

Harrington Drive, Crowland

Proposed Residential Development Planning Noise Assessment

Report ref.

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Issued to

Ashley King Developments Ltd

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1. INTRODUCTION

Ashley King Developments Ltd are seeking planning permission for a proposed residential development at land off Harrington Drive in Crowland, Peterborough.

Spectrum Acoustic Consultants have been instructed by Ashley King Developments Ltd to carry out a noise assessment for the purpose of establishing the impact on the proposed residential properties. This report provides the information required to inform and satisfy the requirements of the Local Planning Authority, for the purpose of determining the application.

2. SITE DESCRIPTION

The proposed development site is located at land off Harrington Drive in Crowland, Peterborough. The site is currently unused, comprising overgrown vegetation. Peterborough Road bounds the site to the north-west and James Road bounds the site to the south-east. The site is bounded by residential properties to the north-east and north-west, on Harrington Drive and Peterborough Road, respectively. An aerial imagery showing the site location plan is included in Appendix A.

The proposals involve constructing 47 houses, consisting of a mixture of detached, semi-detached and small groups of terraced properties. Each of the houses would have a small garden to the rear and a parking space. Some properties would also have a garage next to the property. The proposed site layout plan and layout drawings of each house type are included in Appendix B.

3. CRITERIA

3.1 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The National Planning Policy Framework (NPPF)¹ sets out the Government's planning policies for England and how these should be applied by establishing a framework within which locally prepared plans for development can be produced.

The NPPF requires (174) prevention of new or existing development from contributing to, or being adversely affected by, unacceptable levels of noise pollution.

New development (185) should be appropriate to its location taking into account the likely effects of pollution on health, living conditions and the natural environment. In doing so it is required to:

'a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life²;

'b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason'

¹ National Planning Policy Framework, MHCLG, July 2021

² See Explanatory Note to the Noise Policy Statement for England, paragraphs 2.23 and 2.24, Department for Environment, Food & Rural Affairs, 15 March 2010).



Planning policies and decisions should also (187) *'ensure that new development can be integrated effectively with existing businesses and community facilities [...]. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.'*

3.2 NOISE POLICY STATEMENT FOR ENGLAND (NPSE)

The Noise Policy Statement for England (NPSE)³ sets out the long term vision of government noise policy which is to *'Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.'*

The aims of the NPSE are to (2.23-2.25):

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

These aims are developed by reference (2.20-2.21) to the concepts of:

- NOEL (No Observed Effect Level). This is the level below which no effect can be detected.
- LOAEL (Lowest Observed Adverse Effect Level). This is the level above which adverse effects on health and quality of life can be detected.
- SOAEL (Significant Observed Adverse Effect Level)..This is the level above which significant adverse effects on health and quality of life occur.

It recognises that there is no universally applicable objective threshold for these concepts. Consequently, the NOEL, LOAEL and SOAEL are likely to be different for different noise sources and receptors and at different times (2.22).

Situations of significant adverse effect (SOAEL) should be avoided (2.23). Where the impact is between LOAEL and SOAEL reasonable steps should be taken to minimise and mitigate adverse effects on health and quality of life, but does not mean that such adverse effects cannot occur (2.24). It is also implied that situations of NOEL would be acceptable in noise terms.

3.3 PLANNING PRACTICE GUIDANCE

Planning Practice Guidance on Noise⁴ (PPG-N) sets out government guidance on *'how planning can manage potential noise impacts in new development'*.

Whilst it does advise that noise can override other planning concerns, *'where justified'*, it states that *'it is important to look at noise in the context of the wider characteristics of a development proposal, its likely users and its surroundings, as these can have an important effect on whether noise is likely to pose a concern.'* (002)

³ Noise Policy Statement for England (NPSE), DEFRA, 15 March 2010

⁴ PPG - Noise, MHCLG, 22 July 2019



It also details the hierarchy of noise exposure, including the thresholds LOAEL and SOAEL, based on the likely average response, referred to within NPSE⁵. The noise exposure categories are summarised below.

- No Observed Adverse Effect: Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response.
- Observed Adverse Effect: Noise can be heard and causes small changes in behaviour, attitude or other physiological response.
- Significant Observed Adverse Effect: The noise causes a material change in behaviour, attitude or other physiological response.
- Unacceptable Adverse Effect: Extensive and regular changes in behaviour, attitude or other physiological response, and/or an inability to mitigate effect of noise leading to psychological stress.

The guidance advises, in accordance with the first and second aims of the NPSE, that where there is no observed effect or no observed adverse effect, no specific measures are required to manage the acoustic environment; where there is an observed adverse effect, consideration needs to be given to mitigating and minimising those effects; where there is significant adverse effects, the planning process should be used to avoid these effects occurring; where there are unacceptable adverse effects, the situation should be prevented.

In establishing values for LOAELs and SOAELs, which represent the onset levels of adverse effects and significant adverse effects, respectively, the guidance advises because of the subjective nature of noise, there is no simple relationship between noise level and its impact. It will instead depend on a number of factors in a particular situation. These will include:

- The source, its absolute level and the time of day.
- For intermittent sources, the number and duration of events;
- The spectral frequency content of the noise

Other factors will need to be considered in many cases, which are more fully described and detailed within the full PPG guidance, but include matters such as:

- The cumulative impacts with other sources
- Whether internal effects can be completely removed for example by closing windows (relevant with new residential development subject to ventilation being developed)
- Whether existing noise sensitive locations already experience high noise levels,
- Where Noise Action Plans, and, in particular Important Areas are identified nearby.
- The use of external amenity spaces intrinsic to an overall design and including private gardens.
- The potential effect of a new residential or other sensitive development being located close to an existing noisy business or site, and for noise mitigation to be considered.
- Whether there are nearby areas of tranquility relatively undisturbed by noise from human caused sources that undermine the intrinsic character of the area and likely already valued for their tranquility.

The PPG guidance does not provide any detail on the how assessment of these factors should be carried out. Instead reference is usually made to existing British Standards and other guidance.

⁵ *Explanatory Note to the Noise Policy Statement for England, paragraphs 2.19 and 2.20, DEFRA, 15 March 2010)*



3.4 WHO – ENVIRONMENTAL NOISE GUIDELINES FOR THE EUROPEAN REGION 2018

Guidance from WHO titled Environmental Noise Guidelines for the European Region (ENG) was published in 2018. The document takes a very different approach to guidance set out in the previous WHO Guidelines for Community Noise 1999 (GCN) document by identifying separate thresholds for specific sources, rather than for community noise as a whole. Consequently, much of the earlier guidance set out in GCN is now absent from ENG. While ENG was intended to supersede GCN, it recognises this absence and states that *'indoor guideline values and any values not covered by the current guidelines (such as industrial noise and shopping areas) should remain valid.'*

3.5 WORLD HEALTH ORGANISATION – GUIDELINES FOR COMMUNITY NOISE (WHO)

Guidelines for Community Noise - World Health Organization (GCN) gives guidance on suitable noise levels for sleeping and resting conditions in dwellings. It sets out these values in table 4.1, and lists them as being guideline values for community noise. The document defines community noise (also called environmental noise, residential noise or domestic noise) as noise emitted from all sources, except noise at the industrial workplace. Main sources of community noise include road, rail and air traffic, industries, construction and public work, and the neighbourhood.

WHO recommends internal noise levels of 30dB(A) at night for bedrooms, and 35dB(A) during the day for living rooms. The guideline levels are based on annual average data.

To avoid sleep disturbance in bedrooms during the night time period, it also recommends that noise levels from single sound events should not regularly exceed L_{Amax} 45dB(A). WHO defines 'regular' as not more than 10-15 events per night.

WHO also gives guidance on suitable noise levels for outdoor living areas such as gardens. The WHO guidelines state that *"to protect the majority of people from being seriously annoyed during the daytime, the sound pressure level on balconies, terraces and outdoor living areas should not exceed 55 dB L_{Aeq} for a steady continuous noise. To protect the majority of people from being moderately annoyed during the daytime, the outdoor sound pressure level should not exceed 50 dB L_{Aeq} ".*

The preface to WHO states that community noise includes road, rail and air traffic, industries, construction and public work, and the neighbourhood. Therefore, although these noise levels are usually used to determine acceptability from steady continuous noise from anonymous sources, such as road traffic or rail movements, they provide helpful guidance when considering noise from commercial sources.



3.7 BS 8233:2014 GUIDANCE ON SOUND INSULATION AND NOISE REDUCTION FOR BUILDINGS

BS 8233:2014 *Guidance on sound insulation and noise reduction for buildings* gives guidance on indoor ambient noise levels to be achieved in dwellings for reasonable resting and sleeping conditions. The guidance in BS 8233:2014 is based on guidelines issued by the WHO, *Guidelines for Community Noise* (1999). The guideline levels are shown in Table 1, copied from BS 8233:2014.

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB $L_{Aeq,16hour}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

Table 1: BS 8233 guideline noise level limits in dwellings for resting and sleeping

BS 8233 advises that *“If relying on closed windows to meet the guide values, there needs to be an appropriate alternative ventilation that does not compromise the facade insulation or the resulting noise level. If applicable, any room should have adequate ventilation (e.g. trickle ventilators should be open) during assessment.”*

It also advises that *“Where development is considered necessary or desirable...the internal target levels may be relaxed by up to 5 dB and reasonable conditions still achieved.”*

The standard also advises that *“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_{AFmax} depending on the character and number of events per night. Sporadic noise events could require separate values.”* It does not give guidance on what might constitute a guideline value. However, as the standard does cross reference *Guidelines for Community Noise - World Health Organization, 1999 (WHO)*, we suggest that the guideline value of L_{AFmax} 45 dB, inside bedrooms, should not be exceeded during the night more than 10-15 times, which reflects the WHO position.

BS 8233:2014 suggests the following guidelines for noise levels in external spaces that are used for amenity space, such as gardens and patios. *“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 recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.”*



4. NOISE MEASUREMENT SURVEY

4.1 NOISE SURVEY DETAILS AND INSTRUMENTATION

To inform the noise assessment, two unattended noise loggers were utilised for the recording of continuous noise measurements at the south-eastern and northern boundaries of the proposed development. The noise monitoring locations (NMLs) are as follows:

NML 1 – Adjacent to James Road, at 1.2m height

NML 2 – Adjacent to Peterborough Road, at 1.5m height

The noise monitoring locations are shown on a satellite imagery of the site location plan in Appendix A.

Measurements were carried out between Tuesday 31st of August and Wednesday 1st of September 2021. Measurements consisted of continuous five and fifteen-minute periods. Weather conditions during the survey were generally mild and dry, with low to medium wind speeds.

The following instrumentation was used during the survey:

NML 1 – Adjacent to James Road

- Bruel & Kjaer Type 2250 Sound Level Meter s/n 3000713
- Bruel & Kjaer Type 4189 Microphone s/n 2780512
- Bruel & Kjaer Type 4231 Acoustic Calibrator s/n 3001598

NML 2 – Adjacent to Peterborough Road

- Bruel & Kjaer Type 2250 Sound Level Meter s/n 3009933
- Bruel & Kjaer Type 4189 Microphone s/n 3043744
- Bruel & Kjaer Type 4231 Acoustic Calibrator s/n 2115516

Before and after the survey, the sound level meters were field-calibrated in accordance with the manufacturer's guidelines, and no significant drift was observed. The meters, microphones and field calibrators are laboratory calibrated biennially in accordance with UKAS procedures or to traceable National Standards.

Measurements made were of the following parameters:

- Ambient Noise Level – defined as the Energy Average Level of a period (L_{Aeq})
- Background Noise Level – defined as level exceeded for 90% of a period (L_{A90})
- Maximum Noise Level – defined as the maximum (L_{Amax} the maximum noise level)



4.2 RESULTS

The results of the noise measurement survey are presented in Appendix C in graphical form. A summary of the measured data over the daytime and night-time periods is included in Table 2 below. The $L_{Aeq,16hour}$ and $L_{Aeq,8hour}$, representative of the daytime period and the night-time period respectively, have been calculated using all of the daytime and night-time noise measurements.

World Health Organisation (WHO) Guidelines for Community Noise define regular as not more than 10-15 events per night. Therefore, the $L_{Amax,5min}$ levels measured during the night-time period have been sorted from highest to lowest at each NML. It is then possible to read off the 10-15th highest $L_{Amax,5min}$ levels. The typical $L_{Amax,5min}$ values representative of the night-time period at each position are included in Table 2.

Measurement location	Period	$L_{Aeq,T}$ (dB)	$L_{Amax,5min}$ (dB)
NML 1: Adjacent to James Road	Daytime (07:00 – 23:00)	61	-
	Night time (23:00 – 07:00)	54	75
NML 2: Adjacent to Peterborough Road	Daytime (07:00 – 23:00)	59	-
	Night time (23:00 – 07:00)	51	75

Table 2: Summary of noise measurement results

Ambient noise levels across the proposed development site were controlled by road traffic movements on James Road and Peterborough Road during both the daytime and night-time periods. Vegetation noise, birdsong and intermittent road traffic noise on Harrington Drive were also audible occasionally, however these were not dominant when present.

5. NOISE PREDICTION METHODOLOGY

5.1 NOISE MODEL

To establish the noise levels affecting the site as a whole following development, a computer-based noise model has been used. The particular prediction model that has been used for this analysis is Softnoise's 'Predictor'⁶ software. This acoustic model implements the procedures set out in ISO 9613-2:1996 "Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation to determine noise levels", and is Quality Assured to all parts of ISO 17534:2015 "Acoustics – Software for the calculation of sound outdoors". The Predictor model takes account of the following features in its calculation procedure:

- Source sound power level (for point, line and area sources)
- Reflection from nearby structures and source directivity
- Distance from noise source (geometric spreading)
- Atmospheric absorption
- Acoustic screening of intervening structures and topography
- Ground absorption
- Ground effects (which includes the height of ground relative to the noise source)

⁶ Softnoise – Predictor (Predictor-LimA) v2021.1 Environmental Noise Calculation Software Package, Type 7810



5.2 PREDICTION OF INTERNAL AND EXTERNAL NOISE LEVELS

The noise model detailed in Section 5.1 above has been utilised to determine the internal and external noise levels. The procedure that has been followed is as summarised below:

- Validate the noise prediction model against actual noise measurement data taken at all NMLs. This validation is carried out in respect of daytime and night-time $L_{Aeq,T}$ levels for road traffic, as well as night-time L_{AFmax} noise.
- Alter the noise model to replace the physical configuration at the time of the measurements with the proposed new buildings at their proposed location and height.
- Predict noise levels at numerous locations around the façades of the houses, representative of the proposed windows of habitable rooms.
- Use these noise level predictions as the starting point for intrusive noise calculations at key locations around the development.
- Compare the predicted indoor noise levels against the guideline noise levels set out in *BS 8233:2014* and WHO.
- Using actual measured sound insulation data for commercially available façade components, set the façade sound insulation specifications for the relevant elements so that the noise limits are met.

Within the noise model, the roads are modelled as line sources. However, noise levels for L_{AFmax} sources are not modelled in this way as the 'instantaneous' L_{AFmax} measured is mainly due to a particular event at a single location, rather than the aggregate of noise components from all parts of the road. Accordingly, L_{AFmax} levels have been calculated using a series of point sources along the roads, using the maximum level from an individual point noise source, rather than the sum the noise from of all the point sources. Then, the L_{AFmax} level for design purposes is the single highest individual component L_{AFmax} level. This procedure has been found to agree well with measured data at previously completed sites. Where the predicted L_{AFmax} levels are lower than the measured typical L_{AFmax} levels, the measured values are utilised.

Tabular results and noise contour maps at 1.5m height for the daytime and 4m height for the night-time periods are included in Appendix D. The results and assessments are also detailed in Sections 6 below.

6. ASSESSMENT

6.1 INTERNAL NOISE LEVELS

Calculations of the noise intrusion have been carried out using the methodology set out in *BS 8233:2014*.

Incident noise levels on the proposed residential development have been calculated with the aid of noise prediction model. The noise prediction methodology is detailed in Section 5 above.

The houses are proposed to have brick and block external walls. Sound insulation data for the external walls has been taken from *BS 8233*. Sound insulation data for glazing and ventilators has been taken from manufacturers' data for typical systems.

The calculations assume typical internal finishes for habitable rooms, based on reverberation times that Spectrum have measured in a range of occupied dwellings at other sites, and on the room geometry and volumes taken from the floor plans and elevation drawings in Appendix B.



In this analysis it is assumed that there are 2 *window vents in bedrooms* and 4 *window vents in living rooms and lounges*. The precise number is to be determined by the mechanical consultant for the project. It is important to note that the noise levels experienced in the rooms is affected by the number of vents. If the number of vents that is installed is higher than we have assumed, then the vent acoustic specification may need to be increased to ensure that the indoor noise target is still achieved.

The detailed calculations are presented in Appendix E and the resultant internal ambient noise levels are summarised in Table 3 below. The calculations include a mitigation scheme for the façades of the proposed development, which is detailed in Section 6.2. A marked-up site layout plan showing the areas of the mitigation scheme is included in Appendix F.

Room	External noise levels (dB)		Internal noise levels (dB)	
	Incident L_{Aeq}	Typical incident L_{Amax}	L_{Aeq}	Typical L_{Amax}
Red Area (Uprated Façades) – Sample Plot 1				
Lounge (day)	61	-	33	-
Kitchen / Dining (day)	61 / 52 ¹	-	37	-
Bedroom (day)	61	-	29	-
Bedroom (night)	53	74	20	73
Orange Area (Uprated Façades) – Sample Plot 39				
Lounge (day)	40	-	18	-
Kitchen / Dining (day)	54	-	32	-
Bedroom (day)	58	-	30	-
Bedroom (night)	51	70	23	43
Unmarked area (Standard Façades) – Sample Plot 47				
Living/kitchen/dining (day)	55	-	31	-
Bedroom (day)	55	-	29	-
Bedroom (night)	47	69	21	43

Table 3: Calculated indoor ambient noise levels

Note 1: Incident noise levels on the front and side façades, respectively

The results show that internal noise levels would meet the criteria for desirable sleeping and resting conditions, as set out in BS 8233 and by the WHO, in all the habitable rooms at the proposed development.

6.2 SCHEME OF MITIGATION

A scheme of mitigation has been developed to ensure acceptable internal noise levels are achieved in each dwelling, in accordance with the relevant noise criteria.

The requirements for glazing and ventilation are summarised in Table 4 below. Glazing is specified using the weighted sound reduction index, R_w , with a correction applied to account for the acoustic character of road traffic noise, C_{tr} . Vents are specified using the normalised element weighted sound level difference, $D_{n,e,w}$, also corrected for traffic noise, C_{tr} . The acoustic specifications should be met both with and without the traffic noise correction term. Additionally, the acoustic specification for glazing should apply to the window set, as a whole, not just the glazing.



Example façade elements that meet the specifications in each case are also given in Table 4. It should be noted, however, that it is the numerical values that are specified. The products shown are given by way of example only.

Area Colour	Habitable Rooms	Glazing		Ventilation	
		$R_w / R_w + C_{tr}$ (dB)	Example unit	$D_{n,e,w} / D_{n,e,w} + C_{tr}$ (dB)	Example unit
Red	Living Rooms	32 / 28	Generic 6/6-16/4	42 / 38	Greenwood Acoustic Trickle Vent 5000EAW.AC2
	Dining Rooms	29 / 25	Generic 4/6-16/4	33 / 32	Greenwood 4000 SBW (Hit and Miss)
	Bedrooms	35 / 32	Generic 10/6-16/6	42 / 40	Greenwood Acoustic Trickle Vent 2500EAW.AC1
Orange	Living and Dining Rooms	29 / 25	Generic 4/6-16/4	33 / 32	Greenwood 4000 SBW (Hit and Miss)
	Bedrooms	32 / 28	Generic 6/6-16/4	39 / 37	Greenwood Acoustic Trickle Vent 5000EAW.AC1
No mark-up	Living and Dining Rooms	29 / 25	Generic 4/6-16/4	33 / 32	Greenwood 4000 SBW (Hit and Miss)
	Bedrooms	29 / 25	Generic 4/6-16/4	33 / 32	Greenwood 4000 SBW (Hit and Miss)

Table 4: Scheme of acoustic mitigation to facades

With the above mitigation in place, acceptable noise levels inside dwellings at the proposed development site would be achieved, in line with the results of the calculations indicated in Table 3.

6.3 NOISE LEVELS IN THE OUTDOOR AMENITY AREA

As set out in Section 3.6, BS 8233 suggests guidelines for noise levels in external spaces 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 of 55 dB $L_{Aeq,T}$, which would be acceptable in noisier environments”.*

BS 8233 also states: *“... it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited”.*

The proposals include a 1.8m high timber boundary fences around the outdoor amenity areas of each plot. Initial noise predictions indicated that noise levels in the outdoor amenity areas of some properties on the eastern boundary would reach up to L_{Aeq} 60dB. Therefore, it is proposed that the height of some of the boundary fences is elevated to 2.3m, as indicated on the marked-up site layout plan in Appendix F.

All the timber boundary fences should be close-boarded, have no holes or penetrations and a long-term surface density of at least 10 kg/m². The surface density of the timber should meet the above specification after it dries out.

With the boundary fences elevated to 2.3m in some of the areas of the development as detailed above, the noise levels in the outdoor amenity areas of the plots on the eastern boundary would meet the upper guideline level of L_{Aeq} 55 dB, whilst the noise levels in the outdoor amenity areas of the other plots would meet the lower guideline level of L_{Aeq} 50 dB. A contour plot of the daytime noise levels in the outdoor amenity areas at 1.5m height is included in Appendix D. Therefore, the guideline noise levels for amenity areas indicated in BS 8233 would be met.

7. CONCLUSION

Ashley King Developments Ltd have commissioned Spectrum Acoustic Consultants to complete a noise assessment in order to support a planning application in connection with a proposed residential development at land off Harrington Drive in Crowland, Peterborough.

Noise levels across the site during both the daytime and night-time are controlled by road traffic movements on James Road and Peterborough Road.

A noise mitigation strategy has been developed, by considering the level, duration and character of the noise impacting on the proposed development, as well as the noise insulation and noise control requirements for the proposed plots. The mitigation scheme that has been proposed and specified comfortably satisfies the internal and external noise level requirements in accordance with BS 8233:2014 and WHO Guidelines for Community Noise.

A P P E N D I X A

Site Layout Plan showing the Noise Monitoring Locations



NML 2 - Adjacent to Peterborough Road, at 1.5m height

Approximate Site Location Plan

NML 1 - Adjacent to James Road, at 1.2m height

APPENDIX B

Proposed Site Layout Plan and Floor Plans



KEY:

SITE BOUNDARY:

1800mm Facing Brick wall:
(brick to match adjacent property)

Affordable housing

SCHEDULE:

Unit	Bed	Storey	Sqft	Parking	No	
Market						
One	2	2	732	gr	36	
One	1	2	780	gr	6	
One	1	2	670	gr	4	
One	1	2	3,077	gr	1	
One	1	2	3,079	gr	6	
One	1	2	3,079	gr	1	
One	1	2	3,229	gr	1	
					Sub-Tot	85
Affordable Housing 25%						
A575	1	2	575	gr	4	
A752	2	2	732	gr	3	
A902	3	2	902	gr	5	
					Sub-Tot	12
					Total	47

REVISIONS:

NO	DESCRIPTION	DATE
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45 York Road
Widborough
Spalding, Lincs
PE12 6 FY
01430 441154
info@nkwdesign.co.uk

PROJECT: HARRINGTON DRIVE, CROWLAND

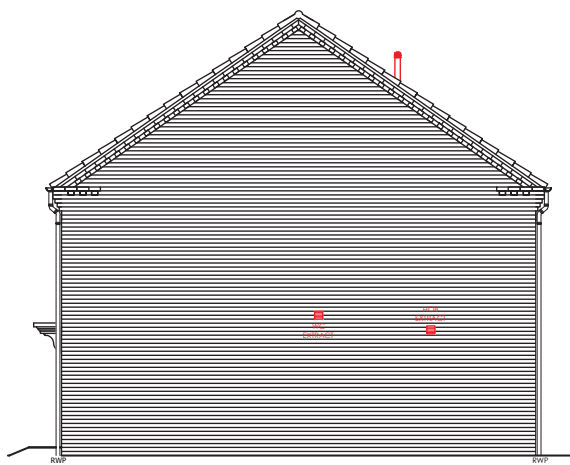
TITLE: PRELIMINARY PLANNING LAYOUT

CLIENT: ASHWOOD HOMES
1 GOODSON ROAD, LINCAS GATEWAY BUSINESS PARK
SPALDING, LINCOLNSHIRE
PE12 6 FY 01406 490590

SCALE: 1:500 @ A1	DATE: AUGUST 2021	DRAWN: RHW
DRAWING NUMBER: 132-SL-001		REVISION:



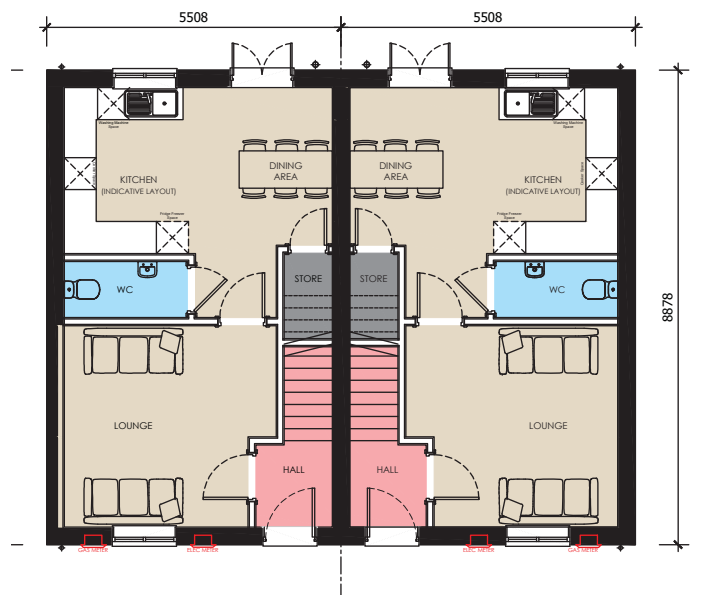
FRONT ELEVATION



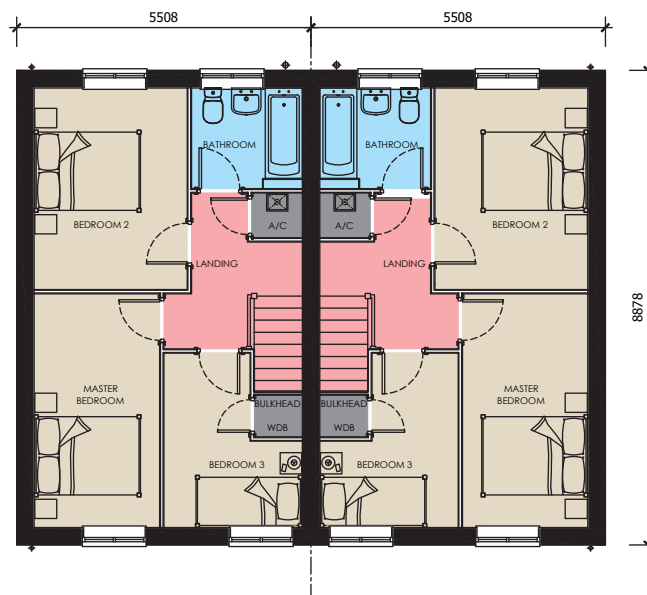
SIDE ELEVATION



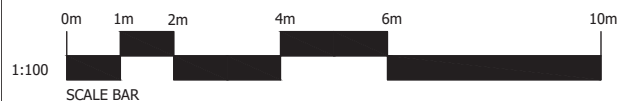
REAR ELEVATION



GROUND FLOOR



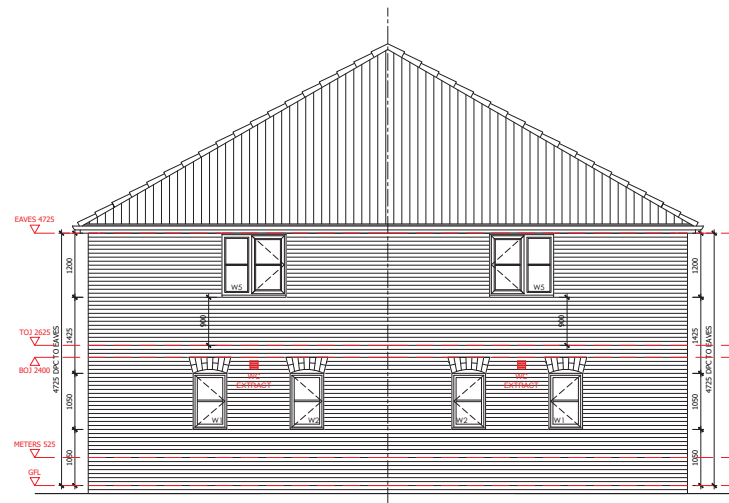
FIRST FLOOR



 1 Goodison Road, Lincs Gateway Business Park, Spalding, Lincs, PE12 6FY T: 01438 490590	HOUSE TYPE:	A902(R) (902 FT ²)
	DRAWING TITLE:	DESIGN SHEET
	DRAWING NUMBER:	A902(R)-001



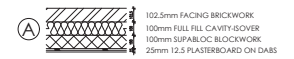
FRONT ELEVATION



SIDE ELEVATION

WALL LEGEND

EXTERNAL CAVITY



PARTY WALL



INTERNAL LOADBEARING



INTERNAL NON-LOADBEARING



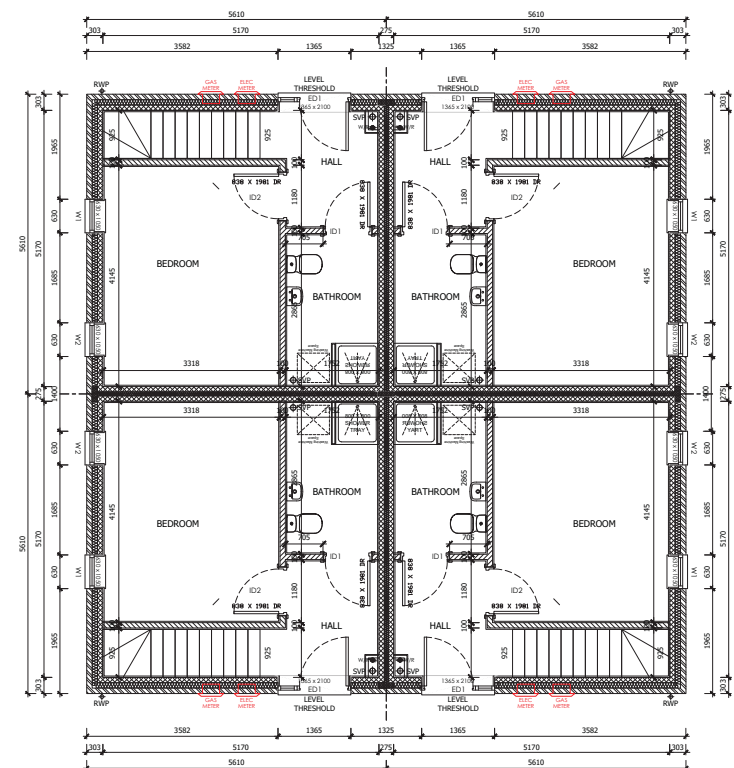
STUD PARTITION



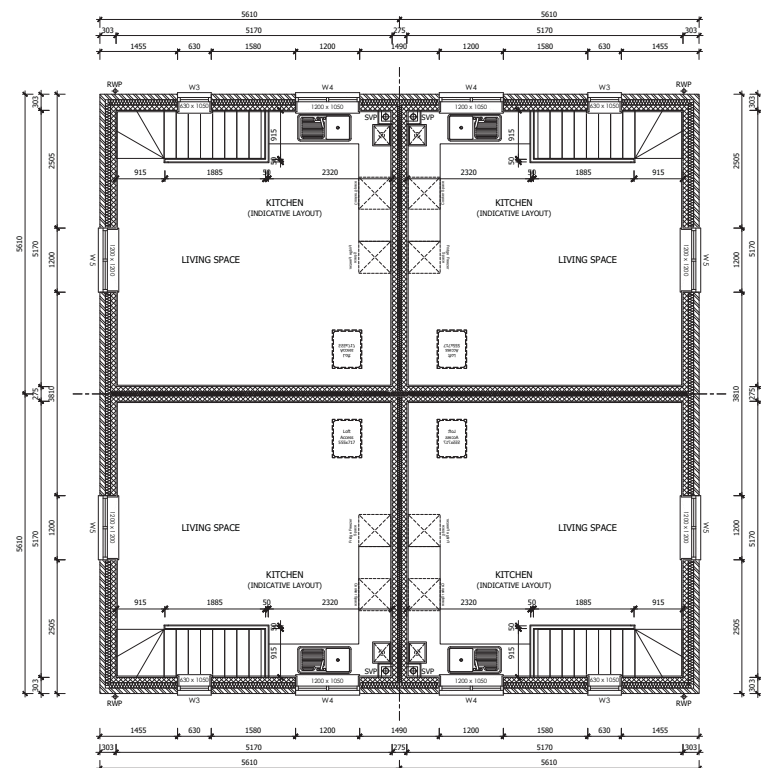
SETTING OUT DIMENSIONS

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE TO MASONRY AND STUD WORK, TIMBER FRAME AND STUD WORK, PLASTERBOARD, FLY FINISHES AND OSB SHEATHING ARE IGNORED.

ALL METER BOXES TO BE SET AT 525MM - 7 COURSES FROM DPC LEVEL.



GROUND FLOOR



FIRST FLOOR

REV	DATE	DESCRIPTION



PROJECT:
PROPOSED RESIDENTIAL DEVELOPMENT AT
STREET
TOWN

HOUSE TYPE:
A575(R) - (575 FT²)

DRAWING TITLE:
FLOOR PLANS & ELEVATIONS

SCALE: 1:50 @ A1 DATE: 23.10.2019

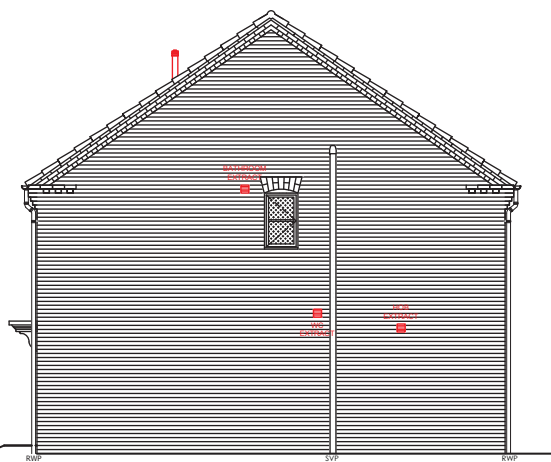
DRAWN: XX REV: -

DRAWING No:
19.0 - A575(R) - 100

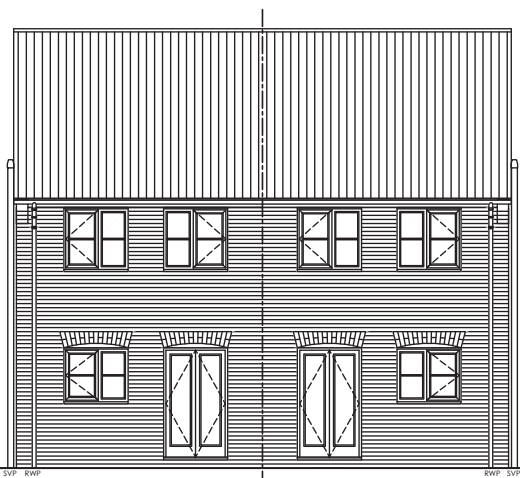
PLOTS AS : TBC
PLOTS OP : TBC



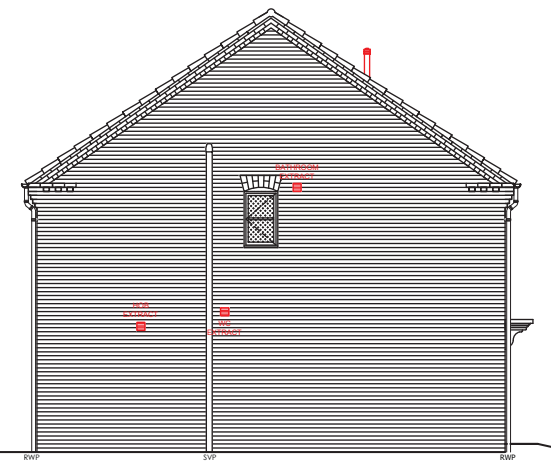
FRONT ELEVATION



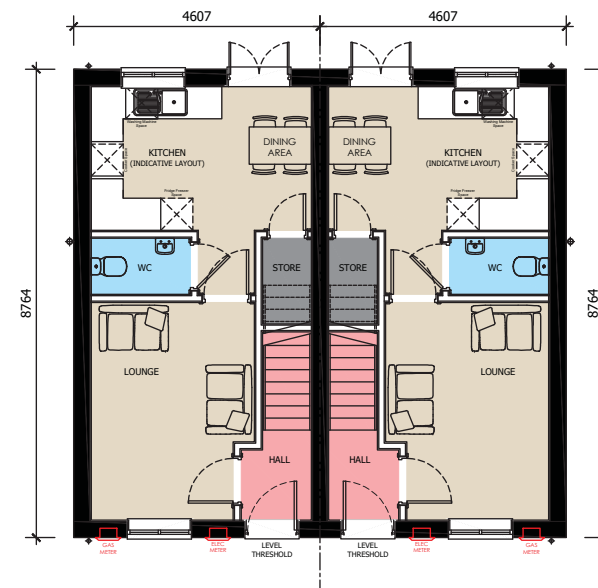
SIDE ELEVATION



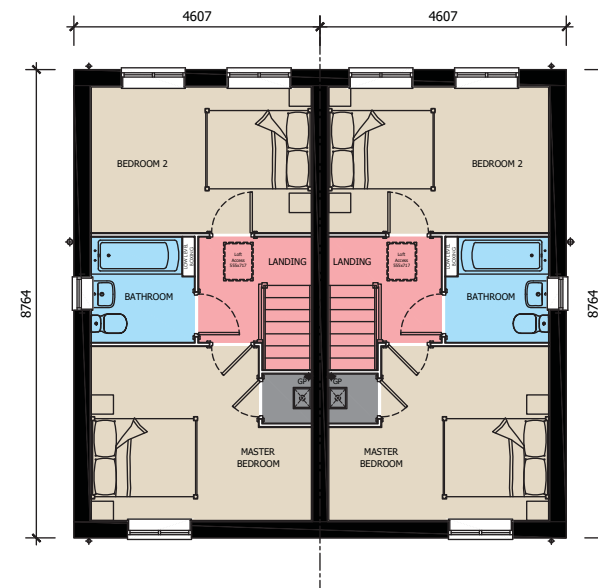
REAR ELEVATION



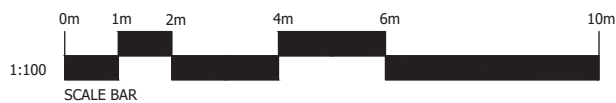
SIDE ELEVATION



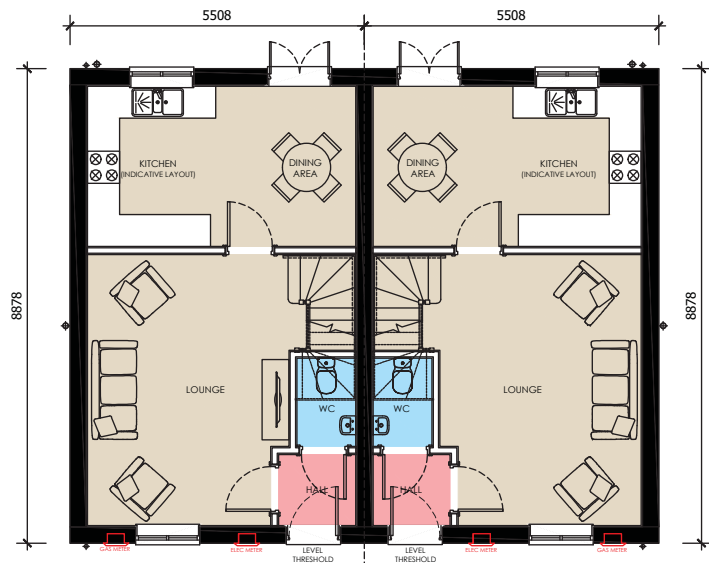
GROUND FLOOR



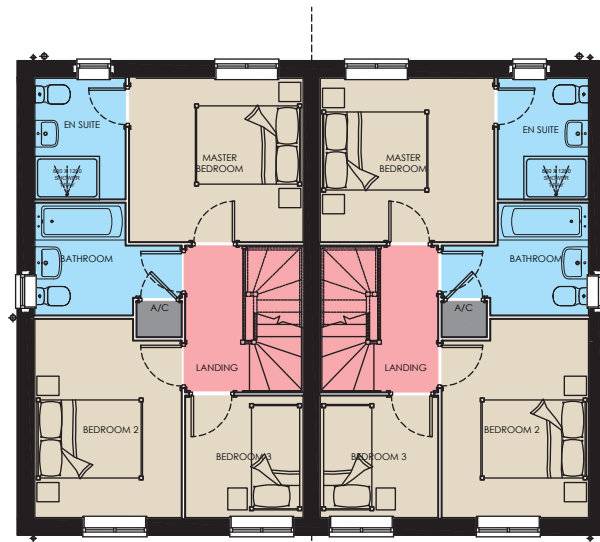
FIRST FLOOR



 1 Goodison Road, Lincs Gateway Business Park, Spalding, Lincs, PE12 6FY T: 01438 400590	HOUSE TYPE:	A732(R) (732 FT ²)
	DRAWING TITLE:	DESIGN SHEET
	DRAWING NUMBER:	A732(R)-001



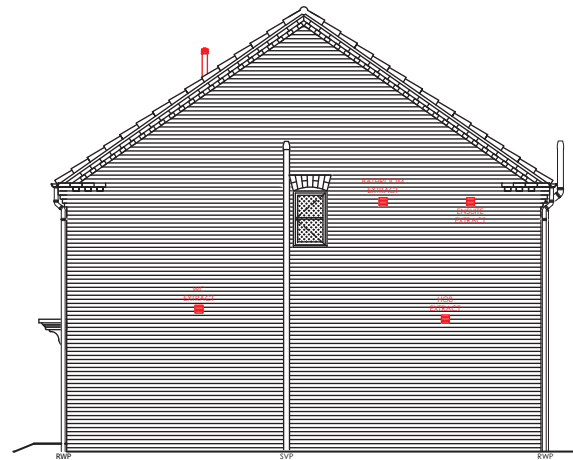
GROUND FLOOR



FIRST FLOOR



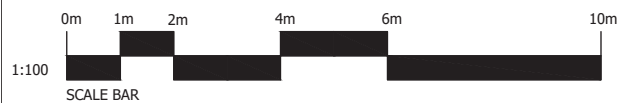
FRONT ELEVATION



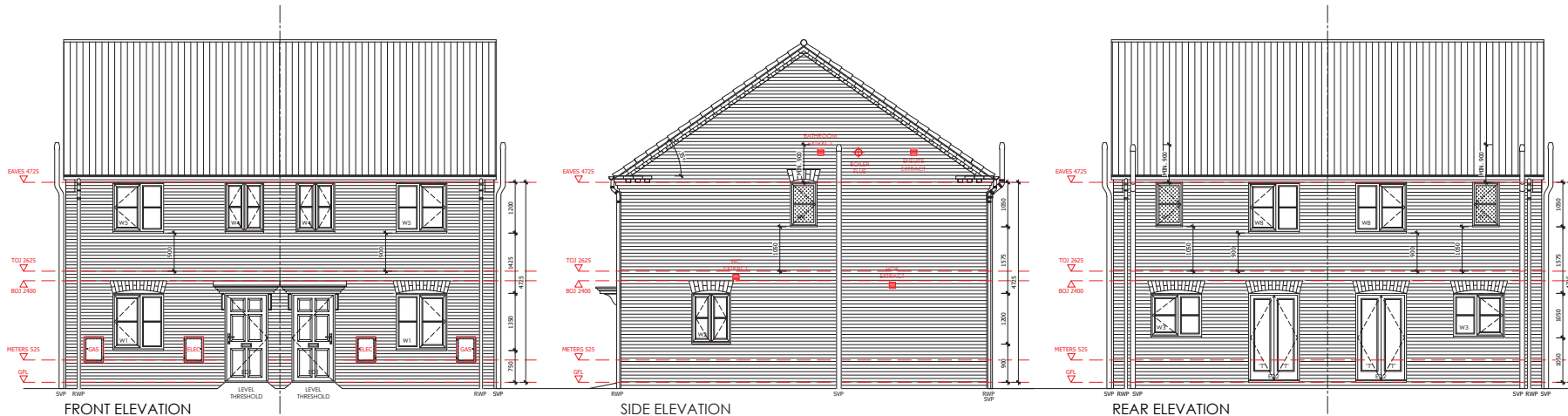
SIDE ELEVATION



REAR ELEVATION



 1 Goodison Road, Lincs Gateway Business Park, Spalding, Lincs, PE12 6FY T: 01406 490590	HOUSE TYPE:	AIRE (902 FT ²)
	DRAWING TITLE:	DESIGN SHEET
	DRAWING NUMBER:	AIRE-001



WALL LEGEND

EXTERNAL CAVITY

- (A) 102.5mm FACING BRICKWORK
100mm FULL FILL CAVITY-GOVER
100mm SUPABLOC BLOCKWORK
25mm 12.5 PLASTERBOARD ON DABS

PARTY WALL

- (B) 12.5 PLASTERBOARD ON DABS
100mm HEMLEITE BLOCKWORK
75mm FULL FILL CAVITY-GOVER
100mm HEMLEITE BLOCKWORK
12.5 PLASTERBOARD ON DABS

INTERNAL LOADBEARING

- (C) 12.5 PLASTERBOARD ON DABS
100mm BLOCKWORK
12.5 PLASTERBOARD ON DABS

INTERNAL NON-LOADBEARING

- (D) 12.5 PLASTERBOARD ON DABS
100mm BLOCKWORK
12.5 PLASTERBOARD ON DABS

STUD PARTITION

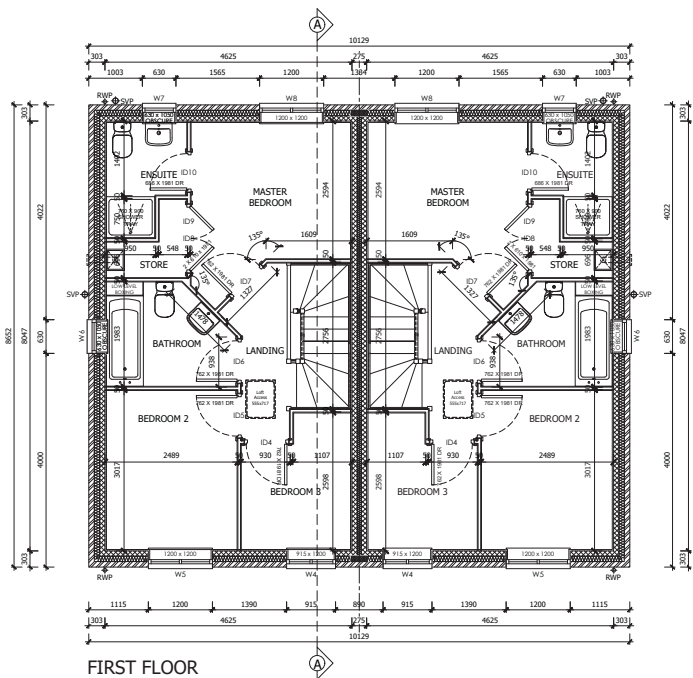
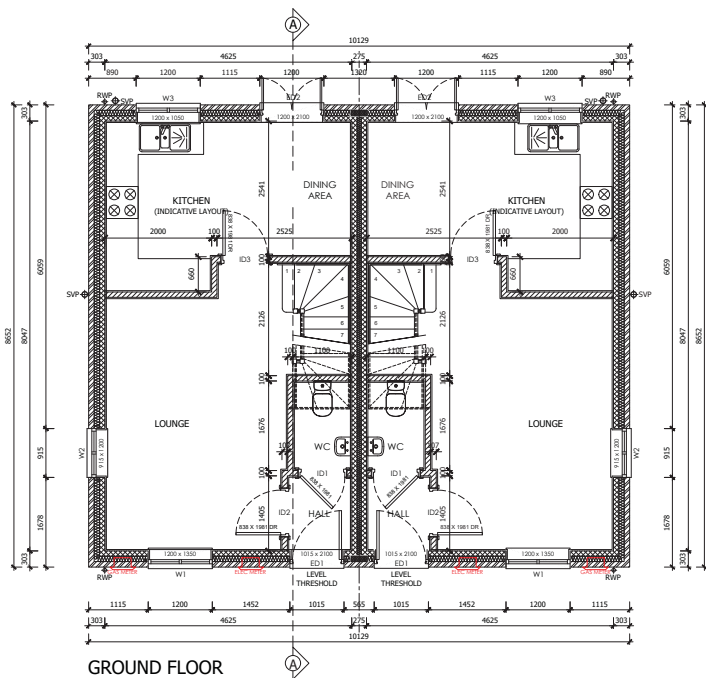
- (E) 15mm PLASTERBOARD
50mm GYPBLOC STUDS
15mm PLASTERBOARD

STUD BUTTRESS PARTITION

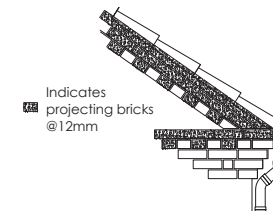
- (F) 15mm PLASTERBOARD
10mm OSB
50mm GYPBLOC STUDS
10mm OSB
15mm PLASTERBOARD ON DABS

SETTING OUT DIMENSIONS

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE TO MASONRY AND STUD WORK, TIMBER FRAME AND STUD WORK, PLASTERBOARD, FLY FINISHES AND OSB SHEATHING ARE EXCLUDED.
ALL METER BOXES TO BE SET AT 525mm - 7 COURSES FROM DPC LEVEL.



BRICK DETAIL FOR SETTING OUT



REV	DATE	DESCRIPTION



1 Goodison Road, Lincs Gateway Business Park,
Spalding, Lincs, PE12 6PY T: 01406 490590

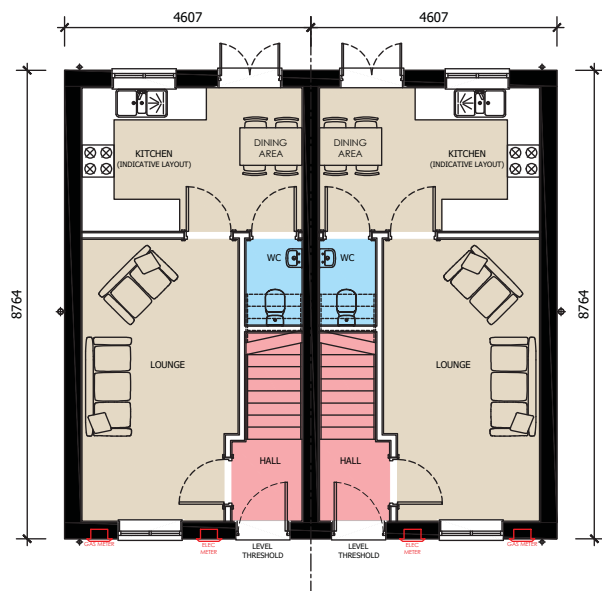
PROJECT:
PROPOSED RESIDENTIAL DEVELOPMENT AT
STREET
TOWN

HOUSE TYPE:
CLYDE - (783 FT²)

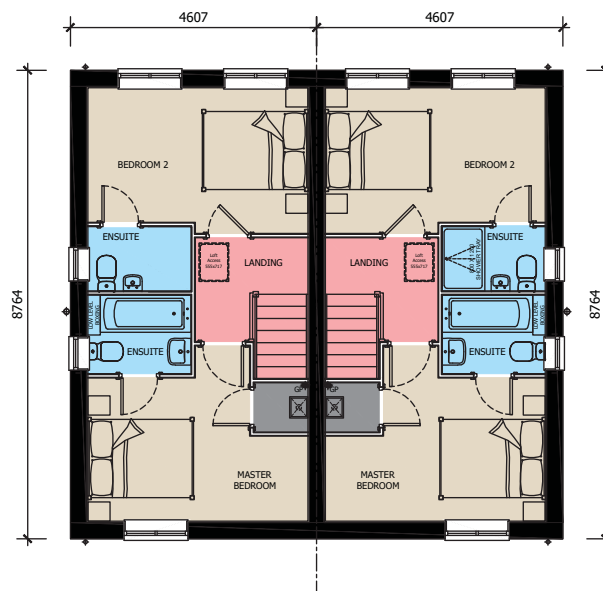
DRAWING TITLE:
FLOOR PLANS & ELEVATIONS

SCALE: 1:50 @ A1 DATE: 19.09.2019
DRAWN: XX REV: -
DRAWING No:
19.0 - CLYDE - 100

PLOTS AS : TBC
PLOTS OP : TBC



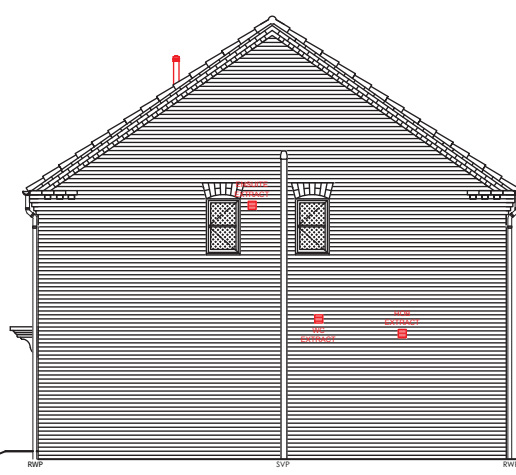
GROUND FLOOR



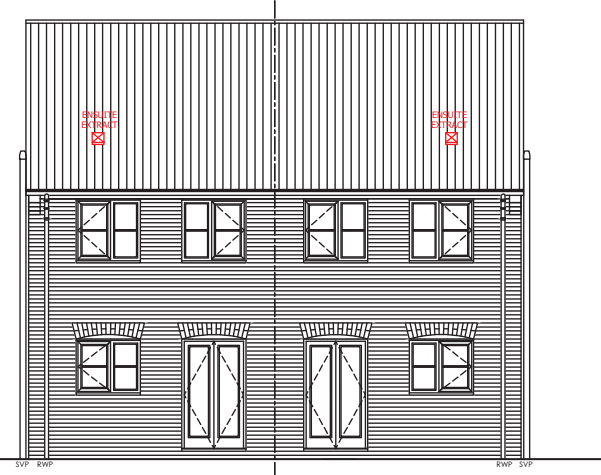
FIRST FLOOR



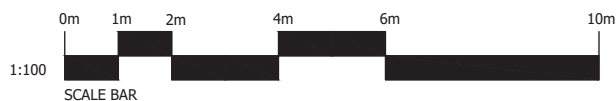
FRONT ELEVATION



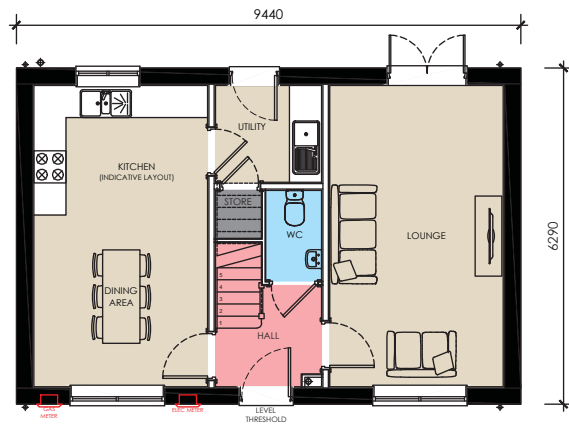
SIDE ELEVATION



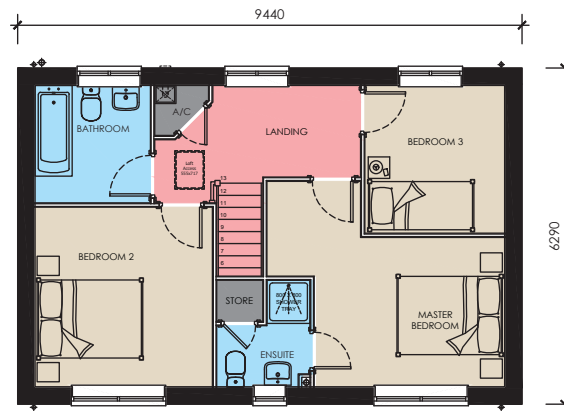
REAR ELEVATION



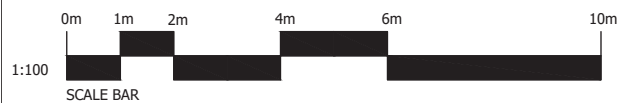
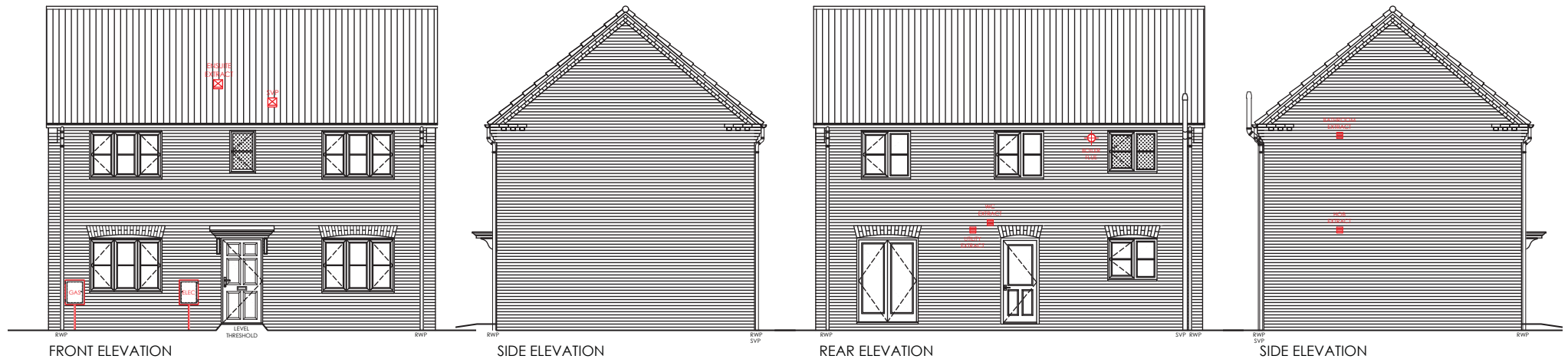
 1 Goodison Road, Lincs Gateway Business Park, Spalding, Lincs, PE12 6FY T: 01430 400590	HOUSE TYPE:	DEE (732 FT ²)
	DRAWING TITLE:	DESIGN SHEET
	DRAWING NUMBER:	DEE-001



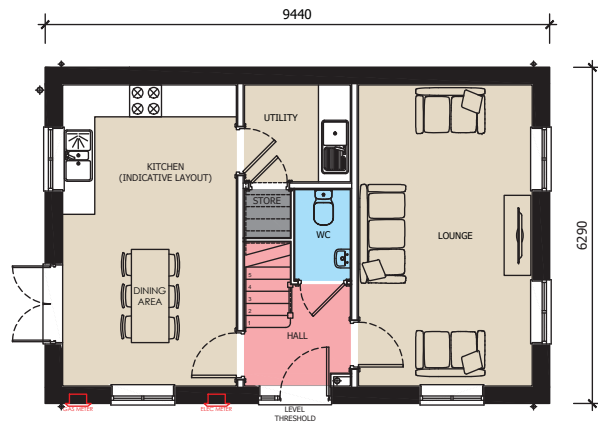
GROUND FLOOR



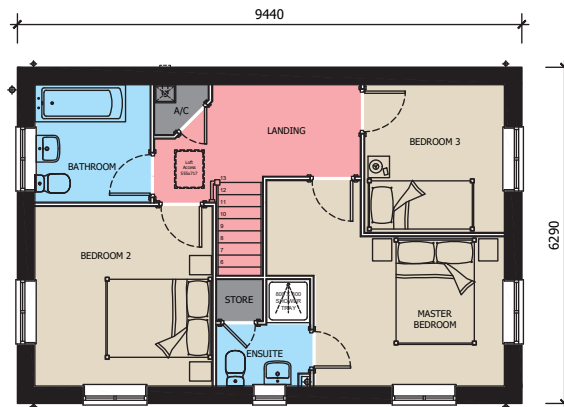
FIRST FLOOR



 1 Goodison Road, Lincs Gateway Business Park, Spalding, Lincs, PE12 6FY T: 01438 400590	HOUSE TYPE:	LOCK (1079 FT ²)
	DRAWING TITLE:	DESIGN SHEET
	DRAWING NUMBER:	LOCK-001



GROUND FLOOR



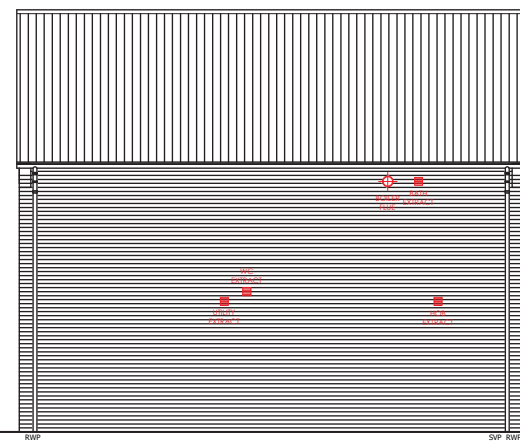
FIRST FLOOR



FRONT ELEVATION



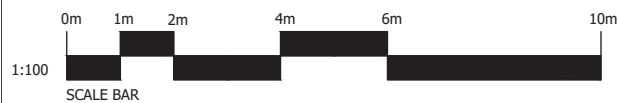
SIDE ELEVATION



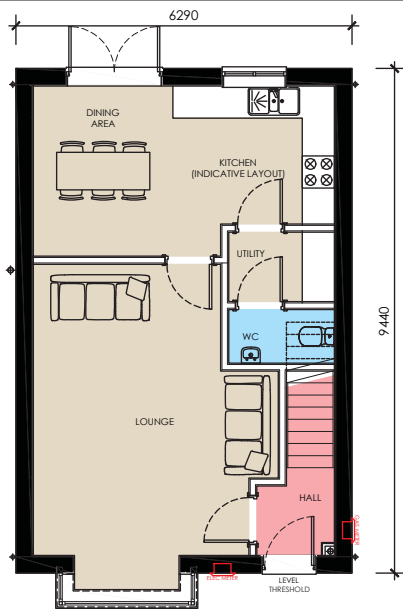
REAR ELEVATION



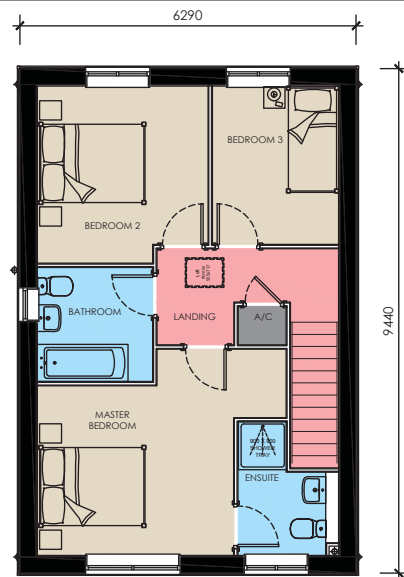
SIDE ELEVATION



 1 Goodison Road, Lincs Gateway Business Park, Spalding, Lincs. PE12 6FY T: 01438 400590	HOUSE TYPE:	MERE (1080 FT ²)
	DRAWING TITLE:	DESIGN SHEET
	DRAWING NUMBER:	MERE-001



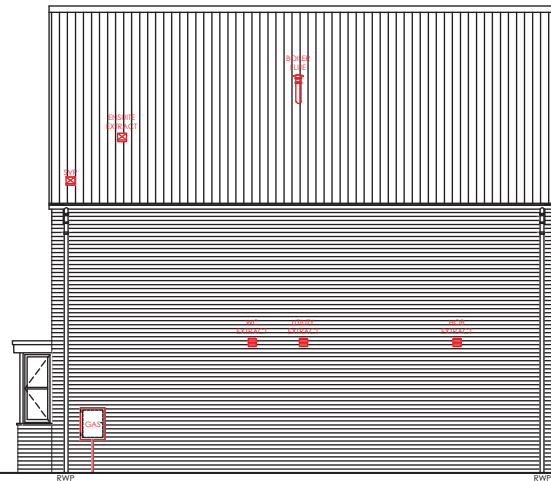
GROUND FLOOR



FIRST FLOOR



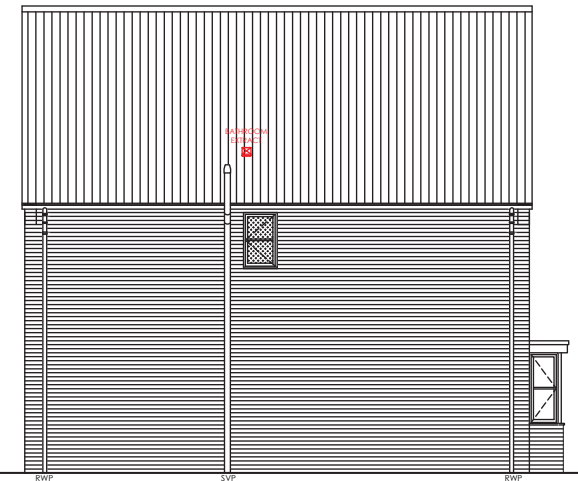
FRONT ELEVATION



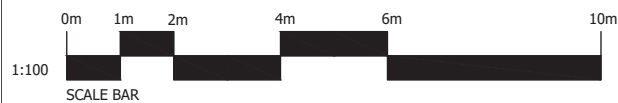
SIDE ELEVATION



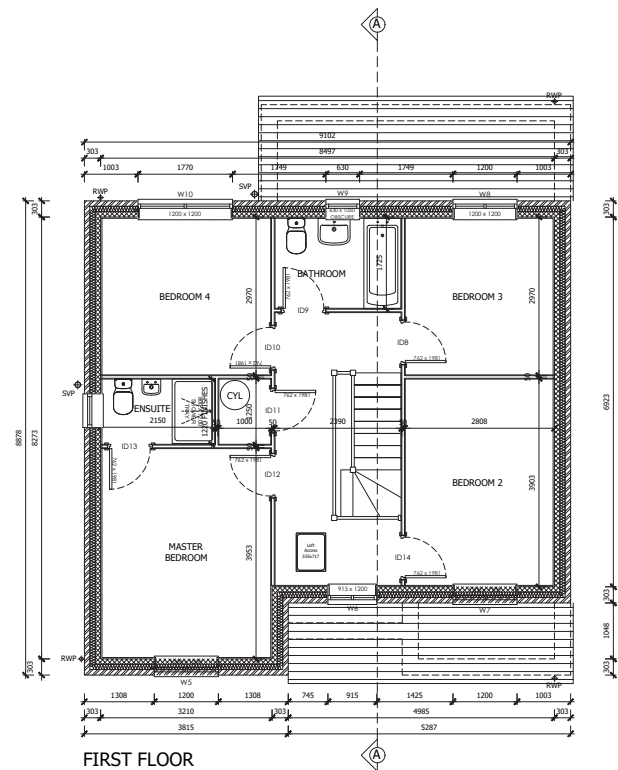
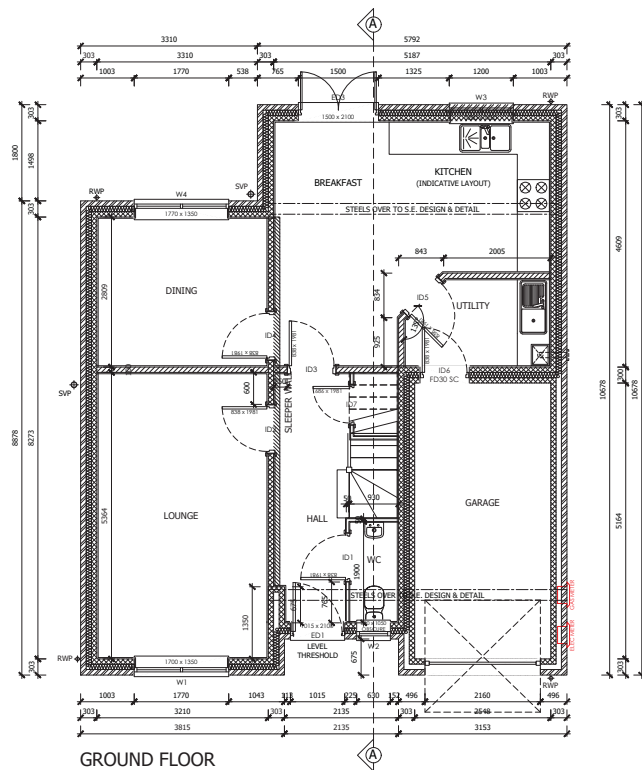
REAR ELEVATION



SIDE ELEVATION



 1 Goodison Road, Lincs Gateway Business Park, Spalding, Lincs, PE12 6FY T: 01430 400500	HOUSE TYPE:	NENE (1065 FT ²)
	DRAWING TITLE:	DESIGN SHEET
	DRAWING NUMBER:	NENE-001



WALL LEGEND

EXTERNAL CAVITY

(A) 102.5mm FACING BRICKWORK
100mm FULL FILL CAVITY-GOVER
100mm SUPALOC BLOCKWORK
25mm 12.5 PLASTERBOARD ON DABS

PARTY WALL

(B) 12.5 PLASTERBOARD ON DABS
100mm HENGLITE BLOCKWORK
75mm FULL FILL CAVITY-GOVER
100mm HENGLITE BLOCKWORK
12.5 PLASTERBOARD ON DABS

INTERNAL LOADBEARING

(C) 12.5 PLASTERBOARD ON DABS
100mm BLOCKWORK
12.5 PLASTERBOARD ON DABS

INTERNAL NON-LOADBEARING

(D) 12.5 PLASTERBOARD ON DABS
100mm BLOCKWORK
12.5 PLASTERBOARD ON DABS

STUD PARTITION

(E) 15mm PLASTERBOARD
50mm GYPROC STUDS
15mm PLASTERBOARD

STUD BUTTRESS PARTITION

(F) 15mm PLASTERBOARD
50mm GYPROC STUDS
15mm GSB
15mm PLASTERBOARD ON DABS

SETTING OUT DIMENSIONS

UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE TO MASONRY AND STUD WORK. TIMBER FRAME AND STUD WORK, PLASTERBOARD, FLY FINISHES AND OSB SHEATHING ARE IGNORED.

ALL METER BOXES TO BE SET AT 529MM - 7 COURSES FROM DPC LEVEL.

REV	DATE	DESCRIPTION

ASHWOOD HOMES

1 Goodison Road, Lincs Gateway Business Park,
Spalding, Lincs, PE12 6FY T: 01406 490590

PROJECT:
PROPOSED RESIDENTIAL DEVELOPMENT AT
STREET
TOWN

HOUSE TYPE:
SEVERN - (1345 FT²)

DRAWING TITLE:
FLOOR PLANS

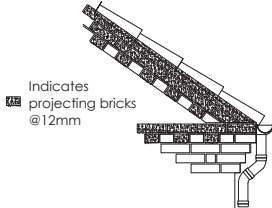
SCALE: 1:50 @ A1 DATE: 24.09.2019

DRAWN: XX REV: -

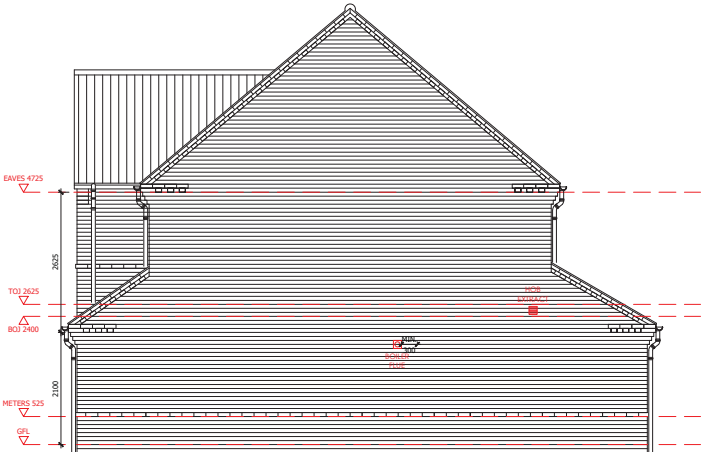
DRAWING No:
19.0 - SEVERN - 100

PLOTS AS : TBC
PLOTS OP : TBC

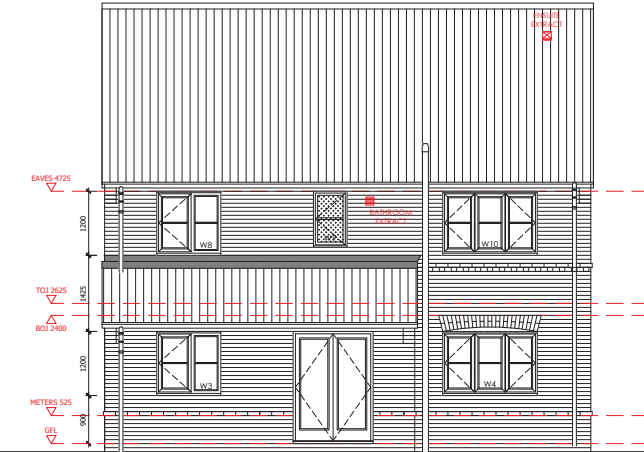
BRICK DETAIL FOR SETTING OUT



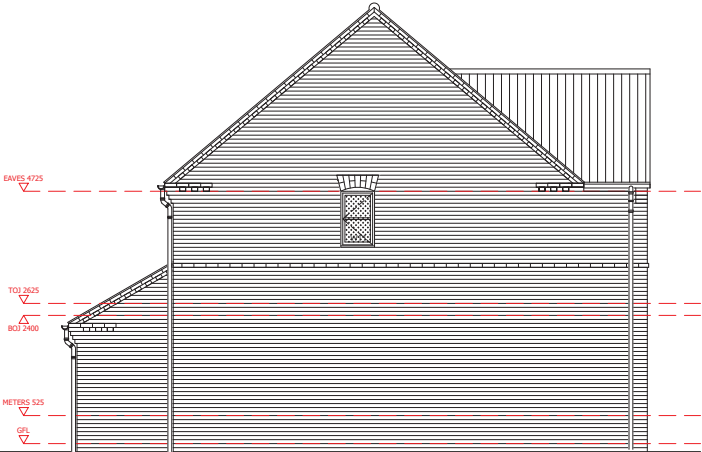
FRONT ELEVATION



SIDE ELEVATION



REAR ELEVATION



SIDE ELEVATION

REV	DATE	DESCRIPTION

ASHWOOD
HOMES

1 Goodison Road, Lincs Gateway Business Park,
Spalding, Lincs, PE12 6FY **T: 01406 490590**

PROJECT:
PROPOSED RESIDENTIAL DEVELOPMENT AT
STREET
TOWN

HOUSE TYPE:
SEVERN - (1345 FT)

DRAWING TITLE:
ELEVATIONS

SCALE: 1:50 @ A1	DATE: 24.09.2019
DRAWN: XX	REV: -
DRAWING No: 19.0 - SEVERN - 101	

PLOTS AS : TBC
PLOTS OP : TBC

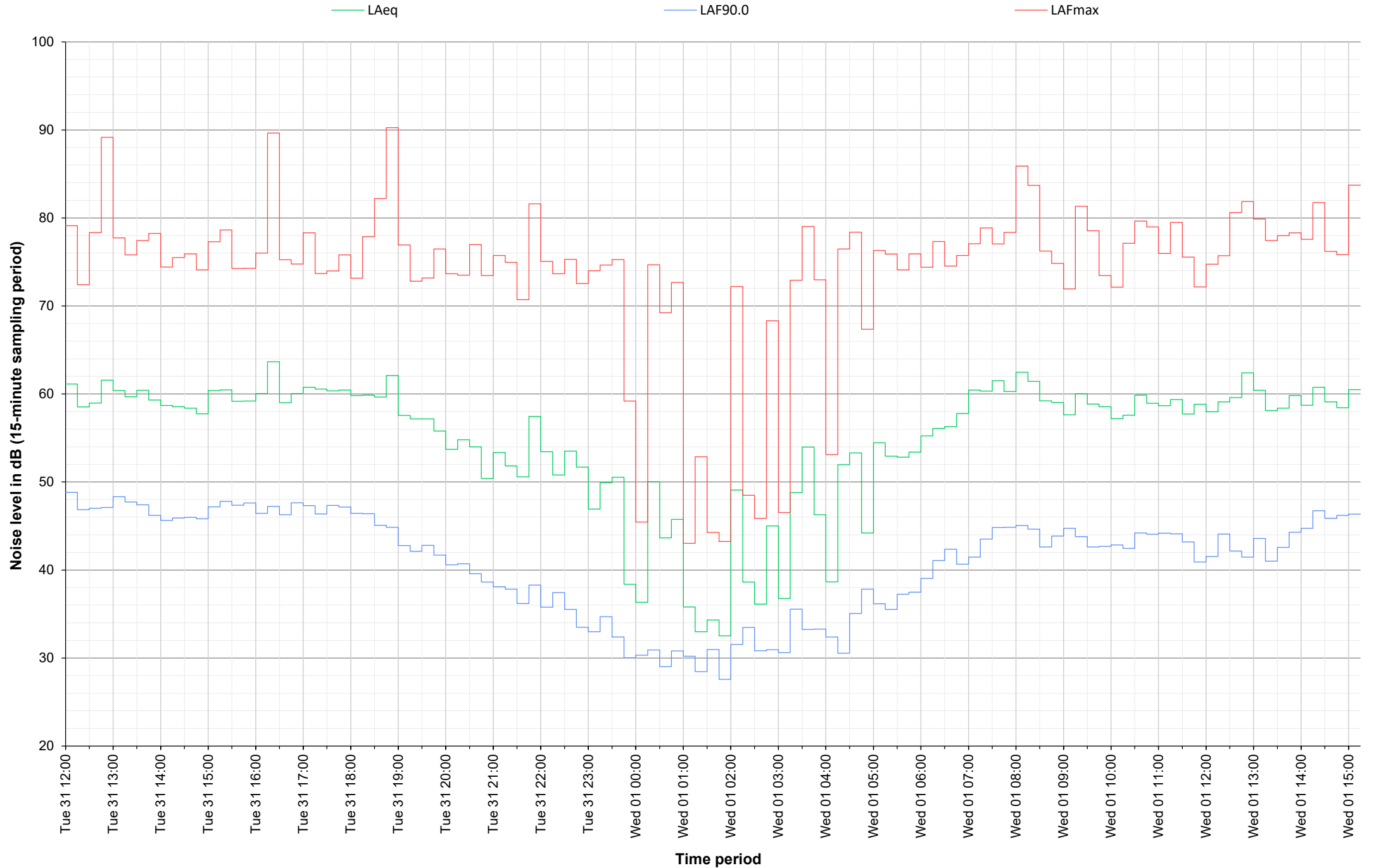
APPENDIX C

Measured Noise Data in Graphical Form

Harrington Drive, Crowland: Noise monitoring 31 August to 1 September 2021
Measured noise levels at NML 1 - Adjacent to James Road



Harrington Drive, Crowland: Noise monitoring 31 August to 1 September 2021
Measured noise levels at NML 2 - Adjacent to Peterborough Road



A P P E N D I X D

Noise Model Results and Contour Plots

21317 - Harrington Drive, Crowland

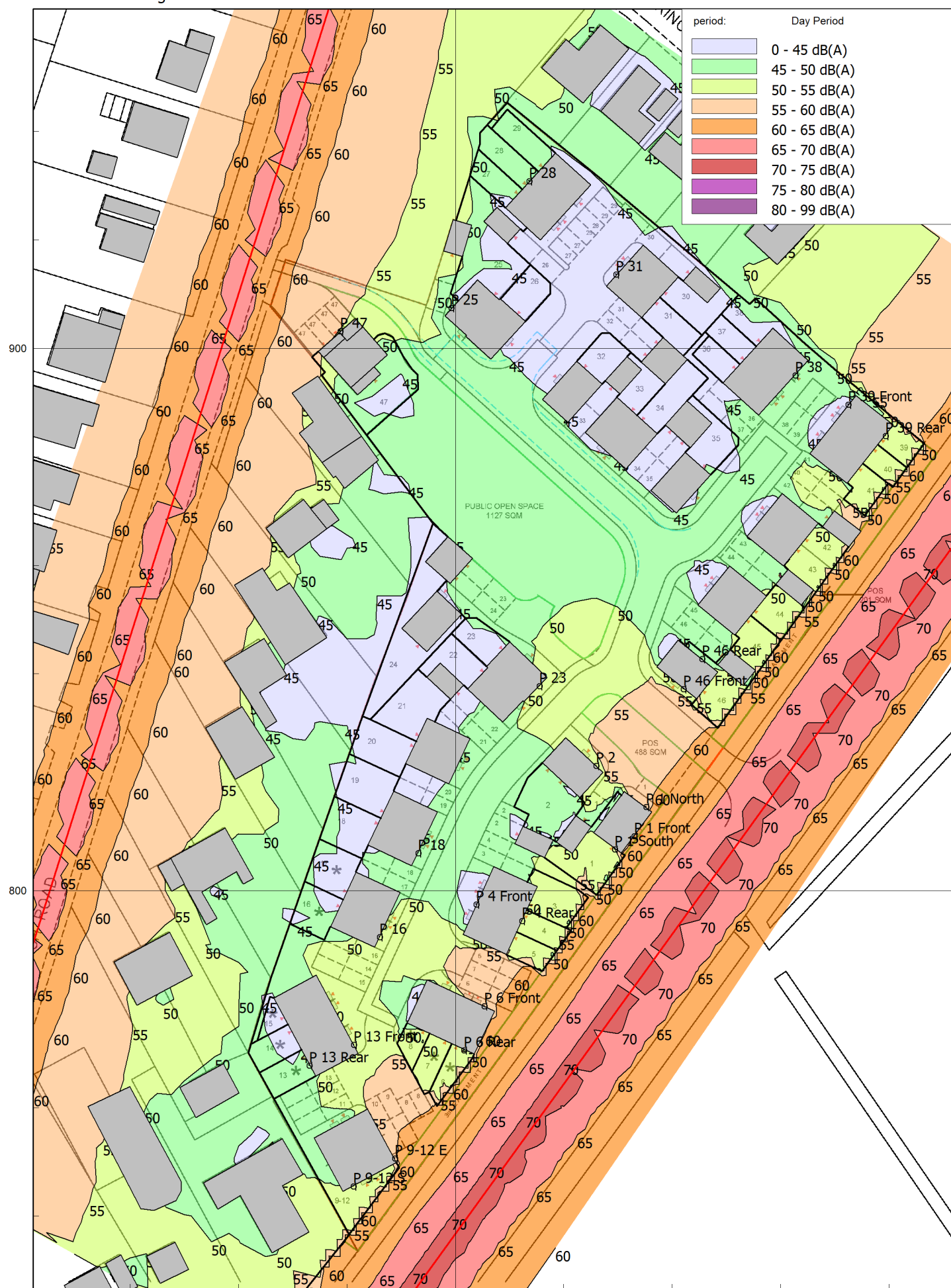
Predicted LAeq levels from Road Traffic during the Daytime period

Report: Table of Results
 Model: LAeq Daytime - with additional mitigation
 LAeq per octave: total results for receivers
 Group: (main group)
 Group Reduction: No

Name			Day								
Receiver	Description	Height	Total	63	125	250	500	1000	2000	4000	8000
P 1 Front_	Plot 1 Front	4.00	61	33	39	49	55	58	52	43	34
P 1 Front_	Plot 1 Front	1.50	61	33	40	48	54	58	52	43	34
P 1 North_	Plot 1 Side North	4.00	58	31	37	46	52	55	50	40	31
P 1 North_	Plot 1 Side North	1.50	58	31	38	45	51	55	50	40	31
P 1 South_	Plot 1 Side South	4.00	58	31	37	46	52	55	49	40	31
P 1 South_	Plot 1 Side South	1.50	52	26	32	41	47	48	42	30	18
P 13 Front	Plot 13 Front	4.00	52	25	31	40	46	49	44	35	27
P 13 Front	Plot 13 Front	1.50	52	25	31	39	45	49	44	34	24
P 13 Rear_	Plot 13 Rear	4.00	47	23	29	36	41	44	40	30	18
P 13 Rear_	Plot 13 Rear	1.50	43	21	27	34	38	39	35	23	9
P 16_A	Plot 16	1.50	51	25	30	37	43	48	43	34	23
P 16_B	Plot 16	4.00	51	25	30	38	44	49	44	34	24
P 18_A	Plot 18	1.50	47	22	27	35	40	44	39	28	17
P 18_B	Plot 18	4.00	48	23	27	37	42	45	40	30	19
P 2_A	Plot 2	1.50	54	27	33	41	47	52	47	37	27
P 2_B	Plot 2	4.00	54	28	33	42	48	52	46	37	28
P 23_A	Plot 23	1.50	51	25	30	37	43	48	43	34	24
P 23_B	Plot 23	4.00	51	25	30	38	44	48	43	34	23
P 25_A	Plot 25	1.50	50	26	33	36	40	47	45	35	24
P 25_B	Plot 25	4.00	50	26	32	38	41	47	45	35	23
P 28_A	Plot 28	1.50	46	21	29	36	40	43	40	28	15
P 28_B	Plot 28	4.00	50	22	29	38	41	47	45	35	23
P 31_A	Plot 31	1.50	40	19	24	30	34	36	32	20	5
P 31_B	Plot 31	4.00	44	20	25	32	36	40	37	27	13
P 38_A	Plot 38	1.50	47	22	27	35	41	44	38	27	16
P 38_B	Plot 38	4.00	51	26	30	38	44	48	43	33	22
P 39 Front	Plot 39 Front	4.00	44	22	25	34	38	41	36	25	12
P 39 Front	Plot 39 Front	1.50	40	19	23	31	35	37	31	20	8
P 39 Rear_	Plot 39 Rear	4.00	58	30	35	45	52	56	50	41	32
P 39 Rear_	Plot 39 Rear	1.50	54	27	34	43	49	50	44	33	22
P 4 Front_	Plot 4 Front	4.00	44	21	26	34	38	41	37	27	15
P 4 Front_	Plot 4 Front	1.50	43	20	26	32	37	40	35	24	13
P 4 Rear_A	Plot 4 Rear	1.50	53	26	33	43	49	49	42	31	19
P 4 Rear_B	Plot 4 Rear	4.00	58	28	34	44	52	56	50	41	32
P 46 Front	Plot 46 - Front	4.00	55	28	34	42	49	53	47	38	28
P 46 Front	Plot 46 - Front	1.50	53	27	33	40	46	51	45	36	26
P 46 Rear_	Plot 46 Rear	4.00	54	26	31	41	48	52	47	37	28
P 46 Rear_	Plot 46 Rear	1.50	46	24	29	37	42	42	35	24	12
P 47_A	Plot 47	1.50	55	30	37	42	45	52	50	40	30
P 47_B	Plot 47	4.00	55	30	37	43	46	52	50	40	29
P 6 Front_	Plot 6 Front	4.00	57	30	36	45	50	54	48	39	30
P 6 Front_	Plot 6 Front	1.50	56	29	36	44	49	54	48	39	30
P 6 Rear_A	Plot 6 Rear	1.50	51	26	33	42	47	47	40	28	17
P 6 Rear_B	Plot 6 Rear	4.00	58	31	37	46	52	55	50	40	32
P 9-12 E_A	Plots 9-12 East	1.50	59	32	38	46	52	56	51	41	33
P 9-12 E_B	Plots 9-12 East	4.00	60	32	38	47	53	57	51	42	33
P 9-12 S_A	Plots 9-12 South	1.50	52	26	33	42	47	48	41	29	18
P 9-12 S_B	Plots 9-12 South	4.00	59	31	38	47	53	56	50	41	33

All shown dB values are A-weighted

Predictor V2021.1 Licensed to Spectrum Acoustics, UK



21317 - Harrington Drive, Crowland

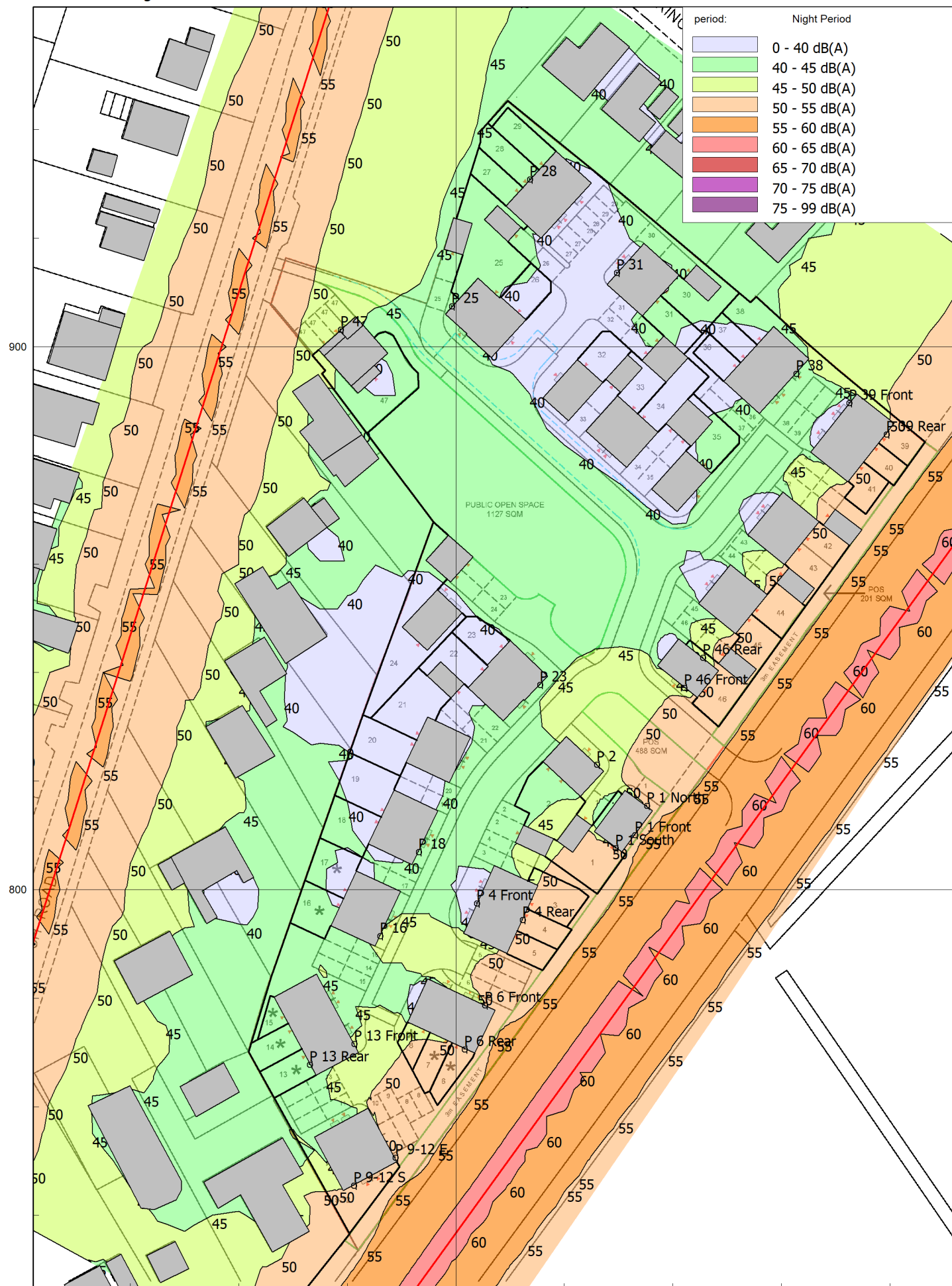
Predicted LAeq levels from Road Traffic during the Night-time period

Report: Table of Results
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 Group Reduction: No

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Receiver	Description	Height	Total	63	125	250	500	1000	2000	4000	8000
P 1 Front_	Plot 1 Front	4.00	61	33	39	49	55	58	52	43	34
P 1 Front_	Plot 1 Front	1.50	61	33	40	48	54	58	52	43	34
P 1 North_	Plot 1 Side North	4.00	58	31	37	46	52	55	50	40	31
P 1 North_	Plot 1 Side North	1.50	58	31	38	45	51	55	50	40	31
P 1 South_	Plot 1 Side South	4.00	58	31	37	46	52	55	49	40	31
P 1 South_	Plot 1 Side South	1.50	52	26	32	41	47	48	42	30	18
P 13 Front	Plot 13 Front	4.00	52	25	31	40	46	49	44	35	27
P 13 Front	Plot 13 Front	1.50	52	25	31	39	45	49	44	34	24
P 13 Rear_	Plot 13 Rear	4.00	47	23	29	36	41	44	40	30	18
P 13 Rear_	Plot 13 Rear	1.50	43	21	27	34	38	39	35	23	9
P 16_A	Plot 16	1.50	51	25	30	37	43	48	43	34	23
P 16_B	Plot 16	4.00	51	25	30	38	44	49	44	34	24
P 18_A	Plot 18	1.50	47	22	27	35	40	44	39	28	17
P 18_B	Plot 18	4.00	48	23	27	37	42	45	40	30	19
P 2_A	Plot 2	1.50	54	27	33	41	47	52	47	37	27
P 2_B	Plot 2	4.00	54	28	33	42	48	52	46	37	28
P 23_A	Plot 23	1.50	51	25	30	37	43	48	43	34	24
P 23_B	Plot 23	4.00	51	25	30	38	44	48	43	34	23
P 25_A	Plot 25	1.50	50	26	33	36	40	47	45	35	24
P 25_B	Plot 25	4.00	50	26	32	38	41	47	45	35	23
P 28_A	Plot 28	1.50	46	21	29	36	40	43	40	28	15
P 28_B	Plot 28	4.00	50	22	29	38	41	47	45	35	23
P 31_A	Plot 31	1.50	40	19	24	30	34	36	32	20	5
P 31_B	Plot 31	4.00	44	20	25	32	36	40	37	27	13
P 38_A	Plot 38	1.50	47	22	27	35	41	44	38	27	16
P 38_B	Plot 38	4.00	51	26	30	38	44	48	43	33	22
P 39 Front	Plot 39 Front	4.00	44	22	25	34	38	41	36	25	12
P 39 Front	Plot 39 Front	1.50	40	19	23	31	35	37	31	20	8
P 39 Rear_	Plot 39 Rear	4.00	58	30	35	45	52	56	50	41	32
P 39 Rear_	Plot 39 Rear	1.50	54	27	34	43	49	50	44	33	22
P 4 Front_	Plot 4 Front	4.00	44	21	26	34	38	41	37	27	15
P 4 Front_	Plot 4 Front	1.50	43	20	26	32	37	40	35	24	13
P 4 Rear_A	Plot 4 Rear	1.50	53	26	33	43	49	49	42	31	19
P 4 Rear_B	Plot 4 Rear	4.00	58	28	34	44	52	56	50	41	32
P 46 Front	Plot 46 - Front	4.00	55	28	34	42	49	53	47	38	28
P 46 Front	Plot 46 - Front	1.50	53	27	33	40	46	51	45	36	26
P 46 Rear_	Plot 46 Rear	4.00	54	26	31	41	48	52	47	37	28
P 46 Rear_	Plot 46 Rear	1.50	46	24	29	37	42	42	35	24	12
P 47_A	Plot 47	1.50	55	30	37	42	45	52	50	40	30
P 47_B	Plot 47	4.00	55	30	37	43	46	52	50	40	29
P 6 Front_	Plot 6 Front	4.00	57	30	36	45	50	54	48	39	30
P 6 Front_	Plot 6 Front	1.50	56	29	36	44	49	54	48	39	30
P 6 Rear_A	Plot 6 Rear	1.50	51	26	33	42	47	47	40	28	17
P 6 Rear_B	Plot 6 Rear	4.00	58	31	37	46	52	55	50	40	32
P 9-12 E_A	Plots 9-12 East	1.50	59	32	38	46	52	56	51	41	33
P 9-12 E_B	Plots 9-12 East	4.00	60	32	38	47	53	57	51	42	33
P 9-12 S_A	Plots 9-12 South	1.50	52	26	33	42	47	48	41	29	18
P 9-12 S_B	Plots 9-12 South	4.00	59	31	38	47	53	56	50	41	33

All shown dB values are A-weighted

Predictor V2021.1 Licensed to Spectrum Acoustics, UK



APPENDIX E

Noise Ingress Calculations

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Harrington Drive, Crowland
Project number:	21317
Date:	23/09/2021

Plot:	1 (Type MERE) - Red Area
Room:	Lounge

Daytime ($L_{Aeq,16hr}$)				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Façade 1 - Front	$L_{eq,1}$	59	56	57	57	58	51	42	35	61 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1 - Front	$L_{eq,ff}$	59	56	57	57	58	51	42	35	$L_{Aeq,ff}$	61 dB	
ROOM DATA															
Room description and reverberation time		Volume	41	Living Room	RT60	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	s	
FAÇADE ELEMENTS (Façade 1 - Front)															
Glazing	Area	4.5	Generic 6/6-16/4	Rw	20	21	20	26	38	37	39	42	Rw / Rw+Ctr	32 / 28 dB	
Wall	Area	29.25	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB	
Vent	No. off.	4	Greenwood 5000EAW.AC2 (Acoustic trickle)	Dn,e	32	40	37	32	47	53	48	45	Dn,e,w / Dn,e,w+Ctr	42 / 38 dB	
None			--												
RESULTS															
Total calculated indoor noise level				$L_{eq,2}$	41	35	36	35	21	12	4	-	$L_{Aeq,2}$	33 dB	

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Harrington Drive, Crowland
Project number:	21317
Date:	23/09/2021

Plot:	1 (Type MERE) - Red Area
Room:	Dining/Kitchen

Daytime ($L_{Aeq,16hr}$)			Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term	
EXTERNAL NOISE LEVEL														
External noise level			Façade 1 - Front	$L_{eq,1}$	59	56	57	57	58	51	42	35		61 dB
Façade correction factor				C	0	0	0	0	0	0	0	0		
External noise level			Façade 2 - Side	$L_{eq,1}$	52	48	50	50	48	41	29	19	$L_{Aeq,1}$	52 dB
Façade correction factor				C	0	0	0	0	0	0	0	0		
INCIDENT FAÇADE NOISE LEVEL														
Incident noise level			Façade 1 - Front	$L_{eq,ff}$	59	56	57	57	58	51	42	35	$L_{Aeq,ff}$	61 dB
Incident noise level			Façade 2 - Side	$L_{eq,ff}$	52	48	50	50	48	41	29	19	$L_{Aeq,ff}$	52 dB
ROOM DATA														
Room description and reverberation time	Volume	41	Kitchen/Dining Room	RT60	0.6	0.6	0.7	0.7	0.8	0.8	0.7	0.6		s
FAÇADE ELEMENTS (Façade 1 - Front)														
Glazing	Area	1.5	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB
Wall	Area	7.5	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB
Vent	No. off.	2	Greenwood 4000 SBW (Hit and miss)	Dn,e	32	38	37	34	30	34	37	46	Dn,e,w / Dn,e,w+Ctr	33 / 32 dB
None			--											
FAÇADE ELEMENTS (Façade 2 - Side)														
Glazing	Area	4.5	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB
Wall	Area	20.5	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB
Vent	No. off.	2	Greenwood 4000 SBW (Hit and miss)	Dn,e	32	38	37	34	30	34	37	46	Dn,e,w / Dn,e,w+Ctr	33 / 32 dB
None			--											
RESULTS														
Contribution from Façade 1 - Front				$L_{eq,2}$	37	31	35	31	35	24	12	-	$L_{Aeq,2}$	37 dB
Contribution from Façade 2 - Side				$L_{eq,2}$	33	27	33	27	25	14	1	-	$L_{Aeq,2}$	29 dB
Total calculated indoor noise level				$L_{eq,2}$	38	32	37	33	35	24	13	-	$L_{Aeq,2}$	37 dB

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Harrington Drive, Crowland
Project number:	21317
Date:	23/09/2021

Plot:	1 (Type MERE) - Red Area
Room:	Master Bedroom

Daytime ($L_{Aeq,16hr}$)				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Façade 1 - Front	$L_{eq,1}$	59	55	58	58	58	51	42	35	34	61 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1 - Front	$L_{eq,ff}$	59	55	58	58	58	51	42	35	$L_{Aeq,ff}$	61 dB	
ROOM DATA															
Room description and reverberation time		Volume	28	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2	s	
FAÇADE ELEMENTS (Façade 1 - Front)															
Glazing	Area	2.6	Generic 10/6-16/6	Rw	23	24	24	32	37	37	44	47	Rw / Rw+Ctr	35 / 32 dB	
Wall	Area	14.9	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB	
Vent	No. off.	2	Greenwood 2500EAW.AC1 (Acoustic trickle)	Dn,e	32	41	39	36	43	44	45	44	Dn,e,w / Dn,e,w+Ctr	42 / 40 dB	
None			--												
RESULTS															
Total calculated indoor noise level				$L_{eq,2}$	37	30	31	29	21	13	2	-	$L_{Aeq,2}$	29 dB	

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Harrington Drive, Crowland
Project number:	21317
Date:	23/09/2021

Plot:	1 (Type MERE) - Red Area
Room:	Master Bedroom

Night time ($L_{Aeq,8hr}$)				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Façade 1 - Front	$L_{eq,1}$	54	48	48	48	51	45	36	30	$L_{Aeq,1}$ 53 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1 - Front	$L_{eq,ff}$	54	48	48	48	51	45	36	30	$L_{Aeq,ff}$ 53 dB		
ROOM DATA															
Room description and reverberation time		Volume	28	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2	s	
FAÇADE ELEMENTS (Façade 1 - Front)															
Glazing		Area	2.6	Generic 10/6-16/6	Rw	23	24	24	32	37	37	44	47	Rw / Rw+Ctr 35 / 32 dB	
Wall		Area	14.9	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr 50 / 47 dB	
Vent		No. off.	2	Greenwood 2500EAW.AC1 (Acoustic trickle)	Dn,e	32	41	39	36	43	44	45	44	Dn,e,w / Dn,e,w+Ctr 42 / 40 dB	
None				--											
RESULTS															
Total calculated indoor noise level					$L_{eq,2}$	32	23	21	19	14	7	-	-	$L_{Aeq,2}$ 20 dB	

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Harrington Drive, Crowland
Project number:	21317
Date:	23/09/2021

Plot:	1 (Type MERE) - Red Area
Room:	Master Bedroom

Night time ($L_{A\text{Max}}$)				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Façade 1 - Front	$L_{\text{Max},1}$	70	68	74	72	68	67	60	53	$L_{A\text{Max},1}$	74 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1 - Front	$L_{\text{Max},\text{ff}}$	70	68	74	72	68	67	60	53	$L_{A\text{Max},\text{ff}}$	74 dB	
ROOM DATA															
Room description and reverberation time		Volume	28	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2	s	
FAÇADE ELEMENTS (Façade 1 - Front)															
Glazing	Area	2.6	Generic 10/6-16/6	Rw	23	24	24	32	37	37	44	47	Rw / Rw+Ctr	35 / 32 dB	
Wall	Area	14.9	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB	
Vent	No. off.	2	Greenwood 2500EAW.AC1 (Acoustic trickle)	Dn,e	32	41	39	36	43	44	45	44	Dn,e,w / Dn,e,w+Ctr	42 / 40 dB	
None			--												
RESULTS															
Total calculated indoor noise level				$L_{\text{Max},2}$	48	43	47	43	31	29	20	12	$L_{A\text{Max},2}$	43 dB	

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Harrington Drive, Crowland
Project number:	21317
Date:	23/09/2021

Plot:	39 (Type DEE) - Orange Area
Room:	Lounge

Daytime (<i>L</i> _{Aeq,16hr})				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Façade 1 - Front	<i>L</i> _{eq,1}	45	39	40	38	37	30	19	9	40 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1 - Front	<i>L</i> _{eq,ff}	45	39	40	38	37	30	19	9	<i>L</i> _{Aeq,ff}	40 dB	
ROOM DATA															
Room description and reverberation time		Volume	45	Living Room	RT60	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	s	
FAÇADE ELEMENTS (Façade 1 - Front)															
Glazing		Area	4.5	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB
Wall		Area	29.3	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB
Vent		No. off.	4	Greenwood 4000 SBW (Hit and miss)	Dn,e	32	38	37	34	30	34	37	46	Dn,e,w / Dn,e,w+Ctr	33 / 32 dB
None				--											
RESULTS															
Total calculated indoor noise level					<i>L</i> _{eq,2}	26	18	21	14	14	2	-	-	<i>L</i> _{Aeq,2}	18 dB

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Harrington Drive, Crowland
Project number:	21317
Date:	23/09/2021

Plot:	39 (Type DEE) - Orange Area
Room:	Dining/Kitchen

Daytime ($L_{Aeq,16hr}$)				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Façade 1 - Rear	$L_{eq,1}$	53	50	52	52	50	43	32	23	54 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1 - Rear	$L_{eq,ff}$	53	50	52	52	50	43	32	23	$L_{Aeq,ff}$	54 dB	
ROOM DATA															
Room description and reverberation time		Volume	45	Kitchen/Dining Room	RT60	0.6	0.6	0.7	0.7	0.8	0.8	0.7	0.6	s	
FAÇADE ELEMENTS (Façade 1 - Rear)															
Glazing		Area	3.6	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB
Wall		Area	13.9	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB
Vent		No. off.	4	Greenwood 4000 SBW (Hit and miss)	Dn,e	32	38	37	34	30	34	37	46	Dn,e,w / Dn,e,w+Ctr	33 / 32 dB
None				--											
RESULTS															
Total calculated indoor noise level					$L_{eq,2}$	34	28	33	29	30	18	5	-	$L_{Aeq,2}$	32 dB

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Harrington Drive, Crowland
Project number:	21317
Date:	23/09/2021

Plot:	39 (Type DEE) - Orange Area
Room:	Bedroom 2

Daytime ($L_{Aeq,16hr}$)				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Façade 1 - Rear	$L_{eq,1}$	56	51	54	55	56	49	40	33	34	58 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1 - Rear	$L_{eq,ff}$	56	51	54	55	56	49	40	33	$L_{Aeq,ff}$	58 dB	
ROOM DATA															
Room description and reverberation time		Volume	24	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2	s	
FAÇADE ELEMENTS (Façade 1 - Rear)															
Glazing		Area	2.6	Generic 6/6-16/4	Rw	20	21	20	26	38	37	39	42	Rw / Rw+Ctr	32 / 28 dB
Wall		Area	14.9	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB
Vent		No. off.	2	Greenwood 5000EAW.AC1 (Acoustic trickle)	Dn,e	32	38	37	31	43	43	40	40	Dn,e,w / Dn,e,w+Ctr	39 / 37 dB
None				--											
RESULTS															
Total calculated indoor noise level					$L_{eq,2}$	36	29	32	32	20	13	6	-	$L_{Aeq,2}$	30 dB

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Harrington Drive, Crowland
Project number:	21317
Date:	23/09/2021

Plot:	39 (Type DEE) - Orange Area
Room:	Bedroom 2

Night time ($L_{Aeq,8hr}$)				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Façade 1 - Rear	$L_{eq,1}$	50	43	46	47	49	43	34	27	$L_{Aeq,1}$ 51 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1 - Rear	$L_{eq,ff}$	50	43	46	47	49	43	34	27	$L_{Aeq,ff}$ 51 dB		
ROOM DATA															
Room description and reverberation time		Volume	24	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2	s	
FAÇADE ELEMENTS (Façade 1 - Rear)															
Glazing		Area	2.6	Generic 6/6-16/4	Rw	20	21	20	26	38	37	39	42	Rw / Rw+Ctr 32 / 28 dB	
Wall		Area	14.9	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr 50 / 47 dB	
Vent		No. off.	2	Greenwood 5000EAW.AC1 (Acoustic trickle)	Dn,e	32	38	37	31	43	43	40	40	Dn,e,w / Dn,e,w+Ctr 39 / 37 dB	
None				--											
RESULTS															
Total calculated indoor noise level					$L_{eq,2}$	30	21	24	24	13	7	-	-	$L_{Aeq,2}$ 23 dB	

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Harrington Drive, Crowland
Project number:	21317
Date:	23/09/2021

Plot:	39 (Type DEE) - Orange Area
Room:	Bedroom 2

Night time ($L_{A_{Max}}$)				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Façade 1 - Rear	$L_{Max,1}$	63	61	70	67	65	64	57	50	$L_{A_{Max},1}$	70 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1 - Rear	$L_{Max,ff}$	63	61	70	67	65	64	57	50	$L_{A_{Max},ff}$	70 dB	
ROOM DATA															
Room description and reverberation time	Volume	24	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2	s		
FAÇADE ELEMENTS (Façade 1 - Rear)															
Glazing	Area	2.6	Generic 6/6-16/4	Rw	20	21	20	26	38	37	39	42	Rw / Rw+Ctr	32 / 28 dB	
Wall	Area	14.9	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB	
Vent	No. off.	2	Greenwood 5000EAW.AC1 (Acoustic trickle)	Dn,e	32	38	37	31	43	43	40	40	Dn,e,w / Dn,e,w+Ctr	39 / 37 dB	
None			--												
RESULTS															
Total calculated indoor noise level				$L_{Max,2}$	43	39	48	44	29	28	23	14	$L_{A_{Max},2}$	43 dB	

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Harrington Drive, Crowland
Project number:	21317
Date:	23/09/2021

Plot:	47 (Type SEVERN) - No Mark-up Area
Room:	Lounge

Daytime ($L_{Aeq,16hr}$)				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Façade 1 - Front	$L_{eq,1}$	56	53	51	48	52	49	39	31	55 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1 - Front	$L_{eq,ff}$	56	53	51	48	52	49	39	31	$L_{Aeq,ff}$	55 dB	
ROOM DATA															
Room description and reverberation time	Volume	43	Living Room	RT60	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	s		
FAÇADE ELEMENTS (Façade 1 - Front)															
Glazing	Area	2.3	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB	
Wall	Area	22.7	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB	
Vent	No. off.	4	Greenwood 4000 SBW (Hit and miss)	Dn,e	32	38	37	34	30	34	37	46	Dn,e,w / Dn,e,w+Ctr	33 / 32 dB	
None			--												
RESULTS															
Total calculated indoor noise level				$L_{eq,2}$	36	30	30	24	29	22	10	-	$L_{Aeq,2}$	31 dB	

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Harrington Drive, Crowland
Project number:	21317
Date:	23/09/2021

Plot:	47 (Type SEVERN) - No Mark-up Area
Room:	Bedroom 2

Daytime (<i>L</i> _{Aeq,16hr})				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Façade 1 - Front	<i>L</i> _{eq,1}	56	53	51	48	52	49	39	31	34	55 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1 - Front	<i>L</i> _{eq,ff}	56	53	51	48	52	49	39	31	<i>L</i> _{Aeq,ff}	55 dB	
ROOM DATA															
Room description and reverberation time		Volume	23	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2	s	
FAÇADE ELEMENTS (Façade 1 - Front)															
Glazing		Area	1.44	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB
Wall		Area	16.1	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB
Vent		No. off.	2	Greenwood 4000 SBW (Hit and miss)	Dn,e	32	38	37	34	30	34	37	46	Dn,e,w / Dn,e,w+Ctr	33 / 32 dB
None				--											
RESULTS															
Total calculated indoor noise level					<i>L</i> _{eq,2}	35	29	29	23	27	20	8	-	<i>L</i> _{Aeq,2}	29 dB

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Harrington Drive, Crowland
Project number:	21317
Date:	23/09/2021

Plot:	47 (Type SEVERN) - No Mark-up Area
Room:	Bedroom 2

Night time ($L_{Aeq,8hr}$)				Octave band centre frequency										Broadband term		
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k				
EXTERNAL NOISE LEVEL																
External noise level			Façade 1 - Front	$L_{eq,1}$	47	41	41	41	44	41	32	25	$L_{Aeq,1}$		47 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0				
INCIDENT FAÇADE NOISE LEVEL																
Incident noise level			Façade 1 - Front	$L_{eq,ff}$	47	41	41	41	44	41	32	25	$L_{Aeq,ff}$		47 dB	
ROOM DATA																
Room description and reverberation time		Volume	23	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2	s		
FAÇADE ELEMENTS (Façade 1 - Front)																
Glazing		Area	1.44	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	R_w / R_{w+Ctr}		29 / 25 dB
Wall		Area	16.1	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	R_w / R_{w+Ctr}		50 / 47 dB
Vent		No. off.	2	Greenwood 4000 SBW (Hit and miss)	Dn,e	32	38	37	34	30	34	37	46	$D_{n,e,w} / D_{n,e,w+Ctr}$		33 / 32 dB
None				--												
RESULTS																
Total calculated indoor noise level					$L_{eq,2}$	26	17	19	16	19	12	1	-	$L_{Aeq,2}$		21 dB

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Harrington Drive, Crowland
Project number:	21317
Date:	23/09/2021

Plot:	47 (Type SEVERN) - No Mark-up Area
Room:	Bedroom 2

Night time ($L_{A\text{Max}}$)				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Façade 1 - Front	$L_{\text{Max},1}$	66	64	64	64	64	64	58	46	$L_{A\text{Max},1}$	69 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1 - Front	$L_{\text{Max},\text{ff}}$	66	64	64	64	64	64	58	46	$L_{A\text{Max},\text{ff}}$	69 dB	
ROOM DATA															
Room description and reverberation time	Volume	23	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2	s		
FAÇADE ELEMENTS (Façade 1 - Front)															
Glazing	Area	1.44	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB	
Wall	Area	16.1	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB	
Vent	No. off.	2	Greenwood 4000 SBW (Hit and miss)	Dn,e	32	38	37	34	30	34	37	46	Dn,e,w / Dn,e,w+Ctr	33 / 32 dB	
None			--												
RESULTS															
Total calculated indoor noise level				$L_{\text{Max},2}$	45	40	42	39	39	35	27	6	$L_{A\text{Max},2}$	43 dB	

APPENDIX F

Marked Up Site Layout Plan

LEGEND

- Red Area Uprated Facades
- Orange Area Uprated Facades
- 2.3m high acoustic fences

See sections 6.2 and 6.3 of the main report



KEY:

SITE BOUNDARY:

1800mm Facing Brick wall:
(brick to match adjacent property)

Affordable housing

Unit	Market	Beds	Storey	Sqft	Parking	No	
Dee		2	2	732	ps	16	
Clyde		3	2	783	sg	6	
Aire		3	2	870	sg	4	
Nene		3	2	1,077	sg	1	
Mere		3	2	1,079	sg	6	
Lock		3	2	1,079	sg	1	
Severn		4	2	1,229	sg	1	
						Sub-To	35
Affordable Housing 25%							
A575		1	2	575	ps	4	
A732		2	2	732	ps	3	
A902		3	2	902	ps	5	
						Sub-To	12
						Total	47

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PROJECT

HARRINGTON DRIVE, CROWLAND

TITLE

PRELIMINARY PLANNING LAYOUT

CLIENT

ASHWOOD HOMES

1 GOODSON ROAD, LINCS GATEWAY BUSINESS PARK
SPALDING, LINCOLNSHIRE
PE12 6 FY 01406 490590

SCALE	DATE	DRAWN
1:500 @ A3	AUGUST 2021	NBW

DRAWING NUMBER	132-SL-001	REVISION
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