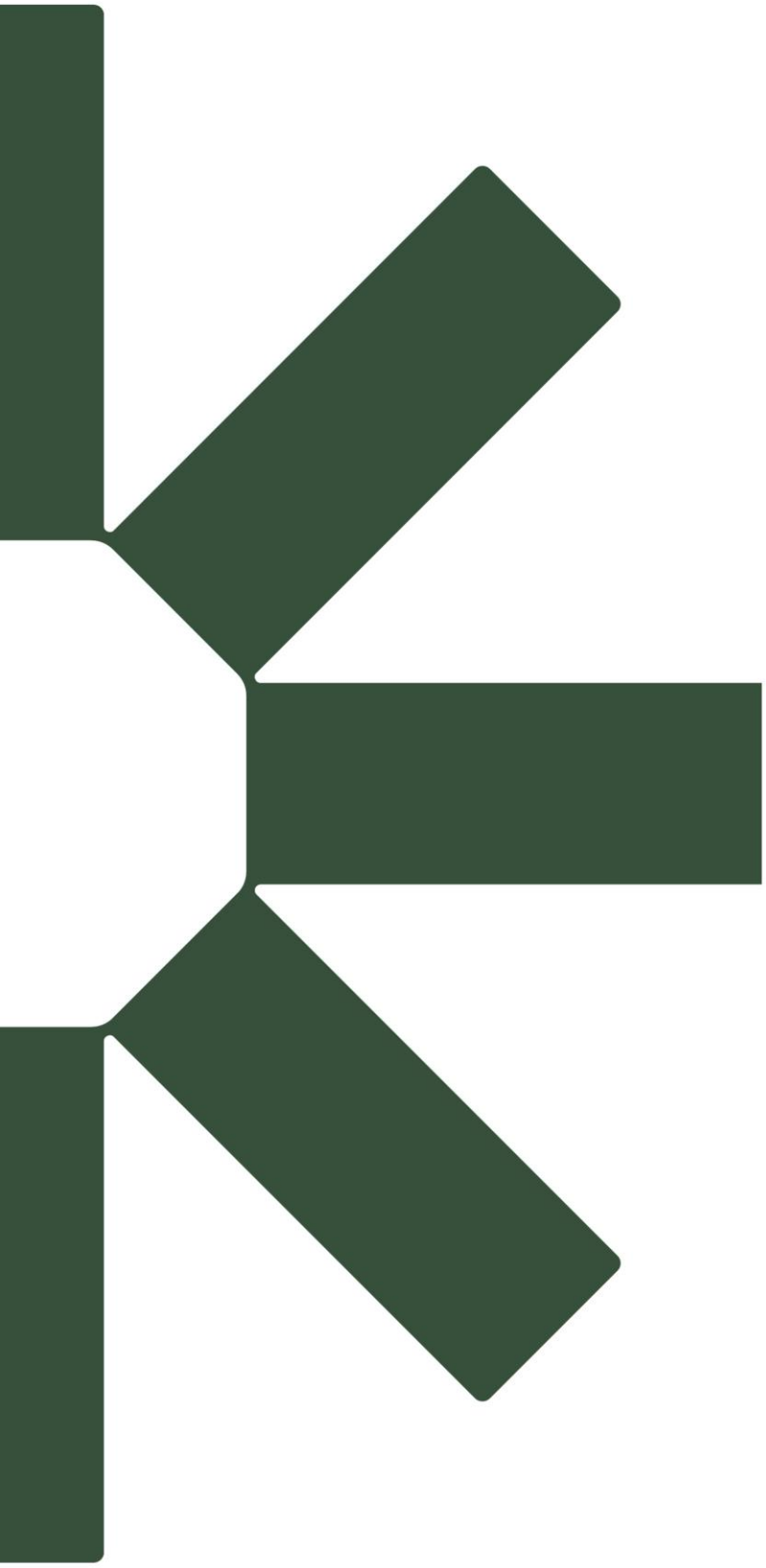
Talbot Green Developments Ltd

SLR Project No.: 416.066456.00001

30 January 2026

Table D1: Modelling Parameters and Associated Detail

Model Parameter	Detail
Ground Effect Co-efficient (G)	• G = 0.5 in all areas. (Where 0 = Hard ground, 0.5=Mixed, 1 = soft ground).
Calculation Model	• Road: Calculation of Road Traffic Noise (CRTN, 1988) • Industry: ISO 9613:2024.
Order of Reflections	• 3 • Maximum search radius Receiver – 1000 m • Maximum search radius Source – 100 m
Meteorology	• 10 °C Temperature • 70 % Relative Humidity • 3.0 m/s windspeed for direction
Topography	• Lidar composite DTM (1 m resolution) from https://environment.data.gov.uk/survey. • Converted to 1 m contour Shapefile using QGIS software.
Buildings	• Reflective with 1 dB façade loss. • Receptors modelled at 1.5 m height increasing + 2.5 m per floor level.
Mapping Imagery	• Georeferenced client drawings.



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