

Description	Land off Northon's Lane, Holbeach, PE12 7JS Planning Noise Assessment relating to a consented residential development
Date	8 February 2022
Issued by	Rob Kirkaldy BSc (Hons) MIOA Senior Consultant
Issued to	Gleeson Regeneration Ltd.
Ref No	RK3333/20061

1. INTRODUCTION

Gleeson Regeneration Ltd. Have been granted planning permission for a residential development at Land off Northon's Lane in Holbeach. Spectrum Acoustic Consultants previously prepared a noise assessment (reference RK3292/20061/Rev 2) that was submitted with the original planning application.

Following the granting of planning permission, Gleeson now wish to re-use excavated topsoil from the proposed groundworks to construct a bund along the northern boundary of the site. As a result, Gleeson also wish to investigate if there is a potential to make changes to the mitigation scheme previously set out in Spectrum's report RK3292/20061/Rev 2.

Planning permission is required for the proposed bund. Accordingly, Spectrum Acoustic Consultants has been instructed to carry out a noise assessment for the purpose of establishing the impact on the proposed residential properties with the bund in place. 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 AND PROPOSALS

The proposed development site is currently an agricultural field off Northon's Lane, Holbeach, Lincolnshire, PE12 7JS. The site is bounded to the north by the A17, a busy road linking King's Lynn to Newark. Beyond the A17 is a mixture of agricultural land and existing residential properties. To the west is the A151, beyond which is agricultural land. To the south of the site is Northon's Lane, which has agricultural land beyond. Bounding the site to the east are existing houses on Oakwood Glade, Cedar Drive, Spruce Close, Chestnut Avenue and Boston Road. An existing site location plan is included in Appendix A.

Proposals involve constructing 103 houses at the proposed development site. The houses would consist of a mixture of detached and semi-detached properties. Each of the houses would have a small garden to the rear and parking for vehicles at the front. The proposed bund would be located along the entire northern boundary of the site. The proposed scheme plans are included in Appendix B.

3. CRITERIA FOR ACCEPTABILITY

3.1 WHO – Environmental Noise Guidelines for the European Region 2018

New 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.'*

3.2 WHO – Guidelines for Community Noise, 1999

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.

3.3 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).

In Section 7.7.1 of BS 8233:2014, it states that it applies to external noise as it affects the internal acoustic environment from sources without a specific character, previously termed "anonymous noise". However, it then goes on to state that if the noise has a specific character, if it contains features such as a distinguishable, discrete and continuous tone, is irregular enough to attract attention, or has strong low-frequency content, in which case lower noise limits might be appropriate.

The BS 8233:2014 guideline levels are shown in Table 1.

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), it is suggested 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 PREDICTION MODEL

The proposed development comprises of dwellings and associated habitable rooms at various heights, distances and aspects relative to the A17, A151 and other nearby roads. As a result, the noise levels affecting different parts of the proposed development will be subject to differing levels of distance attenuation, screening and angle of view to the roads. Therefore, in order to determine the effectiveness of the proposed bund, analysis has been undertaken to predict the noise levels at the various residential facades of the houses, based on the measurement results, as well as taking these effects into account.

The procedure that has been followed is as summarised below:

- Generate a three dimensional numerical noise model of the site conditions at the time of the survey using SoftNoise's 7810 'Predictor 2021.1' 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".
- Validate the noise prediction model against noise measurement data recorded at the site previously reported in Spectrum report RK3292/20061/Rev 2. This validation is carried out in respect of daytime and night-time $L_{Aeq,T}$ levels, as well as night-time $L_{Amax,typ}$ for road traffic noise. The octave band frequency levels of the noise predictions are also taken from the measurements carried out at the site.
- Alter the noise model to replace the physical configuration at the time of the measurements with the proposed new scheme (including proposed bund options).
- Predict noise levels at numerous locations across the façades of the houses, representative of the proposed residential windows. A graphical representation of this model is shown at Appendix C.
- Use these noise level predictions as the starting point for intrusive noise calculations at key locations on the development.

- Compare predicted indoor noise levels against the guideline noise levels in terms of:
 - * - $L_{Aeq,T}$ noise levels in living rooms and bedrooms during the daytime (i.e. $L_{Aeq,T}$ 35 dB)
 - * - $L_{Aeq,T}$ noise levels in bedrooms during the night-time (i.e. $L_{Aeq,T}$ 30 dB), and
 - * - L_{Amax} noise levels in habitable rooms (i.e. L_{Amax} 45 dB)
- Using measured sound insulation data for standard façade components, set the sound insulation specifications for the relevant façade components necessary to meet the target noise levels (more information on this in Section 5).
- Compare predicted garden noise levels against the guideline noise levels in terms of:
 - * - $L_{Aeq,T}$ noise levels in gardens during the daytime (i.e. $L_{Aeq,1hour}$ 55 dB between 07:00hrs and 23:00hrs)
- Determine bund specification and boundary treatments for gardens necessary to meet the target noise levels (more information on this in Section 5).

Detailed results of day-time and night-time $L_{Aeq,T}$ levels at the proposed dwelling locations are shown in Appendix C. All octave band levels listed in Appendix C are A-weighted.

Note, the noise prediction model incorporates a 4m high bund along the entire northern boundary of the site. The bund is highlighted in a 3D of the scheme in Appendix C.

The $L_{Amax,typ}$ levels have been calculated in the following way. The $L_{Amax,typ}$ measured at the monitoring locations is from a single, short-term event at one location and not the aggregate of noise from all points on the road network. Therefore, the $L_{Amax,typ}$ model includes a series of point sources, rather than line sources (as for the L_{Aeq} model). Accordingly, the single highest sound pressure level at each receptor location from an individual point source is taken to be the $L_{Amax,typ}$ for design purposes. The measured L_{max} frequency distribution (i.e. spectrum) has been also been used in this way within the predictions.

5. ASSESSMENT OF NOISE

The results of the noise prediction model with a 4m high bund in place have been used to form an assessment in accordance with BS 8233:2014 and WHO.

5.1 BS 8233:2014 and WHO

During the daytime, noise levels outside the facades of the proposed houses across the site would be $L_{Aeq,16hour}$ 38-62dB. During the night-time, noise levels across the site are $L_{Aeq,8hour}$ 33-52dB. Therefore, noise levels inside some of the habitable rooms with windows open would exceed the “reasonable” internal noise levels set out in BS 8233:2014 in some areas of the site. Consequently, mitigation measures would need to be considered in order to achieve acceptable internal noise levels.

BS 8233:2014 states 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 (eg trickle ventilators should be open) during assessment. This therefore recognises that it is a normal mitigation practice to close windows, though in such circumstances the method of ventilation must also be considered.

5.1.1 INTERNAL NOISE LEVELS

Internal noise levels have been calculated from the noise prediction model, taking into account the size and construction of the elements of the building façades, including glazing and ventilation. BS 8233 sets out a method of calculating the internal noise levels, based on the external noise levels, areas of wall, glazing and ventilator. The calculations take into account the character of the noise, as they include octave band noise levels.

It is assumed that all of the dwellings would 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 ventilation systems has been taken from manufacturers' data.

The proposed sound insulation scheme will be designed to meet the BS 8233 recommended $L_{Aeq,16h}$ 35dB for living rooms (resting purpose) and $L_{Aeq,8h}$ 30dB for bedrooms during the night time (sleeping purpose). The requirement for L_{AFmax} values in bedrooms at night, has been taken as individual events not regularly exceeding 45dB.

Based on the required overall façade sound insulation, an individual sound insulation specification has been determined for the three main elements of the façades (window, wall and ventilator).

The specification listed below is typical for a site of this nature. It should be noted that the performance of the window may be lower than the overall façade requirement, as the wall element provides a higher sound insulation performance to compensate.

Intrusive noise calculations are included in Appendix D.

Table 2 below details a sound insulation specification for all the proposed properties at the development. The numeric sound insulation rating for the glazing and the ventilator openings has been specified in terms of $R_w + C_{tr}$ and $D_{n,e,w} + C_{tr}$ respectively.

Room	Wall type	Window Performance $R_w + C_{tr}$ dB	Vent Performance $D_{n,e,w} + C_{tr}$ dB
Living Room	Brick/block	25	32
Dining/Kitchen	Brick/block	25	32
Bedrooms	Brick/block	25	32

Table 2: Sound insulation specification for the proposed development site

Acoustic performances in habitable rooms can typically be achieved by the following specification.

- Standard double glazed unit (rated a minimum of $R_w + C_{tr}$ 25dB), typically comprising of 4mm float glass, 12mm cavity, 4mm float glass.
- Standard hit and miss trickle ventilators (rated a minimum of $D_{n,e,w} + C_{tr}$ 32dB).

Note, the previously consented scheme required the use of acoustic trickle ventilators (rated a minimum of $D_{n,e,w} + C_{tr}$ 42dB) at plots 16-21, 24-28 and 48-58 which would be located closest to the A17 which runs along the northern boundary of the site. However, with the 4m bund in place, noise levels at the proposed plots to the north would reduce sufficiently enough so that standard hit and miss trickle ventilators could be used across the entire scheme.

It is noted from the intrusive noise calculations set out in Appendix D that there would be a 1dB marginal excess over the guideline internal noise limits set out in BS 8233 in Plot 16. However, from experience, the calculations generally conservative and once constructed, noise levels are generally lower than originally predicted inside habitable rooms. Given that the excess are very marginal and would not be distinguishable to the human ear, in a single plot in a scheme of 102 units, the proposed mitigation scheme set out above would be acceptable.

5.1.2 NOISE LEVELS IN OUTDOOR LIVING SPACES

The proposed scheme incorporates a number of 1.8m high timber garden fences, along with 2m high fences at Plots 25, 26, 27, 50, 51, 54, 55 and 57. However, with the proposed 4m high bund in place, the fences at these plots could be reduced to a 1.8m high closed boarded timber design, with a minimum superficial mass of 10kg/m². With these in place, noise levels in the gardens during the daytime would be $L_{Aeq,16hour}$ 37-57dB.

BS 8233:2014 and WHO of $L_{Aeq,16 hour}$ 55dB. However, BS 8233:2014 also states *"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."*

As the site is located close to the A17 and A151, it satisfies the above definition. Consequently, the marginal excesses over the $L_{Aeq,16 hour}$ 55dB guideline identified by the noise prediction model in 3 of the proposed garden plots would be acceptable. For of the remaining 99 plots, noise levels would not exceed the $L_{Aeq,16 hour}$ 55dB guideline.

6. CONCLUSIONS

Gleeson Regeneration Ltd. have commissioned Spectrum Acoustic Consultants to complete a noise assessment in order to support a planning application for a proposed 4m high bund in connection with a proposed residential development, at land off Northon's Lane, Holbeach, Lincolnshire, PE12 7JS.

An updated noise mitigation strategy has been developed using a noise prediction model and taking into account the noise insulation and the noise control requirements for the proposed plots. The updated mitigation scheme that has been proposed and specified satisfies internal guideline noise levels relating to good internal conditions set out in BS 8233:2014 and WHO Guidelines for Community Noise. Furthermore, updated mitigation measures have been proposed in order to achieve acceptable noise levels in gardens.

A P P E N D I X A

Existing Site Location Plan



Frontier Agriculture

A17

Welbourne Ln W

New
er(Drain)

Position 3

Kennedy Rd

Boston Rd N

A17

Lynas Vokes

A17

Position 4

Proposed Development Site

Position 1

Northon's Ln

Holbeach Primary School

Nutten Stoven

Position 2

Northon's Ln

Cedar Dr

Pine Cr

Ash Cr

Oakwood Glade

Chestnut Ave

Lime Grove

Cecil Pywell Ave

B1168

Deb's Essential
Beauty Services

N

APPENDIX B

Proposed Scheme



MATERIALS LEGEND
ELEVATION STYLE - STONE 21

	MAIN FACING BRICK	ROOF TILE
Orange	 Marshall Darlstone Buff Stone	 Marley Eternit Rivendale Grey
Red (Substation Only)	 Forterra Rufford Buff Multi	 Marley Eternit Rivendale Grey

DOORS

Garage Personnel Door in White

All Front & Rear doors to be finished in Grey

All Garages doors to be finished

All Data Given in white.

TENURE MIX

★ Shared Ownership Plots - 7, 22, 23, 48, 49, 74, 75, 82

68, 69, 72, 73, 78, 79, 81, 84, 85

ECOLOGY

ECOLOGY

- 


Forterra Enclosed Bat Box -
11NO. REQUIRED PER PLOT
NHS Code #214508
Plots - 16, 20, 27, 35, 43, 56, 68, 74, 83, 90, 95
- 


Forterra Swifts Bird Box -
11NO. REQUIRED PER PLOT
NHS Code #201574
Plots - 4, 12, 25, 30, 39, 52, 61, 76, 85, 92, 101

House Type Code & Handling

House Type (401) Year & Elevation (202) Rural

401-21-R
AS/OPP

Handling (AS or OPP)

Boundary Treatments

—— 1.8m High Timber Hit & Miss Fence

— 2.0m High Timber Acoustic Fence

450mm High Knee Rail

Note: Close board fences and railings drawn to centre line

All roadways and footways black tarmacadam.

All private drives to be crushed aggregate with 1.5m

Cycle link to be crushed aggregate with timber edging.

All pathways & patio areas and bin collection points to be grey concrete paving slabs (450mm x 450mm)

	Tarmacadam Apron
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[illegible] Crushed Aggregate Cycle Link Construction

- All front doors and garage doors to be finished grey

- All rainwater goods to be black

- Ground gas meter boxes to be brown
- Roof and ridge tile colours to match



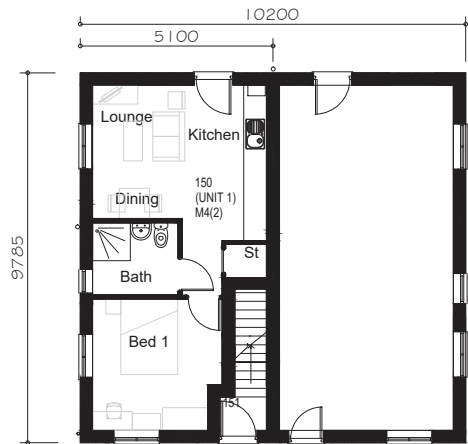
PLANNING CONDITIONS OBLIGATIONS: H09-0602-20

3 - Before each dwelling (or other development as specified) is occupied, the roads and footways providing access to that dwelling, for the whole of its frontage from an existing public highway, shall be constructed to a specification to enable them to be adopted as Public Highway, less the carriageway and footway surface courses. The carriageway and footway surface courses shall be completed within three months from the date upon which the erection is commenced of the penultimate dwelling (or other development as specified).

21 - During the construction of the development no tree or shrub felling, lopping or clearance shall take place between mid-February and the end of July.

S106 OBLIGATIONS

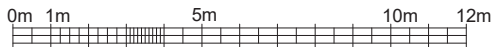
- Education & Healthcare contributions to be paid prior to 50% occupation.



GROUND FLOOR PLAN



FIRST FLOOR PLAN



FLOOR AREA
150/UNIT 1 - 37.0m², 398ft²
151/UNIT 2 - 42.0m², 452ft²

C01	Issued for construction	27.05.21
P02	Bedroom enlarged. FF Layout amended.	21.05.21
P01	Initial issue	22.04.21
Rev.	Comments	Date

gleeson

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Project:
150&151 House Type
Urban

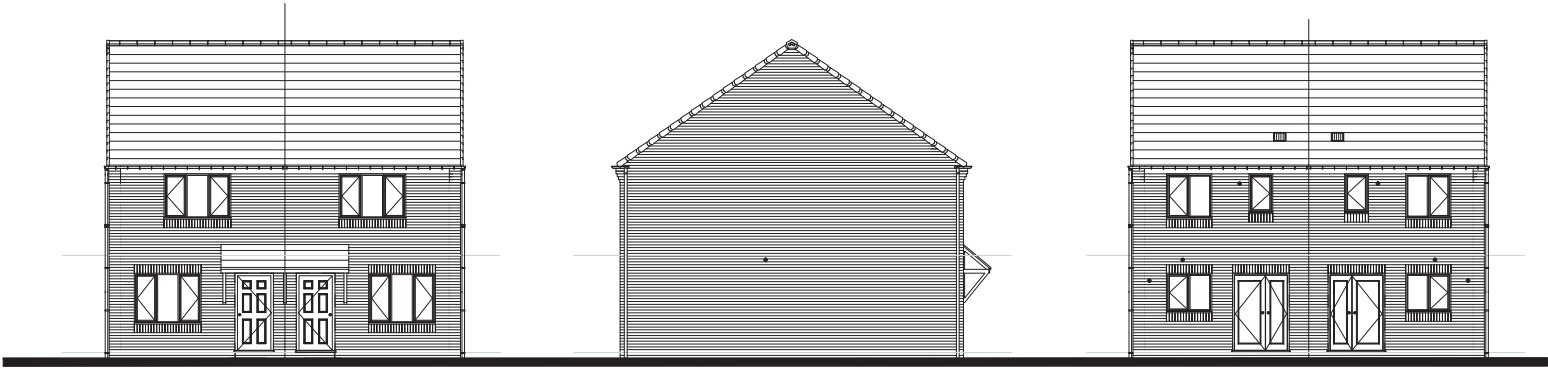
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Drawing No:	Revision:
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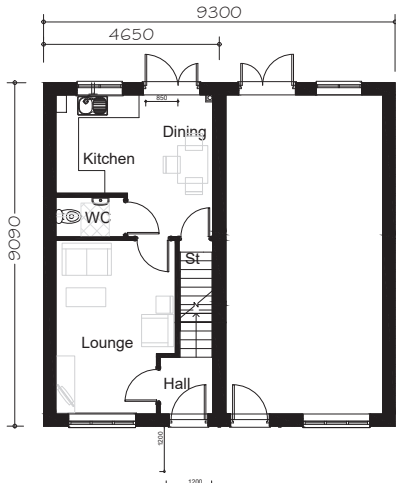
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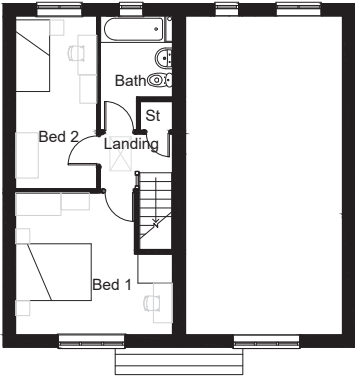
FRONT ELEVATION

SIDE ELEVATION

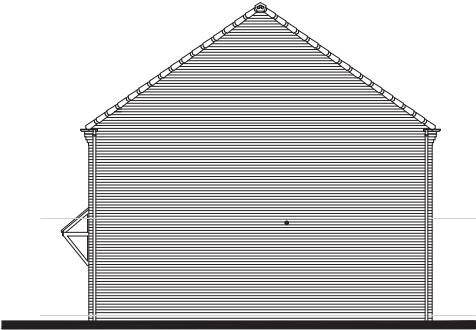
REAR ELEVATION



GROUND FLOOR PLAN

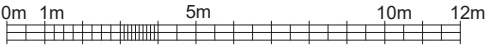


FIRST FLOOR PLAN



SIDE ELEVATION

FLOOR AREA
70.04m², 753ft²



C01	Issued for construction	27.05.21
P01	Initial issue	20.04.21
Rev.	Comments	Date

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Project:
250 House Type
Urban

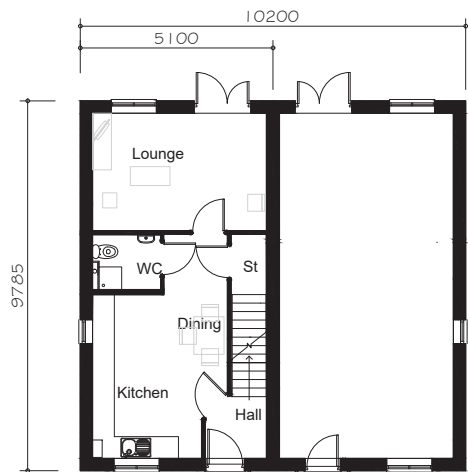
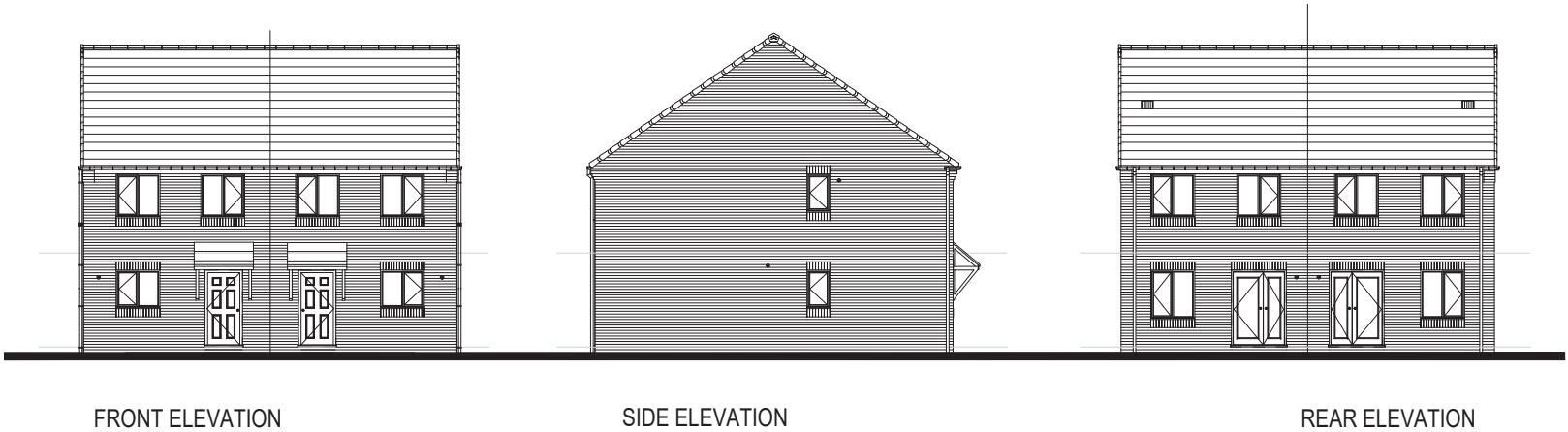
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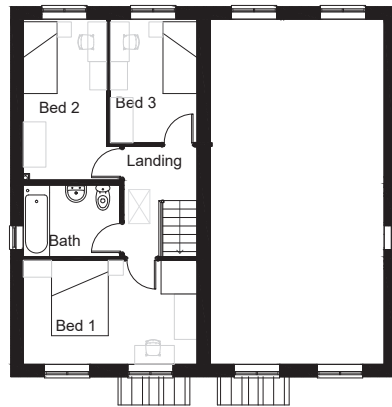
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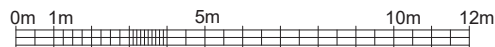
GROUND FLOOR PLAN



FIRST FLOOR PLAN



FLOOR AREA
84.04m², 904ft²



C01	Issued for construction	27.05.21
P01	Initial issue	22.04.21
Rev.	Comments	Date

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Project:
350 House Type
Urban

Title:
Planning Drawing

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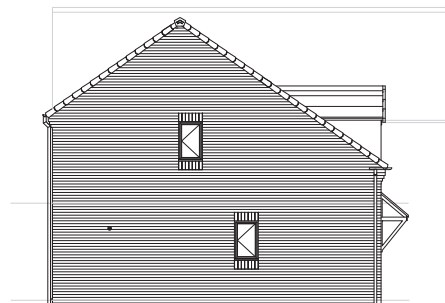
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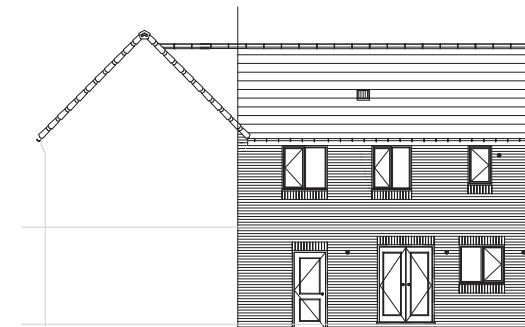
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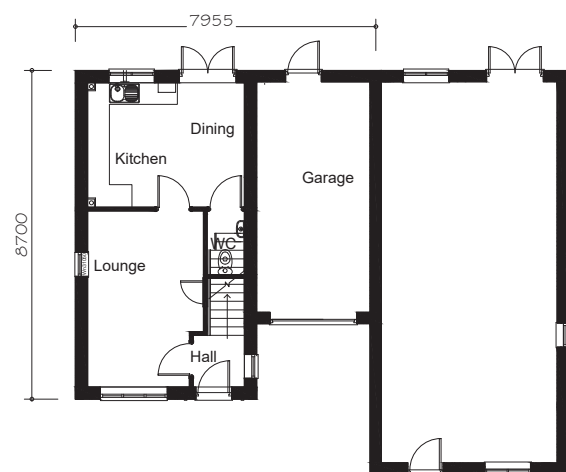
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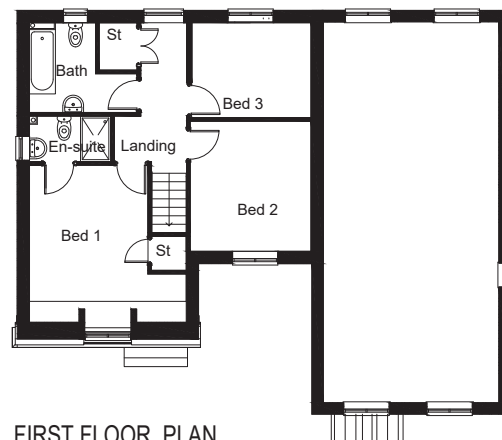
SIDE ELEVATION



REAR ELEVATION

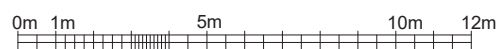


GROUND FLOOR PLAN



FIRST FLOOR PLAN

FLOOR AREA
84.00m², 904ft²



C01	Issued for construction	27.05.21
P01	Initial issue	22.04.21
Rev.	Comments	Date

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Project:
355 House Type
Urban

Title:
Planning Drawing

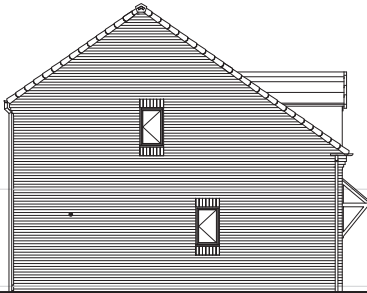
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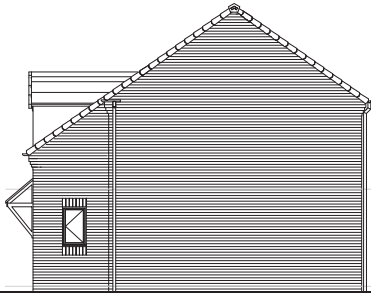
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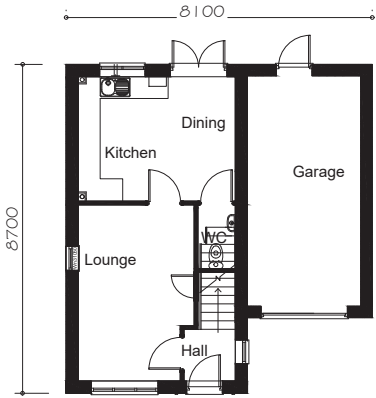
SIDE ELEVATION



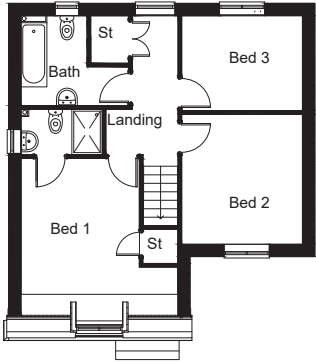
REAR ELEVATION



SIDE ELEVATION



GROUND FLOOR PLAN



FIRST FLOOR PLAN

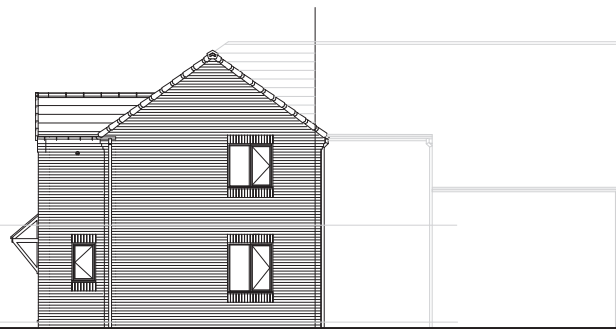
FLOOR AREA
84.00m², 904ft²



C01	Issued for construction	27.05.21
P01	Initial issue	22.04.21
Rev.	Comments	Date
gleeson Gleeson Homes (Head Office) Unit 5, Europa Court Sheffield Business Park Sheffield South Yorkshire S9 1XE 01142 612900 www.gleesonhomes.co.uk		
Project: 356 House Type Urban		
Title: Planning Drawing		
Scale: 1:100 @ A2	Date: 22.04.21	Drawn: OS Checked: GE
Drawing No: 21-356-U-0001		Revision: C01

Notes

Do not scale from this drawing. If in need of further detail, refer back to the Technical Department.



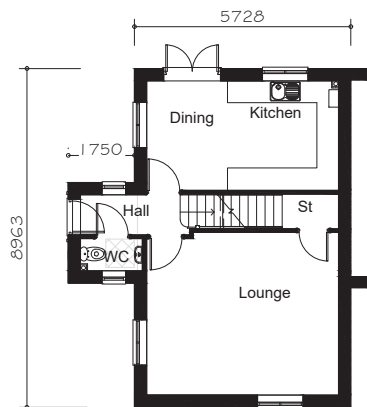
SIDE ELEVATION



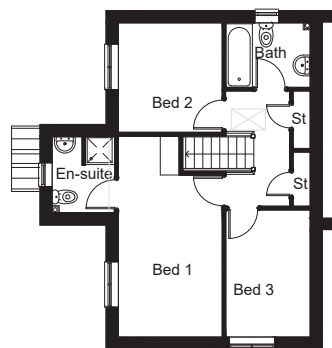
FRONT ELEVATION



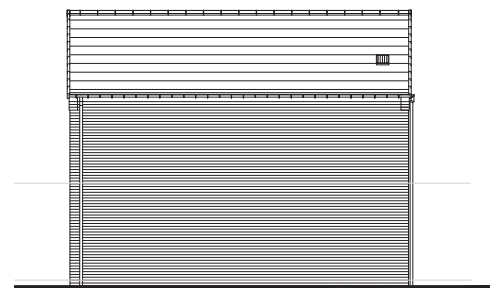
REAR ELEVATION



GROUND FLOOR PLAN



FIRST FLOOR PLAN



Elevation when detached

SIDE ELEVATION

FLOOR AREA
91.44m², 984ft²



C01	Issued for construction	27.05.21
P01	Initial issue	22.04.21
Rev.	Comments	Date

gleeson

Gleeson Homes (Head Office)
Unit 5, Europa Court | Sheffield Business Park | Sheffield |
South Yorkshire | S9 1XE

01142 612900

www.gleesonhomes.co.uk

Project:
358/9 House Type
Urban

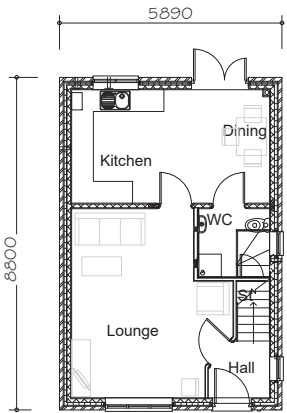
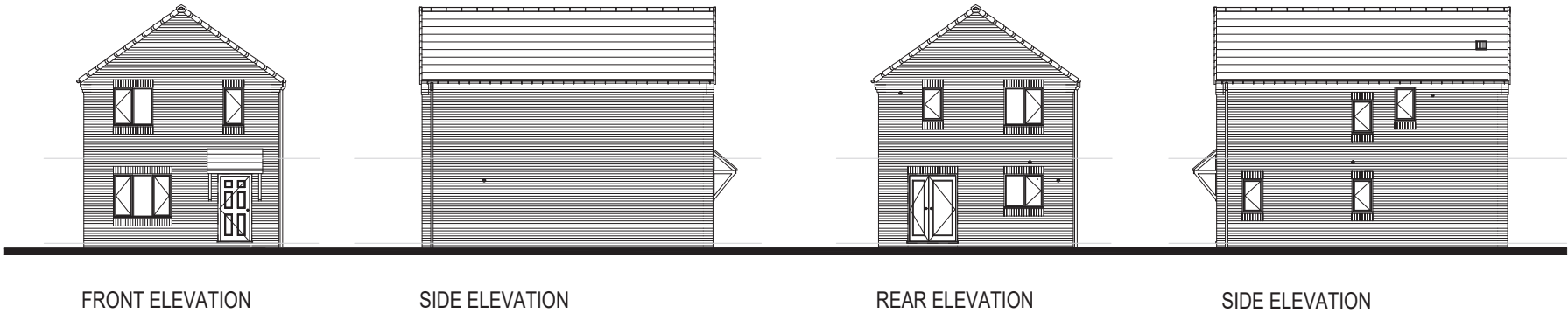
Title:
Planning Drawing

Scale:	1:100 @ A2	Date:	22.04.21	Drawn:	OS	Checked:	GE
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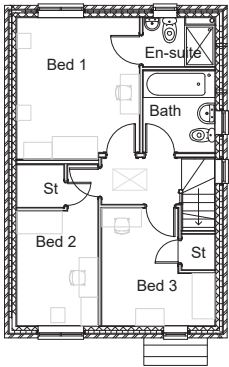
Drawing No:	21-358/9-U-0001	Revision:	C01
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Notes

Do not scale from this drawing. If in need of further detail, refer back to the Technical Department.

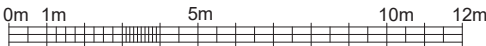


GROUND FLOOR PLAN



FIRST FLOOR PLAN

FLOOR AREA
85.4m², 919ft²



C01	Issued for construction	27.05.21
P01	Initial issue	22.04.21
Rev.	Comments	Date

gleeson

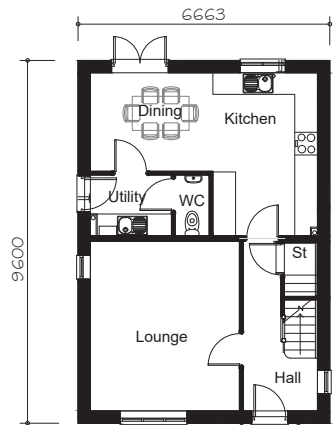
Gleeson Homes (Head Office)
Unit 5, Europa Court | Sheffield Business Park | Sheffield |
South Yorkshire | S9 1XE
01142 612900
www.gleesonhomes.co.uk

Project:
**360 House Type
Urban**

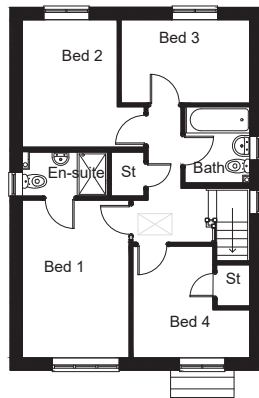
Title:
Planning Drawing

Scale: 1:100 @ A2	Date: 22.04.21	Drawn: OS	Checked: GE
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Drawing No: 21-360-U-0001	Revision: C01
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GROUND FLOOR PLAN



FIRST FLOOR PLAN

FLOOR AREA
107.40m², 1156ft²



C01	Issued for construction	27.05.21
P01	Initial issue	22.04.21
Rev.	Comments	Date

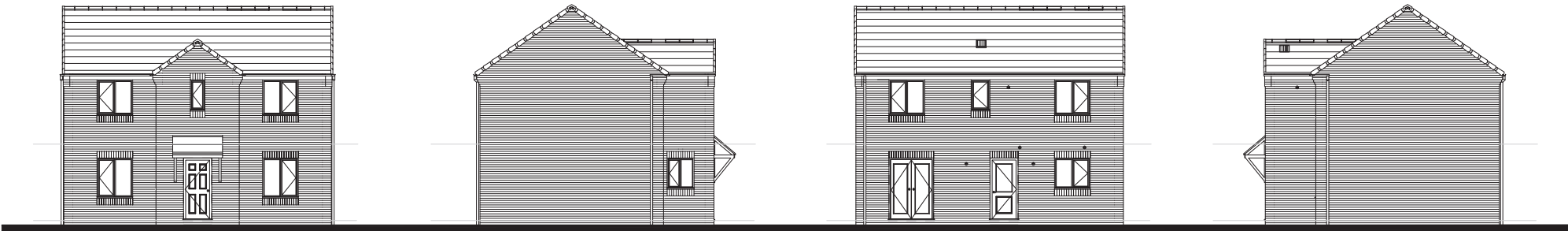
Gleeson Homes (Head Office)
Unit 5, Europa Court | Sheffield Business Park | Sheffield |
South Yorkshire | S9 1XE

01142 612900

www.gleesonhomes.co.uk

Project: 450 House Type Urban			
Title: Planning Drawing			
Scale: 1:100 @ A2	Date: 22.04.21	Drawn: OS	Checked: GE
Drawing No: 21-450-U-0001			Revision: C01

Notes
Do not scale from this drawing. If in need of further detail, refer back to the Technical Department.

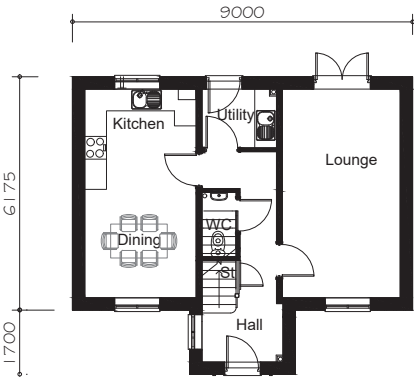


FRONT ELEVATION

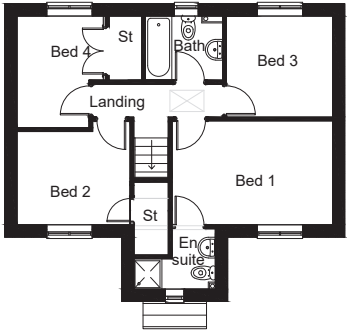
SIDE ELEVATION

REAR ELEVATION

SIDE ELEVATION



GROUND FLOOR PLAN



FIRST FLOOR PLAN

FLOOR AREA
99.58m², 1071ft²



C01	Issued for construction	27.05.21
P01	Initial issue	22.04.21
Rev.	Comments	Date

gleeson

Gleeson Homes (Head Office)
Unit 5, Europa Court | Sheffield Business Park | Sheffield |
South Yorkshire | S9 1XE
01142 612900
www.gleesonhomes.co.uk

Project:
451 House Type
Urban

Title:
Planning Drawing

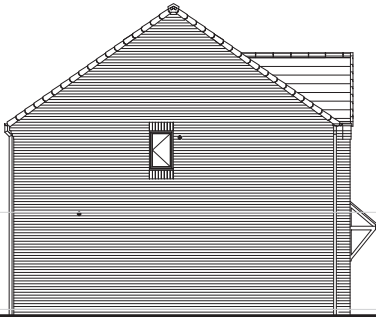
Scale:	1:100 @ A2	Date:	22.04.21	Drawn:	OS	Checked:	GE
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Drawing No:	21-451-U-0001	Revision:	C01
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Notes
Do not scale from this drawing. If in need of further detail, refer back to the Technical Department.



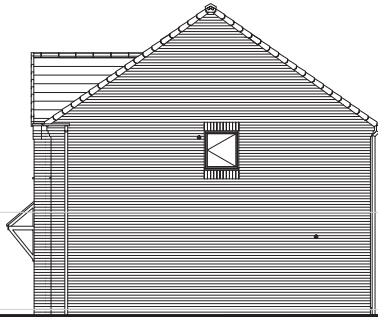
FRONT ELEVATION



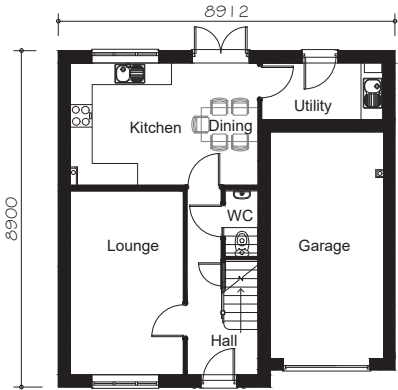
SIDE ELEVATION



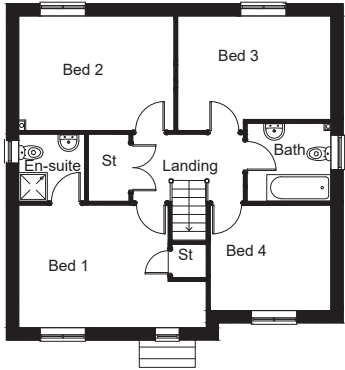
REAR ELEVATION



SIDE ELEVATION

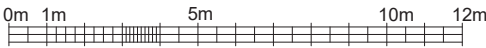


GROUND FLOOR PLAN



FIRST FLOOR PLAN

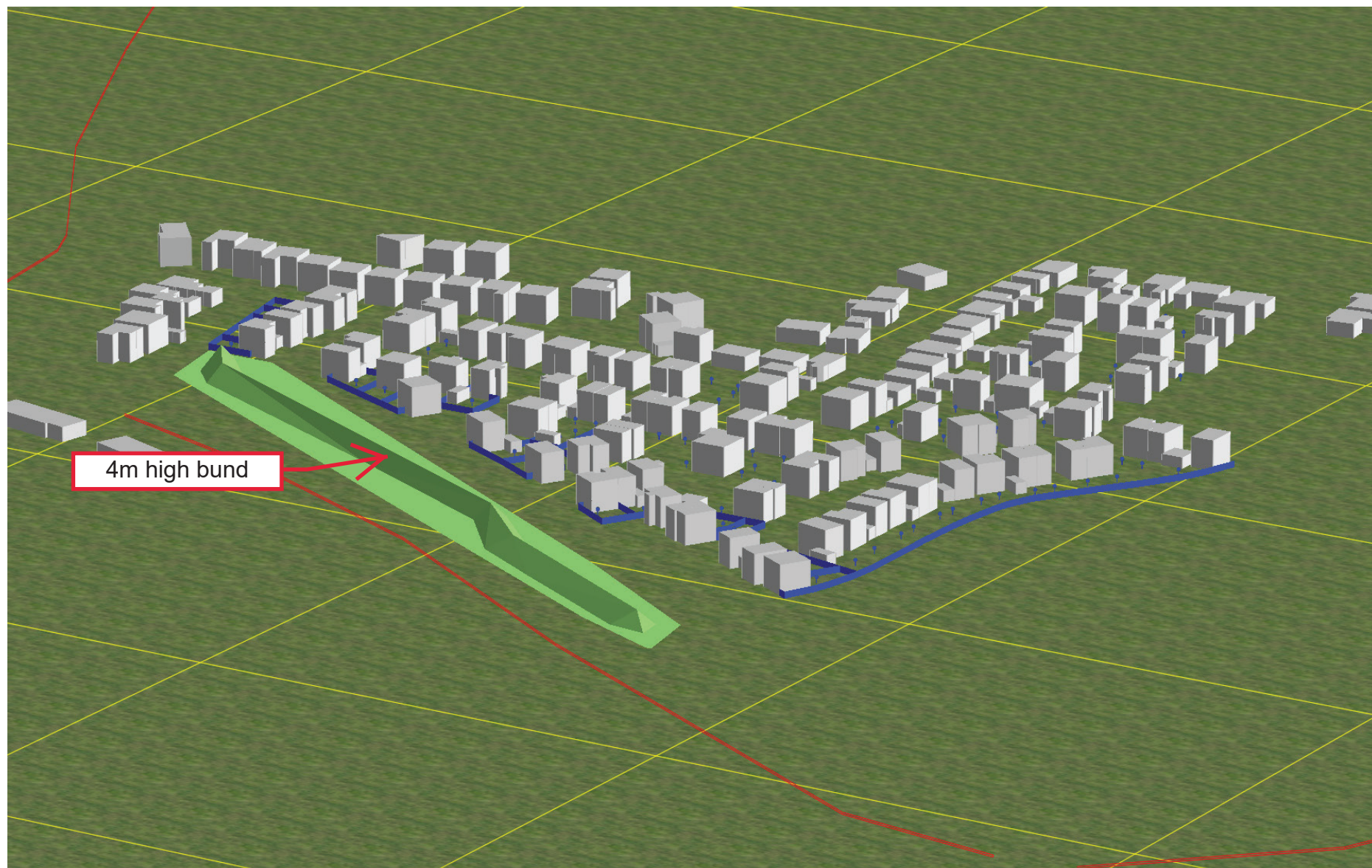
FLOOR AREA
112.55m², 1211f

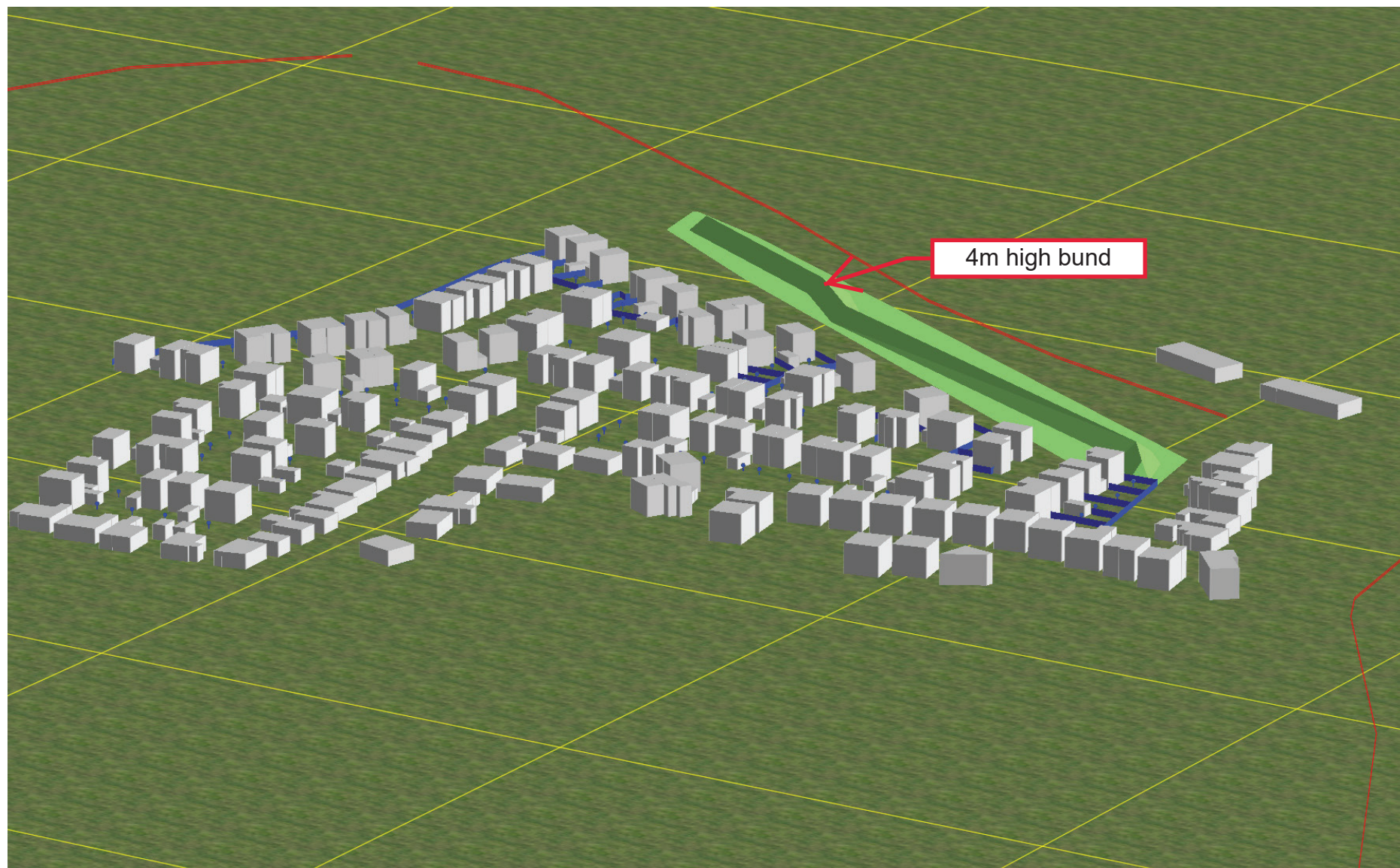


C01	Issued for construction	27.05.21
P01	Initial issue	22.04.21
Rev.	Comments	Date
gleeson Gleeson Homes (Head Office) Unit 5, Europa Court Sheffield Business Park Sheffield South Yorkshire S9 1XE 01142 612900 www.gleesonhomes.co.uk		
Project: 452 House Type Urban		
Title: Planning Drawing		
Scale: 1:100 @ A2	Date: 22.04.21	Drawn: OS Checked: GE
Drawing No: 21-452-U-0001		Revision: C01

APPENDIX C

Noise Prediction Model





Northon's Lane, Holbeach

Predicted Noise Levels outside L/R LAeq,16hr [with 4m bund + 1.8m garden fences]

Report: Table of Results
 Model: Proposed Scheme - Day LAeq,16hr [with 4m bund + 1.8m garden fences]
 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
_A	Plot 16	1.50	62	50	48	42	43	56	60	53	34
_A	Plot 17	1.50	61	49	47	42	43	55	58	51	32
_A	Plot 21	1.50	60	49	47	44	46	55	57	48	24
_A	Plot 18	1.50	60	48	46	41	43	54	57	49	28
_A	Plot 19	1.50	59	48	46	42	44	54	56	47	23
_A	Plot 20	1.50	59	48	46	42	44	54	56	47	23
_A	Plot 27	1.50	56	46	44	42	44	51	51	41	20
_A	Plot 51	1.50	56	46	44	41	43	52	50	40	19
_A	Plot 54	1.50	55	45	43	40	42	51	50	40	17
_A	Plot 25	1.50	55	44	42	40	42	51	50	40	18
_A	Plot 55	1.50	55	45	43	40	42	51	49	39	17
_A	Plot 57	1.50	54	44	42	38	40	51	49	39	15
_A	Plot 26	1.50	54	44	43	41	43	50	48	39	20
_A	Plot 58	1.50	53	43	41	37	38	50	48	38	14
_A	Plot 50	1.50	53	44	43	42	43	49	47	37	17
_A	Plot 49	1.50	53	42	40	38	40	49	48	38	16
_A	Plot 24	1.50	53	43	41	39	41	49	47	38	17
_A	Plot 48	1.50	52	42	40	37	40	48	47	37	15
_A	Plot 28	1.50	52	43	40	38	40	48	46	37	16
_A	Plot 47	1.50	52	42	40	38	39	48	47	37	15
_A	Plot 59	1.50	51	42	40	36	38	48	46	36	12
_A	Plot 29	1.50	51	42	40	39	40	47	45	37	15
_A	Plot 53	1.50	51	43	40	38	39	47	45	35	14
_A	Plot 52	1.50	51	43	40	38	39	46	45	35	13
_A	Plot 60	1.50	50	41	39	35	37	46	45	34	11
_A	Plot 9	1.50	50	39	36	31	33	46	46	36	6
_A	Plot 8	1.50	50	38	36	32	33	46	46	36	5
_A	Plot 6	1.50	50	38	36	31	32	46	46	35	4
_A	Plot 56	1.50	50	41	39	36	38	46	44	34	12
_A	Plot 5	1.50	50	38	36	31	32	46	45	35	2
_A	Plot 4	1.50	49	38	35	30	32	46	45	34	1
_A	Plot 15	1.50	49	41	37	36	38	45	43	34	12
_A	Plot 31	1.50	49	41	38	36	37	45	43	34	11
_A	Plot 1	1.50	49	39	36	31	32	46	45	33	--
_A	Plot 61	1.50	49	40	38	34	36	45	43	33	7
_A	Plot 14	1.50	49	41	38	36	37	45	43	34	11
_A	Plot 2	1.50	49	38	35	31	32	45	45	33	--
_A	Plot 45	1.50	49	41	38	36	37	44	43	33	10
_A	Plot 22	1.50	49	41	37	35	38	44	42	33	10
_A	Plot 46	1.50	49	41	38	36	37	44	42	33	10

All shown dB values are A-weighted

Northon's Lane, Holbeach

Predicted Noise Levels outside L/R LAeq,16hr [with 4m bund + 1.8m garden fences]

Report: Table of Results
 Model: Proposed Scheme - Day LAeq,16hr [with 4m bund + 1.8m garden fences]
 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
_A	Plot 32	1.50	48	40	37	35	36	44	42	33	10
_A	Plot 30	1.50	48	41	38	37	39	43	42	33	11
_A	Plot 65	1.50	48	40	37	35	36	44	42	32	8
_A	Plot 23	1.50	48	40	36	34	36	44	42	32	9
_A	Plot 44	1.50	48	41	38	36	37	43	41	31	8
_A	Plot 43	1.50	48	41	38	36	37	43	41	31	8
_A	Plot 64	1.50	48	40	37	35	36	44	42	32	9
_A	Plot 11	1.50	48	40	36	34	35	43	43	34	9
_A	Plot 42	1.50	48	41	38	36	37	43	41	31	7
_A	Plot 12	1.50	48	40	36	35	36	43	42	33	9
_A	Plot 63	1.50	47	40	37	35	37	43	41	31	8
_A	Plot 13	1.50	47	40	37	35	36	43	41	32	9
_A	Plot 70	1.50	47	40	37	34	36	43	41	31	6
_A	Plot 66	1.50	47	40	36	35	35	42	41	31	7
_A	Plot 69	1.50	47	40	36	34	36	42	40	30	6
_A	Plot 34	1.50	47	39	35	34	35	42	41	32	8
_A	Plot 40	1.50	47	40	36	34	35	42	40	30	5
_A	Plot 62	1.50	47	36	34	32	33	43	42	32	7
_A	Plot 10	1.50	47	39	35	34	35	40	42	33	7
_A	Plot 33	1.50	47	38	34	34	36	42	41	31	7
_A	Plot 41	1.50	47	40	36	35	36	42	40	30	6
_A	Plot 39	1.50	46	40	36	35	36	42	40	29	4
_A	Plot 68	1.50	46	40	36	34	36	41	40	29	6
_A	Plot 7	1.50	46	38	35	31	32	43	41	30	--
_A	Plot 71	1.50	46	39	36	34	35	42	40	30	5
_A	Plot 67	1.50	46	39	36	34	35	38	42	31	4
_A	Plot 3	1.50	46	37	34	31	32	42	41	29	--
_A	Plot 35	1.50	46	39	35	33	35	41	40	30	6
_A	Plot 36	1.50	45	38	35	32	34	40	39	29	4
_A	Plot 73	1.50	45	39	35	34	35	40	38	28	3
_A	Plot 38	1.50	45	38	34	32	34	41	39	28	0
_A	Plot 37	1.50	45	38	34	31	33	40	38	29	2
_A	Plot 81	1.50	45	38	34	32	33	40	38	26	--
_A	Plot 72	1.50	44	39	34	34	35	38	36	26	2
_A	Plot 80	1.50	44	38	34	33	34	39	36	25	--
_A	Plot 82	1.50	44	37	33	31	32	38	36	25	--
_A	Plot 83	1.50	43	37	33	31	32	38	35	24	--
_A	Plot 89	1.50	43	37	33	31	32	38	35	22	--
_A	Plot 90	1.50	43	37	32	32	33	37	34	22	--
_A	Plot 88	1.50	42	37	32	32	33	36	34	22	--

All shown dB values are A-weighted

Northon's Lane, Holbeach

Predicted Noise Levels outside L/R LAeq,16hr [with 4m bund + 1.8m garden fences]

Report: Table of Results
 Model: Proposed Scheme - Day LAeq,16hr [with 4m bund + 1.8m garden fences]
 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
_A	Plot 94	1.50	42	36	32	29	29	37	36	22	--
_A	Plot 74	1.50	42	36	32	31	32	36	34	25	--
_A	Plot 87	1.50	42	36	32	32	33	36	33	21	--
_A	Plot 79	1.50	42	36	32	31	32	36	34	24	--
_A	Plot 92	1.50	42	35	31	27	28	38	36	22	--
_A	Plot 77	1.50	42	35	31	30	32	36	34	23	--
_A	Plot 103	1.50	42	36	31	31	31	35	36	22	--
_A	Plot 93	1.50	42	34	30	25	28	38	36	22	--
_A	Plot 78	1.50	41	36	31	30	31	36	34	23	--
_A	Plot 75	1.50	41	35	31	30	32	36	34	24	--
_A	Plot 84	1.50	41	36	32	29	30	35	33	21	--
_A	Plot 91	1.50	41	35	31	30	31	35	33	20	--
_A	Plot 96	1.50	41	35	31	29	30	35	32	18	--
_A	Plot 100	1.50	41	35	31	29	30	36	33	18	--
_A	Plot 85	1.50	41	35	30	28	30	35	34	21	--
_A	Plot 101	1.50	41	35	31	29	30	35	33	18	--
_A	Plot 99	1.50	41	35	31	30	31	35	32	17	--
_A	Plot 95	1.50	40	35	31	30	31	35	31	18	--
_A	Plot 76	1.50	40	34	29	29	30	35	33	23	--
_A	Plot 102	1.50	40	33	28	25	26	36	35	20	--
_A	Plot 97	1.50	39	32	27	27	29	35	33	19	--
_A	Plot 86	1.50	39	31	25	25	28	34	34	21	--
_A	Plot 98	1.50	38	29	24	24	26	34	32	18	--

All shown dB values are A-weighted

Predicted Noise Levels outside Daytime Habitable Rooms LAeq,16hr [with 4m bund + 1.8m garden fences]



Northon's Lane, Holbeach

Predicted Noise Levels outside B/R LAeq,8hr [with 4m bund + 1.8m garden fences]

Report: Table of Results
 Model: Proposed Scheme - Night LAeq,8hr [with 4m bund + 1.8m garden fences]
 LAeq per octave: total results for receivers
 Group: (main group)
 Group Reduction: No

Name			Night								
Receiver	Description	Height	Total	63	125	250	500	1000	2000	4000	8000
_A	Plot 16	4.50	52	42	39	37	39	49	46	38	20
_A	Plot 21	4.50	52	40	39	39	42	49	44	34	13
_A	Plot 17	4.50	52	41	38	37	39	49	45	36	18
_A	Plot 18	4.50	51	41	38	37	39	48	44	35	14
_A	Plot 55	4.50	51	39	38	37	39	49	42	33	14
_A	Plot 20	4.50	50	40	38	37	40	48	43	33	11
_A	Plot 19	4.50	50	40	38	37	40	48	43	33	11
_A	Plot 54	4.50	50	38	37	37	39	48	42	32	12
_A	Plot 51	4.50	50	39	37	37	39	47	41	32	12
_A	Plot 50	4.50	49	39	37	37	39	47	40	31	12
_A	Plot 27	4.50	49	39	37	37	39	47	40	30	11
_A	Plot 57	4.50	49	37	36	35	37	47	41	32	13
_A	Plot 26	4.50	49	38	36	36	39	46	40	31	11
_A	Plot 25	4.50	49	37	36	35	38	46	40	30	9
_A	Plot 49	4.50	48	36	35	34	37	46	40	30	9
_A	Plot 53	4.50	48	37	35	35	37	46	39	30	8
_A	Plot 58	4.50	47	36	34	33	35	45	39	29	8
_A	Plot 48	4.50	47	35	34	34	36	45	38	28	7
_A	Plot 52	4.50	47	37	35	34	36	44	37	27	5
_A	Plot 24	4.50	47	37	35	34	37	44	37	27	7
_A	Plot 29	4.50	46	36	34	34	36	43	36	27	6
_A	Plot 28	4.50	46	36	34	34	36	43	36	26	6
_A	Plot 59	4.50	45	35	33	32	34	43	37	27	5
_A	Plot 47	4.50	45	36	34	33	35	42	36	26	4
_A	Plot 46	4.50	45	35	33	33	34	43	36	25	2
_A	Plot 30	4.50	45	35	33	33	35	42	36	26	4
_A	Plot 56	4.50	44	34	32	31	34	42	35	25	4
_A	Plot 45	4.50	44	35	33	32	34	42	35	25	1
_A	Plot 60	4.50	44	34	32	32	34	42	35	25	3
_A	Plot 15	4.50	44	35	32	32	35	41	34	24	2
_A	Plot 22	4.50	43	34	32	31	34	41	34	23	0
_A	Plot 65	4.50	43	35	32	32	33	40	33	23	--
_A	Plot 44	4.50	43	35	33	32	34	40	32	21	--
_A	Plot 66	4.50	43	34	32	32	33	40	33	22	--
_A	Plot 62	4.50	43	32	30	30	32	40	34	24	0
_A	Plot 61	4.50	43	33	32	31	33	40	33	23	--
_A	Plot 31	4.50	43	34	32	31	33	40	32	22	--
_A	Plot 9	4.50	43	32	29	27	29	40	37	26	--
_A	Plot 7	4.50	42	32	29	27	29	40	37	25	--
_A	Plot 8	4.50	42	32	29	27	28	40	37	25	--

All shown dB values are A-weighted

Northon's Lane, Holbeach

Predicted Noise Levels outside B/R LAeq,8hr [with 4m bund + 1.8m garden fences]

Report: Table of Results
 Model: Proposed Scheme - Night LAeq,8hr [with 4m bund + 1.8m garden fences]
 LAeq per octave: total results for receivers
 Group: (main group)
 Group Reduction: No

Name			Night								
Receiver	Description	Height	Total	63	125	250	500	1000	2000	4000	8000
_A	Plot 14	4.50	42	34	32	32	33	39	31	20	--
_A	Plot 6	4.50	42	32	29	27	29	40	37	25	--
_A	Plot 43	4.50	42	35	32	32	34	39	31	19	--
_A	Plot 1	4.50	42	34	29	27	29	39	36	24	--
_A	Plot 5	4.50	42	32	29	27	28	39	36	24	--
_A	Plot 23	4.50	42	33	31	30	33	39	32	21	--
_A	Plot 4	4.50	42	32	29	26	28	39	36	24	--
_A	Plot 42	4.50	42	34	32	32	34	38	30	19	--
_A	Plot 64	4.50	42	34	31	30	32	39	31	21	--
_A	Plot 2	4.50	42	32	29	27	29	39	36	23	--
_A	Plot 32	4.50	42	33	31	31	32	39	31	21	--
_A	Plot 69	4.50	42	34	32	31	33	38	30	19	--
_A	Plot 70	4.50	42	34	31	31	33	38	30	19	--
_A	Plot 68	4.50	41	34	31	31	33	37	30	19	--
_A	Plot 63	4.50	41	33	31	30	32	38	30	20	--
_A	Plot 41	4.50	41	34	31	31	32	38	30	18	--
_A	Plot 40	4.50	41	34	31	30	32	37	30	19	--
_A	Plot 39	4.50	41	34	31	30	32	37	30	18	--
_A	Plot 67	4.50	41	34	32	31	33	36	31	19	--
_A	Plot 13	4.50	41	34	31	30	32	37	29	18	--
_A	Plot 71	4.50	41	34	31	30	32	37	29	18	--
_A	Plot 12	4.50	41	33	31	30	32	37	30	19	--
_A	Plot 34	4.50	41	32	29	30	31	37	31	20	--
_A	Plot 73	4.50	41	33	30	30	32	37	29	17	--
_A	Plot 72	4.50	40	33	30	30	32	36	29	17	--
_A	Plot 33	4.50	40	31	28	29	32	37	31	19	--
_A	Plot 11	4.50	40	33	30	30	31	36	28	17	--
_A	Plot 3	4.50	40	32	28	27	29	36	32	19	--
_A	Plot 35	4.50	40	32	29	29	31	36	28	17	--
_A	Plot 36	4.50	39	32	29	28	30	36	29	17	--
_A	Plot 37	4.50	39	31	28	28	30	36	30	18	--
_A	Plot 10	4.50	39	32	29	29	31	35	27	15	--
_A	Plot 38	4.50	39	32	28	28	30	35	28	16	--
_A	Plot 80	4.50	39	32	29	29	30	35	26	13	--
_A	Plot 81	4.50	38	31	28	27	29	34	28	14	--
_A	Plot 89	4.50	38	31	28	27	29	34	25	11	--
_A	Plot 82	4.50	38	31	28	27	28	33	26	13	--
_A	Plot 88	4.50	37	31	27	27	29	33	24	10	--
_A	Plot 87	4.50	37	31	27	27	29	33	25	10	--
_A	Plot 94	4.50	37	31	26	25	27	34	27	12	--

All shown dB values are A-weighted

Northon's Lane, Holbeach

Predicted Noise Levels outside B/R LAeq,8hr [with 4m bund + 1.8m garden fences]

Report: Table of Results
 Model: Proposed Scheme - Night LAeq,8hr [with 4m bund + 1.8m garden fences]
 LAeq per octave: total results for receivers
 Group: (main group)
 Group Reduction: No

Name			Night								
Receiver	Description	Height	Total	63	125	250	500	1000	2000	4000	8000
_A	Plot 83	4.50	37	31	27	26	28	33	26	12	--
_A	Plot 92	4.50	37	30	25	23	24	34	27	12	--
_A	Plot 103	4.50	37	30	27	26	28	33	27	12	--
_A	Plot 90	4.50	37	29	27	27	29	32	24	10	--
_A	Plot 100	4.50	37	30	26	26	28	33	24	8	--
_A	Plot 99	4.50	37	31	27	26	28	32	23	6	--
_A	Plot 74	4.50	37	30	27	26	28	32	24	12	--
_A	Plot 93	4.50	37	29	24	22	25	34	27	12	--
_A	Plot 91	4.50	37	30	26	26	28	32	24	9	--
_A	Plot 101	4.50	36	30	26	25	27	32	24	8	--
_A	Plot 77	4.50	36	30	26	26	28	32	24	10	--
_A	Plot 95	4.50	36	30	26	26	27	32	25	10	--
_A	Plot 96	4.50	36	30	26	25	27	32	25	9	--
_A	Plot 79	4.50	36	30	26	26	28	31	24	10	--
_A	Plot 84	4.50	36	29	26	25	27	32	25	11	--
_A	Plot 85	4.50	36	29	25	25	27	32	26	11	--
_A	Plot 78	4.50	36	30	26	26	27	31	23	10	--
_A	Plot 75	4.50	36	29	26	26	28	31	23	10	--
_A	Plot 76	4.50	35	28	24	26	27	31	22	10	--
_A	Plot 102	4.50	35	29	23	21	23	32	26	10	--
_A	Plot 97	4.50	34	27	23	22	25	31	23	8	--
_A	Plot 86	4.50	34	28	22	21	25	30	25	10	--
_A	Plot 98	4.50	33	26	21	20	23	30	22	7	--

All shown dB values are A-weighted

Predicted Noise Levels outside B/R LAeq,8hr [with 4m bund + 1.8m garden fences]



Northon's Lane, Holbeach

Predicted Noise Levels in Gardens LAeq,16hr [with 4m bund + 1.8m garden fences]

Report: Table of Results
 Model: Proposed Scheme - Gardens LAeq,16hr [with 4m bund + 1.8m garden fences]
 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
_A	Plot 50	1.50	57	46	45	43	45	53	51	41	20
_A	Plot 27	1.50	56	46	45	43	45	52	51	41	21
_A	Plot 54	1.50	56	46	45	42	44	52	50	40	19
_A	Plot 57	1.50	55	44	42	38	40	52	51	43	22
_A	Plot 26	1.50	55	46	44	43	44	50	49	39	17
_A	Plot 51	1.50	55	44	43	42	43	51	49	39	19
_A	Plot 15	1.50	54	43	40	37	38	50	50	41	15
_A	Plot 55	1.50	54	45	43	41	42	50	48	38	18
_A	Plot 58	1.50	54	41	40	36	39	50	50	42	20
_A	Plot 25	1.50	54	44	42	42	43	50	48	39	16
_A	Plot 16	1.50	54	42	39	36	37	50	50	42	19
_A	Plot 19	1.50	53	42	40	39	40	49	49	41	18
_A	Plot 13	1.50	53	41	38	35	36	50	49	40	13
_A	Plot 14	1.50	53	42	39	35	36	49	49	40	15
_A	Plot 18	1.50	53	42	40	39	40	49	48	38	14
_A	Plot 47	1.50	53	42	42	39	40	49	47	38	15
_A	Plot 4	1.50	52	39	36	32	34	49	49	37	4
_A	Plot 9	1.50	52	40	37	34	35	49	49	39	8
_A	Plot 12	1.50	52	41	38	34	35	48	48	40	13
_A	Plot 7	1.50	52	39	36	33	35	49	48	38	6
_A	Plot 20	1.50	52	42	40	38	39	48	47	38	15
_A	Plot 29	1.50	52	43	41	40	41	48	46	37	16
_A	Plot 11	1.50	52	40	37	33	34	48	48	39	11
_A	Plot 10	1.50	52	40	37	33	34	48	48	38	10
_A	Plot 28	1.50	52	43	41	40	42	47	45	36	15
_A	Plot 5	1.50	51	39	36	32	33	48	48	37	4
_A	Plot 52	1.50	51	43	41	39	40	47	45	36	14
_A	Plot 53	1.50	51	44	42	40	41	46	44	35	13
_A	Plot 8	1.50	51	39	37	33	34	48	47	38	7
_A	Plot 17	1.50	51	41	38	38	39	47	46	38	14
_A	Plot 1	1.50	51	39	37	33	34	48	47	35	1
_A	Plot 2	1.50	51	38	35	33	34	48	47	36	1
_A	Plot 6	1.50	51	39	36	32	34	48	47	36	4
_A	Plot 31	1.50	51	43	40	37	39	46	45	35	12
_A	Plot 32	1.50	50	41	39	37	39	46	45	35	12
_A	Plot 23	1.50	50	41	38	38	39	46	45	35	12
_A	Plot 44	1.50	50	41	40	38	39	46	44	34	11
_A	Plot 45	1.50	50	41	37	38	39	46	44	35	12
_A	Plot 56	1.50	50	42	39	38	40	45	44	35	13
_A	Plot 48	1.50	50	42	39	38	40	46	43	34	12

All shown dB values are A-weighted

Northon's Lane, Holbeach

Predicted Noise Levels in Gardens LAeq,16hr [with 4m bund + 1.8m garden fences]

Report: Table of Results
 Model: Proposed Scheme - Gardens LAeq,16hr [with 4m bund + 1.8m garden fences]
 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
_A	Plot 59	1.50	50	40	36	35	36	46	45	36	14
_A	Plot 46	1.50	50	41	39	37	39	46	44	34	11
_A	Plot 24	1.50	50	42	39	39	40	45	43	34	14
_A	Plot 43	1.50	50	42	40	38	39	45	43	33	10
_A	Plot 30	1.50	49	42	38	39	41	44	43	33	11
_A	Plot 22	1.50	49	41	38	38	40	45	43	33	11
_A	Plot 21	1.50	49	40	37	38	39	45	44	35	13
_A	Plot 34	1.50	49	41	38	37	38	45	43	34	10
_A	Plot 64	1.50	49	40	37	36	37	45	44	34	10
_A	Plot 42	1.50	49	41	39	37	38	44	42	33	9
_A	Plot 63	1.50	49	40	37	37	38	45	42	32	8
_A	Plot 33	1.50	48	39	36	36	38	44	43	33	8
_A	Plot 36	1.50	48	40	38	37	38	44	42	32	8
_A	Plot 35	1.50	48	42	38	37	38	43	41	31	7
_A	Plot 39	1.50	48	39	36	36	38	44	42	31	6
_A	Plot 3	1.50	48	36	35	32	33	44	43	31	--
_A	Plot 49	1.50	48	41	37	37	37	42	40	31	11
_A	Plot 40	1.50	47	40	37	35	36	42	41	31	5
_A	Plot 41	1.50	47	40	36	35	36	43	41	31	7
_A	Plot 60	1.50	46	38	34	34	34	41	40	31	7
_A	Plot 37	1.50	46	39	35	34	36	40	38	28	4
_A	Plot 38	1.50	45	38	34	34	36	40	38	27	0
_A	Plot 89	1.50	45	39	35	33	34	40	37	24	--
_A	Plot 75	1.50	45	38	34	34	35	40	37	25	--
_A	Plot 61	1.50	45	38	34	34	35	39	38	27	2
_A	Plot 81	1.50	45	38	34	33	34	40	37	25	--
_A	Plot 76	1.50	44	38	34	34	35	39	36	25	--
_A	Plot 62	1.50	44	37	33	33	35	39	37	27	2
_A	Plot 79	1.50	44	38	34	33	34	39	36	25	--
_A	Plot 87	1.50	44	38	34	34	35	39	36	24	--
_A	Plot 74	1.50	44	38	34	34	35	38	36	25	0
_A	Plot 78	1.50	44	38	33	33	35	39	36	24	--
_A	Plot 88	1.50	44	38	34	33	34	38	34	22	--
_A	Plot 67	1.50	43	36	32	31	33	39	37	27	2
_A	Plot 77	1.50	43	37	32	32	33	38	35	23	--
_A	Plot 82	1.50	43	36	31	32	33	38	36	24	--
_A	Plot 73	1.50	43	36	33	33	33	37	35	24	--
_A	Plot 85	1.50	43	36	33	32	34	37	35	23	--
_A	Plot 66	1.50	43	34	28	31	33	38	36	26	1
_A	Plot 71	1.50	43	35	32	33	34	37	35	25	0

All shown dB values are A-weighted

Northon's Lane, Holbeach

Predicted Noise Levels in Gardens LAeq,16hr [with 4m bund + 1.8m garden fences]

Report: Table of Results
 Model: Proposed Scheme - Gardens LAeq,16hr [with 4m bund + 1.8m garden fences]
 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
_A	Plot 97	1.50	42	35	33	33	34	37	34	20	--
_A	Plot 65	1.50	42	34	29	31	34	38	36	26	2
_A	Plot 96	1.50	42	35	33	31	32	38	35	21	--
_A	Plot 94	1.50	42	35	31	29	29	38	36	22	--
_A	Plot 83	1.50	42	36	32	32	33	37	34	23	--
_A	Plot 80	1.50	42	36	31	32	33	37	34	23	--
_A	Plot 98	1.50	42	35	32	33	34	36	33	19	--
_A	Plot 68	1.50	42	35	31	31	33	36	35	25	0
_A	Plot 72	1.50	42	34	31	32	33	36	34	24	--
_A	Plot 92	1.50	42	36	31	30	32	37	34	20	--
_A	Plot 93	1.50	42	35	30	30	32	37	34	20	--
_A	Plot 95	1.50	42	35	31	32	33	36	34	21	--
_A	Plot 70	1.50	42	34	29	31	32	36	35	25	0
_A	Plot 84	1.50	42	34	30	31	32	36	35	23	--
_A	Plot 86	1.50	41	35	31	31	33	35	34	21	--
_A	Plot 90	1.50	41	35	31	31	32	36	33	20	--
_A	Plot 69	1.50	41	34	29	30	31	34	34	25	1
_A	Plot 103	1.50	39	33	29	29	30	34	31	16	--
_A	Plot 102	1.50	39	34	29	29	30	33	30	16	--
_A	Plot 91	1.50	39	31	27	28	30	34	32	19	--
_A	Plot 99	1.50	38	30	26	27	29	34	31	16	--
_A	Plot 101	1.50	38	30	25	26	27	34	31	16	--
_A	Plot 100	1.50	37	31	26	25	27	32	29	15	--

All shown dB values are A-weighted

Predicted Noise Levels in Gardens LAeq,16hr [with 4m bund + 1.8m garden fences]



Northon's Lane, Holbeach

Predicted Noise Levels outside B/R LAFmax [with 4m bund + 1.8m garden fences]

Report: Table of Results
 Model: Proposed Scheme - Night LAFmax [with 4m bund + 1.8m garden fences]
 LAeq per octave: by Source/Group for receiver _A - Plot 16
 Group: (main group)
 Group Reduction: No

Name			Night								
Source/Group	Description	Height	Total	63	125	250	500	1000	2000	4000	8000
_A	Plot 16	4.50	87	78	73	72	73	84	81	71	52
		0.50	75	66	60	57	58	71	69	57	26
		0.50	74	66	60	57	58	71	69	57	26
		0.50	74	66	60	57	58	71	69	57	26
		0.50	74	66	60	56	58	71	69	57	25
		0.50	72	64	58	54	56	69	67	55	25
		0.50	72	61	58	55	57	69	67	60	44
		0.50	72	64	58	56	58	69	66	54	23
		0.50	72	61	57	55	57	69	67	59	43
		0.50	72	63	57	55	57	69	66	54	22
		0.50	72	61	57	55	57	68	66	59	43
		0.50	72	63	57	55	56	69	66	54	22
		0.50	71	60	57	54	57	68	66	59	42
		0.50	71	60	57	54	56	68	66	58	42
		0.50	71	59	56	53	56	67	65	58	41
		0.50	70	59	56	53	55	67	65	57	40
		0.50	70	59	55	52	54	67	64	57	39
		0.50	69	58	56	54	55	67	64	51	16
		0.50	69	58	55	52	54	66	64	56	38
		0.50	69	58	56	53	54	66	64	51	15
		0.50	69	58	54	51	53	66	64	56	37
		0.50	68	58	54	51	53	65	63	55	36
		0.50	68	57	53	50	52	65	63	54	35
		0.50	68	60	54	53	54	64	61	49	17
		0.50	67	57	53	50	52	64	62	54	34
		0.50	67	58	56	55	58	64	57	48	29
		0.50	67	56	53	49	51	64	62	53	33
		0.50	67	60	54	52	54	63	60	47	13
		0.50	67	56	52	49	51	63	61	53	32
		0.50	66	57	55	56	58	63	56	46	28
		0.50	66	57	55	56	58	63	56	46	28
		0.50	66	56	55	56	58	63	56	46	27
		0.50	66	56	52	48	50	63	61	52	31
		0.50	66	60	54	52	53	62	58	45	10
		0.50	66	56	55	56	58	63	55	46	27
		0.50	66	55	54	55	58	63	55	46	27
		0.50	66	55	51	48	50	63	61	52	30
		0.50	66	55	54	55	57	63	55	45	26
		0.50	65	60	54	52	52	61	57	43	8

All shown dB values are A-weighted

Northon's Lane, Holbeach

Predicted Noise Levels outside B/R LAFmax [with 4m bund + 1.8m garden fences]

Report: Table of Results
 Model: Proposed Scheme - Night LAFmax [with 4m bund + 1.8m garden fences]
 LAeq per octave: by Source/Group for receiver _A - Plot 27
 Group: (main group)
 Group Reduction: No

Name			Night								
Source/Group	Description	Height	Total	63	125	250	500	1000	2000	4000	8000
_A	Plot 27	4.50	82	73	70	70	72	79	73	63	43
		0.50	69	57	53	51	54	67	63	48	7
		0.50	69	58	57	58	60	66	59	50	33
		0.50	69	58	56	58	60	66	59	50	33
		0.50	69	58	56	58	60	66	59	50	32
		0.50	68	58	56	57	60	66	59	50	32
		0.50	68	57	56	57	60	66	59	50	32
		0.50	68	57	56	57	60	65	58	49	32
		0.50	68	57	56	57	59	65	58	49	32
		0.50	68	57	55	56	58	65	58	49	31
		0.50	67	56	55	55	58	65	58	49	31
		0.50	67	56	54	55	57	64	58	48	30
		0.50	66	55	54	54	56	64	57	48	29
		0.50	66	55	53	53	55	63	57	47	28
		0.50	65	54	53	52	55	63	56	46	26
		0.50	65	53	52	52	54	62	55	46	25
		0.50	64	53	52	51	53	62	55	45	24
		0.50	64	56	52	51	54	61	52	34	--
		0.50	64	53	51	50	52	61	55	45	23
		0.50	63	52	51	50	53	61	54	44	22
		0.50	63	56	52	51	53	61	51	34	--
		0.50	63	52	51	49	52	61	54	44	22
		0.50	63	50	49	47	49	62	55	44	19
		0.50	63	51	50	49	52	61	54	44	21
		0.50	63	50	49	46	48	61	55	44	19
		0.50	63	51	50	48	51	61	54	44	21
		0.50	62	51	50	48	51	60	54	44	20
		0.50	62	50	49	47	49	60	54	43	20
		0.50	61	50	48	46	48	59	53	42	17
		0.50	61	50	48	46	47	59	53	42	16
		0.50	61	52	46	43	44	58	55	44	15
		0.50	61	50	48	45	47	59	52	42	16
		0.50	61	50	48	45	47	59	52	42	15
		0.50	60	52	46	43	44	57	55	44	14
		0.50	60	55	52	51	53	55	45	27	--
		0.50	60	51	47	43	45	58	53	42	12
		0.50	60	50	48	45	46	58	52	41	14
		0.50	60	55	52	51	53	55	44	27	--
		0.50	60	50	47	43	45	58	54	43	13

All shown dB values are A-weighted

Northon's Lane, Holbeach

Predicted Noise Levels outside B/R LAFmax [with 4m bund + 1.8m garden fences]

Report: Table of Results
 Model: Proposed Scheme - Night LAFmax [with 4m bund + 1.8m garden fences]
 LAeq per octave: by Source/Group for receiver _A - Plot 57
 Group: (main group)
 Group Reduction: No

Name			Night								
Source/Group	Description	Height	Total	63	125	250	500	1000	2000	4000	8000
_A	Plot 57	4.50	80	71	67	66	68	78	71	60	37
		0.50	67	55	54	53	55	65	60	51	31
		0.50	67	54	54	52	54	65	59	50	30
		0.50	65	58	49	48	49	62	58	40	--
		0.50	65	58	49	48	49	62	58	40	--
		0.50	65	52	51	50	52	63	57	48	27
		0.50	65	58	49	47	49	62	58	40	--
		0.50	65	58	49	48	49	62	57	40	--
		0.50	65	58	49	48	49	62	57	40	--
		0.50	64	52	51	49	51	62	56	47	26
		0.50	64	51	50	49	51	62	56	47	25
		0.50	63	51	50	48	50	61	55	46	24
		0.50	63	53	49	49	51	62	52	32	--
		0.50	63	53	49	47	49	61	54	38	--
		0.50	63	51	50	48	50	61	55	46	23
		0.50	63	53	49	49	51	61	52	32	--
		0.50	63	50	49	47	49	61	55	45	23
		0.50	63	53	49	49	51	61	51	31	--
		0.50	62	50	49	47	49	60	54	45	22
		0.50	62	53	49	47	49	60	51	33	--
		0.50	62	49	49	46	48	60	54	45	21
		0.50	62	49	48	46	48	60	54	44	20
		0.50	61	54	49	47	49	59	50	30	--
		0.50	61	52	48	49	51	59	50	30	--
		0.50	61	53	48	49	50	59	49	28	--
		0.50	61	53	48	49	51	59	50	29	--
		0.50	61	49	48	46	47	59	53	44	19
		0.50	61	53	48	49	50	59	49	27	--
		0.50	61	53	49	47	49	59	50	29	--
		0.50	61	52	47	49	51	59	50	29	--
		0.50	61	52	47	49	51	59	49	28	--
		0.50	61	49	47	45	48	59	53	43	17
		0.50	61	52	48	49	50	59	49	26	--
		0.50	61	52	47	49	50	59	50	29	--
		0.50	61	52	47	49	51	59	49	28	--
		0.50	61	52	48	49	50	59	48	26	--
		0.50	61	52	47	49	51	59	49	28	--
		0.50	61	52	47	49	50	59	49	28	--
		0.50	61	52	47	49	50	58	49	27	--

All shown dB values are A-weighted

Northon's Lane, Holbeach

Predicted Noise Levels outside B/R LAFmax [with 4m bund + 1.8m garden fences]

Report: Table of Results
 Model: Proposed Scheme - Night LAFmax [with 4m bund + 1.8m garden fences]
 LAeq per octave: by Source/Group for receiver _A - Plot 76
 Group: (main group)
 Group Reduction: No

Name			Night								
Source/Group	Description	Height	Total	63	125	250	500	1000	2000	4000	8000
_A	Plot 76	4.50	77	71	66	66	67	73	63	46	12
		0.50	64	55	52	50	51	62	53	36	--
		0.50	64	55	52	49	51	62	53	35	--
		0.50	64	55	52	50	51	62	53	35	--
		0.50	63	56	51	49	51	61	52	34	--
		0.50	63	56	52	49	51	60	51	33	--
		0.50	62	55	52	50	51	60	50	32	--
		0.50	62	55	52	50	51	60	50	32	--
		0.50	62	55	52	50	51	60	50	32	--
		0.50	62	55	52	50	51	59	50	32	--
		0.50	62	55	52	50	51	59	50	32	--
		0.50	61	55	51	49	51	58	48	30	--
		0.50	61	55	51	50	51	58	48	30	--
		0.50	61	55	51	50	51	58	48	30	--
		0.50	60	55	51	50	51	56	45	26	--
		0.50	60	55	51	50	51	54	44	26	--
		0.50	60	55	51	50	51	54	44	26	--
		0.50	60	55	50	50	51	55	45	26	--
		0.50	59	54	50	50	51	54	44	26	--
		0.50	59	54	50	50	51	54	44	26	--
		0.50	59	54	49	50	52	54	44	26	--
		0.50	59	54	50	50	51	54	44	25	--
		0.50	59	54	50	50	51	54	43	25	--
		0.50	59	54	49	50	51	54	43	25	--
		0.50	59	54	49	50	51	54	43	25	--
		0.50	59	54	49	50	51	53	43	25	--
		0.50	59	54	49	50	51	53	43	25	--
		0.50	59	54	49	50	51	53	43	25	--
		0.50	59	55	49	49	51	53	43	24	--
		0.50	59	54	49	50	51	53	43	25	--
		0.50	59	54	49	49	51	53	42	24	--
		0.50	58	54	49	49	50	53	42	23	--
		0.50	58	54	49	49	50	52	42	23	--
		0.50	58	53	48	48	50	52	41	22	--
		0.50	52	46	43	41	43	47	38	23	--

All shown dB values are A-weighted

Northon's Lane, Holbeach

Predicted Noise Levels outside B/R LAFmax [with 4m bund + 1.8m garden fences]

Report: Table of Results
 Model: Proposed Scheme - Night LAFmax [with 4m bund + 1.8m garden fences]
 LAeq per octave: by Source/Group for receiver _A - Plot 102
 Group: (main group)
 Group Reduction: No

Name			Night								
Source/Group	Description	Height	Total	63	125	250	500	1000	2000	4000	8000
_A	Plot 102	4.50	83	76	68	66	67	80	76	61	17
		0.50	68	61	53	50	53	66	62	47	5
		0.50	68	61	53	51	53	66	62	47	5
		0.50	68	61	53	51	52	66	62	47	5
		0.50	68	61	53	50	53	65	62	47	5
		0.50	68	61	53	50	53	65	62	47	5
		0.50	68	61	53	50	53	65	62	47	5
		0.50	68	61	53	50	53	65	62	47	5
		0.50	68	61	53	50	52	65	62	47	5
		0.50	68	61	53	50	52	65	62	47	4
		0.50	68	61	53	50	52	65	61	47	4
		0.50	68	61	53	50	52	65	61	47	4
		0.50	68	61	53	50	52	65	61	47	4
		0.50	68	60	53	50	52	65	61	46	3
		0.50	68	60	53	50	52	65	61	46	3
		0.50	68	60	53	50	52	65	61	46	3
		0.50	67	60	52	50	51	64	61	46	2
		0.50	67	60	52	50	51	64	61	46	2
		0.50	67	60	52	50	51	64	61	46	1
		0.50	67	60	52	50	51	64	61	45	1
		0.50	67	60	52	50	51	64	61	45	0
		0.50	67	60	52	50	51	64	60	45	--
		0.50	67	60	52	50	51	64	60	45	--
		0.50	67	60	52	49	51	64	60	44	--
		0.50	67	60	51	49	51	64	60	44	--
		0.50	67	60	51	49	51	64	60	44	--
		0.50	66	60	51	49	51	63	60	44	--
		0.50	66	59	51	49	50	63	60	43	--
		0.50	66	59	51	49	50	63	59	43	--
		0.50	66	59	51	49	50	63	59	43	--
		0.50	66	59	51	49	50	63	59	42	--
		0.50	66	59	50	49	50	63	59	42	--
		0.50	66	59	50	49	50	63	59	42	--
		0.50	66	59	50	48	50	63	59	42	--
		0.50	65	54	50	48	50	63	57	41	--
		0.50	64	57	50	48	50	62	55	36	--
		0.50	64	57	50	48	50	62	53	35	--
		0.50	53	45	38	36	38	51	44	26	--

All shown dB values are A-weighted

APPENDIX D

Intrusive Noise Calculations

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Room:	27 - Type 450 Lounge
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Daytime (<i>L</i> _{Aeq,16hr})				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	<i>L</i> _{eq,1}	72	60	51	47	51	50	40	21		<i>L</i> _{Aeq,1}	56 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0					
INCIDENT FAÇADE NOISE LEVEL																	
Incident noise level			Façade 1	<i>L</i> _{eq,ff}	72	60	51	47	51	50	40	21		<i>L</i> _{Aeq,ff}	56 dB		
ROOM DATA																	
Room description and reverberation time	Volume	42.0	Living Room	RT60	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3			s		
FAÇADE ELEMENTS (Façade 1)																	
Glazing	Area	1.8	Pilkington 4/6-16/4	R _w	20	21	17	25	35	37	31	36		R _w / R _w +C _{tr}	29 / 25 dB		
Wall	Area	21.0	Brick and block external wall	R _w	34	40	44	45	51	56	60	63		R _w / R _w +C _{tr}	50 / 47 dB		
Vent	No. off.	2	Greenwood 4000 SBW (Hit and miss)	D _{n,e}	38	38	37	34	30	34	37	46		D _{n,e,w} / D _{n,e,w} +C _{tr}	33 / 32 dB		
None			--														
RESULTS																	
Total calculated indoor noise level				<i>L</i> _{eq,2}	49	35	28	20	25	20	8	-		<i>L</i> _{Aeq,2}	29 dB		

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Room:	27 - Type 450 Bedroom 2
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Daytime (<i>L</i> _{Aeq,16hr})				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	<i>L</i> _{eq,1}	46	44	42	44	51	51	41	20		<i>L</i> _{Aeq,1}	55 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0					
INCIDENT FAÇADE NOISE LEVEL																	
Incident noise level			Façade 1	<i>L</i> _{eq,ff}	46	44	42	44	51	51	41	20		<i>L</i> _{Aeq,ff}	55 dB		
ROOM DATA																	
Room description and reverberation time		Volume	29.0	Bedroom	RT ₆₀	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2		s		
FAÇADE ELEMENTS (Façade 1)																	
Glazing		Area	1.8	Pilkington 4/6-16/4	R _w	20	21	17	25	35	37	31	36	R _w / R _w +C _{tr}	29 / 25 dB		
Wall		Area	17.0	Brick and block external wall	R _w	34	40	44	45	51	56	60	63	R _w / R _w +C _{tr}	50 / 47 dB		
Vent		No. off.	1	Greenwood 4000 SBW (Hit and miss)	D _{n,e}	38	38	37	34	30	34	37	46	D _{n,e,w} / D _{n,e,w} +C _{tr}	33 / 32 dB		
None				--													
RESULTS																	
Total calculated indoor noise level				<i>L</i> _{eq,2}	22	20	20	16	22	18	7	-		<i>L</i> _{Aeq,2}	25 dB		

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	27 - Type 450
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	$L_{eq,1}$	65	53	46	42	47	39	29	12		$L_{Aeq,1}$	49 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0					
INCIDENT FAÇADE NOISE LEVEL																	
Incident noise level			Façade 1	$L_{eq,ff}$	65	53	46	42	47	39	29	12		$L_{Aeq,ff}$	49 dB		
ROOM DATA																	
Room description and reverberation time	Volume	29.0	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2			s		
FAÇADE ELEMENTS (Façade 1)																	
Glazing	Area	1.8	Pilkington 4/6-16/4	Rw	20	21	17	25	35	37	31	36		Rw / Rw+Ctr	29 / 25 dB		
Wall	Area	17.0	Brick and block external wall	Rw	34	40	44	45	51	56	60	63		Rw / Rw+Ctr	50 / 47 dB		
Vent	No. off.	1	Greenwood 4000 SBW (Hit and miss)	Dn,e	38	38	37	34	30	34	37	46		Dn,e,w / Dn,e,w+Ctr	33 / 32 dB		
None			--														
RESULTS																	
Total calculated indoor noise level				$L_{eq,2}$	42	29	24	14	18	6	-	-		$L_{Aeq,2}$	22 dB		

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	27 - Type 450
Room:	Bedroom 2

Night time ($L_{A\text{Max}}$)		Unit	Value	Description	Term	Octave band centre frequency								Broadband term	
						63	125	250	500	1k	2k	4k	8k		
EXTERNAL NOISE LEVEL															
External noise level				Façade 1	$L_{\text{Max},1}$	83	69	60	57	67	62	47	8	$L_{A\text{Max},1}$	69 dB
Façade correction factor					C	0	0	0	0	0	0	0	0		
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level				Façade 1	$L_{\text{Max},ff}$	83	69	60	57	67	62	47	8	$L_{A\text{Max},ff}$	69 dB
ROOM DATA															
Room description and reverberation time		Volume	29.0	Bedroom	RT ₆₀	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2		s
FAÇADE ELEMENTS (Façade 1)															
Glazing	Area	1.8	Pilkington 4/6-16/4	Rw	20	21	17	25	35	37	31	36		Rw / Rw+Ctr	29 / 25 dB
Wall	Area	17.0	Brick and block external wall	Rw	34	40	44	45	51	56	60	63		Rw / Rw+Ctr	50 / 47 dB
Vent	No. off.	1	Greenwood 4000 SBW (Hit and miss)	Dn,e	38	38	37	34	30	34	37	46		Dn,e,w / Dn,e,w+Ctr	33 / 32 dB
None			--												
RESULTS															
Total calculated indoor noise level					$L_{\text{Max},2}$	60	45	38	29	38	29	13	-	$L_{A\text{Max},2}$	41 dB

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	76 - Type 360 (Pos 1)
Room:	Lounge

Daytime (<i>L</i> _{Aeq,16hr})				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	<i>L</i> _{eq,1}	60	45	38	33	35	32	22	20	<i>L</i> _{Aeq,1}	40 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1	<i>L</i> _{eq,ff}	60	45	38	33	35	32	22	20	<i>L</i> _{Aeq,ff}	40 dB	
ROOM DATA															
Room description and reverberation time	Volume	42	Living Room	RT60	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3		s	
FAÇADE ELEMENTS (Façade 1)															
Glazing	Area	2	Pilkington 4/6-16/4	R _w	20	21	17	25	35	37	31	36	R _w / R _w +C _{tr}	29 / 25 dB	
Wall	Area	21	Brick and block external wall	R _w	34	40	44	45	51	56	60	63	R _w / R _w +C _{tr}	50 / 47 dB	
Vent	No. off.	2	Greenwood 4000 SBW (Hit and miss)	D _{n,e}	38	38	37	34	30	34	37	46	D _{n,e,w} / D _{n,e,w} +C _{tr}	33 / 32 dB	
None			--												
RESULTS															
Total calculated indoor noise level				<i>L</i> _{eq,2}	38	21	16	7	9	2	-	-	<i>L</i> _{Aeq,2}	15 dB	

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	76 - Type 360 (Pos 1)
Room:	Bedroom

Daytime (<i>L</i> _{Aeq,16hr})				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	<i>L</i> _{eq,1}	60	45	38	33	35	32	22	20		<i>L</i> _{Aeq,1}	40 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0					
INCIDENT FAÇADE NOISE LEVEL																	
Incident noise level			Façade 1	<i>L</i> _{eq,ff}	60	45	38	33	35	32	22	20		<i>L</i> _{Aeq,ff}	40 dB		
ROOM DATA																	
Room description and reverberation time		Volume	29	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2		s		
FAÇADE ELEMENTS (Façade 1)																	
Glazing	Area	1.75	Pilkington 4/6-16/4	Rw	20	21	17	25	35	37	31	36		Rw / Rw+Ctr	29 / 25 dB		
Wall	Area	17	Brick and block external wall	Rw	34	40	44	45	51	56	60	63		Rw / Rw+Ctr	50 / 47 dB		
Vent	No. off.	1	Greenwood 4000 SBW (Hit and miss)	Dn,e	38	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}	37	21	16	5	6	-	-	-		<i>L</i> _{Aeq,2}	14 dB		

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	76 - Type 360 (Pos 1)
Room:	Bedroom

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	$L_{eq,1}$	54	40	35	30	31	21	9	9	$L_{Aeq,1}$	35 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1	$L_{eq,ff}$	54	40	35	30	31	21	9	9	$L_{Aeq,ff}$	35 dB	
ROOM DATA															
Room description and reverberation time		Volume	29	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2	s	
FAÇADE ELEMENTS (Façade 1)															
Glazing		Area	1.75	Pilkington 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB
Wall		Area	17	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB
Vent		No. off.	1	Greenwood 4000 SBW (Hit and miss)	Dn,e	38	38	37	34	30	34	37	46	Dn,e,w / Dn,e,w+Ctr	33 / 32 dB
None				--											
RESULTS															
Total calculated indoor noise level				$L_{eq,2}$	31	16	13	2	2	-	-	-	$L_{Aeq,2}$	9 dB	

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	76 - Type 360 (Pos 1)
Room:	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	$L_{\text{Max},1}$	81	68	59	54	62	52	35	31		$L_{A\text{Max},1}$	64 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0					
INCIDENT FAÇADE NOISE LEVEL																	
Incident noise level			Façade 1	$L_{\text{Max},ff}$	81	68	59	54	62	52	35	31		$L_{A\text{Max},ff}$	64 dB		
ROOM DATA																	
Room description and reverberation time	Volume	29	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2			s		
FAÇADE ELEMENTS (Façade 1)																	
Glazing	Area	1.75	Pilkington 4/6-16/4	Rw	20	21	17	25	35	37	31	36		Rw / Rw+Ctr	29 / 25 dB		
Wall	Area	17	Brick and block external wall	Rw	34	40	44	45	51	56	60	63		Rw / Rw+Ctr	50 / 47 dB		
Vent	No. off.	1	Greenwood 4000 SBW (Hit and miss)	Dn,e	38	38	37	34	30	34	37	46		Dn,e,w / Dn,e,w+Ctr	33 / 32 dB		
None			--														
RESULTS																	
Total calculated indoor noise level				$L_{\text{Max},2}$	58	44	37	26	33	19	1	-		$L_{A\text{Max},2}$	37 dB		

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	102 - Type 450 (Pos 2)
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	<i>L</i> _{eq,1}	59	44	34	29	36	34	19	17	<i>L</i> _{Aeq,1}	40 dB			
Façade correction factor				C	0	0	0	0	0	0	0	0					
INCIDENT FAÇADE NOISE LEVEL																	
Incident noise level			Façade 1	<i>L</i> _{eq,ff}	59	44	34	29	36	34	19	17	<i>L</i> _{Aeq,ff}	40 dB			
ROOM DATA																	
Room description and reverberation time	Volume	42.0	Living Room	RT60	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3		s			
FAÇADE ELEMENTS (Façade 1)																	
Glazing	Area	1.8	Pilkington 4/6-16/4	R _w	20	21	17	25	35	37	31	36	R _w / R _w +C _{tr}	29 / 25 dB			
Wall	Area	21.0	Brick and block external wall	R _w	34	40	44	45	51	56	60	63	R _w / R _w +C _{tr}	50 / 47 dB			
Vent	No. off.	2	Greenwood 4000 SBW (Hit and miss)	D _{n,e}	38	38	37	34	30	34	37	46	D _{n,e,w} / D _{n,e,w} +C _{tr}	33 / 32 dB			
None			—														
RESULTS																	
Total calculated indoor noise level				<i>L</i> _{eq,2}	36	19	11	2	10	4	-	-	<i>L</i> _{Aeq,2}	14 dB			

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	102 - Type 450 (Pos 2)
Room:	Bedroom 2

Daytime (<i>L</i> _{Aeq,16hr})				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	<i>L</i> _{eq,1}	59	44	34	29	36	34	19	17		<i>L</i> _{Aeq,1}	40 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0					
INCIDENT FAÇADE NOISE LEVEL																	
Incident noise level			Façade 1	<i>L</i> _{eq,ff}	59	44	34	29	36	34	19	17		<i>L</i> _{Aeq,ff}	40 dB		
ROOM DATA																	
Room description and reverberation time	Volume	29.0	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2			s		
FAÇADE ELEMENTS (Façade 1)																	
Glazing	Area	1.8	Pilkington 4/6-16/4	Rw	20	21	17	25	35	37	31	36		Rw / Rw+Ctr	29 / 25 dB		
Wall	Area	17.0	Brick and block external wall	Rw	34	40	44	45	51	56	60	63		Rw / Rw+Ctr	50 / 47 dB		
Vent	No. off.	1	Greenwood 4000 SBW (Hit and miss)	Dn,e	38	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}	36	20	12	1	7	1	-	-		<i>L</i> _{Aeq,2}	13 dB		

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	102 - Type 450 (Pos 2)
Room:	Bedroom 2

Night time ($L_{Aeq,8hr}$)		Unit	Value	Description	Term	Octave band centre frequency								Broadband term	
						63	125	250	500	1k	2k	4k	8k		
EXTERNAL NOISE LEVEL															
External noise level				Façade 1	$L_{eq,1}$	55	39	30	26	32	25	9	8	$L_{Aeq,1}$	35 dB
Façade correction factor					C	0	0	0	0	0	0	0	0		
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level				Façade 1	$L_{eq,ff}$	55	39	30	26	32	25	9	8	$L_{Aeq,ff}$	35 dB
ROOM DATA															
Room description and reverberation time		Volume	29.0	Bedroom	RT ₆₀	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2		s
FAÇADE ELEMENTS (Façade 1)															
Glazing	Area	1.8	Pilkington 4/6-16/4	Rw	20	21	17	25	35	37	31	36		Rw / Rw+Ctr	29 / 25 dB
Wall	Area	17.0	Brick and block external wall	Rw	34	40	44	45	51	56	60	63		Rw / Rw+Ctr	50 / 47 dB
Vent	No. off.	1	Greenwood 4000 SBW (Hit and miss)	Dn,e	38	38	37	34	30	34	37	46		Dn,e,w / Dn,e,w+Ctr	33 / 32 dB
None			--												
RESULTS															
Total calculated indoor noise level					$L_{eq,2}$	32	15	8	-	3	-	-	-	$L_{Aeq,2}$	9 dB

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	102 - Type 450 (Pos 2)
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	$L_{\text{Max},1}$	87	69	59	56	66	61	46	6		$L_{A\text{Max},1}$	69 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0					
INCIDENT FAÇADE NOISE LEVEL																	
Incident noise level			Façade 1	$L_{\text{Max},ff}$	87	69	59	56	66	61	46	6		$L_{A\text{Max},ff}$	69 dB		
ROOM DATA																	
Room description and reverberation time	Volume	29.0	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2			s		
FAÇADE ELEMENTS (Façade 1)																	
Glazing	Area	1.8	Pilkington 4/6-16/4	Rw	20	21	17	25	35	37	31	36		Rw / Rw+Ctr	29 / 25 dB		
Wall	Area	17.0	Brick and block external wall	Rw	34	40	44	45	51	56	60	63		Rw / Rw+Ctr	50 / 47 dB		
Vent	No. off.	1	Greenwood 4000 SBW (Hit and miss)	Dn,e	38	38	37	34	30	34	37	46		Dn,e,w / Dn,e,w+Ctr	33 / 32 dB		
None			--														
RESULTS																	
Total calculated indoor noise level				$L_{\text{Max},2}$	64	45	37	28	37	28	12	-		$L_{A\text{Max},2}$	41 dB		

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	16 - Type 452 (Pos 3)
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	<i>L</i> _{eq,1}	76	64	51	46	56	59	52	35	<i>L</i> _{Aeq,1}	63 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1	<i>L</i> _{eq,ff}	76	64	51	46	56	59	52	35	<i>L</i> _{Aeq,ff}	63 dB	
ROOM DATA															
Room description and reverberation time	Volume	35	Living Room	RT60	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3		s	
FAÇADE ELEMENTS (Façade 1)															
Glazing	Area	2	Pilkington 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB	
Wall	Area	19	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	38	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}	54	41	30	20	31	30	21	-	<i>L</i> _{Aeq,2}	36 dB	

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	16 - Type 452 (Pos 3)
Room:	Bedroom

Daytime (<i>L</i> _{Aeq,16hr})				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	<i>L</i> _{eq,1}	76	64	51	46	56	59	52	35		<i>L</i> _{Aeq,1}	63 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0					
INCIDENT FAÇADE NOISE LEVEL																	
Incident noise level			Façade 1	<i>L</i> _{eq,ff}	76	64	51	46	56	59	52	35		<i>L</i> _{Aeq,ff}	63 dB		
ROOM DATA																	
Room description and reverberation time	Volume	34	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2			s		
FAÇADE ELEMENTS (Façade 1)																	
Glazing	Area	1.9	Pilkington 4/6-16/4	Rw	20	21	17	25	35	37	31	36		Rw / Rw+Ctr	29 / 25 dB		
Wall	Area	20	Brick and block external wall	Rw	34	40	44	45	51	56	60	63		Rw / Rw+Ctr	50 / 47 dB		
Vent	No. off.	1	Greenwood 4000 SBW (Hit and miss)	Dn,e	38	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}	52	39	28	18	27	26	18	-		<i>L</i> _{Aeq,2}	32 dB		

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	16 - Type 452 (Pos 3)
Room:	Bedroom

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	$L_{eq,1}$	68	55	46	42	49	45	37	21		$L_{Aeq,1}$	52 dB
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1	$L_{eq,ff}$	68	55	46	42	49	45	37	21		$L_{Aeq,ff}$	52 dB
ROOM DATA															
Room description and reverberation time	Volume	34	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2			s
FAÇADE ELEMENTS (Façade 1)															
Glazing	Area	1.9	Pilkington 4/6-16/4	Rw	20	21	17	25	35	37	31	36		Rw / Rw+Ctr	29 / 25 dB
Wall	Area	20	Brick and block external wall	Rw	34	40	44	45	51	56	60	63		Rw / Rw+Ctr	50 / 47 dB
Vent	No. off.	1	Greenwood 4000 SBW (Hit and miss)	Dn,e	38	38	37	34	30	34	37	46		Dn,e,w / Dn,e,w+Ctr	33 / 32 dB
None			--												
RESULTS															
Total calculated indoor noise level				$L_{eq,2}$	44	30	23	14	20	12	3	-		$L_{Aeq,2}$	24 dB

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	16 - Type 452 (Pos 3)
Room:	Bedroom

Night time ($L_{A\text{Max}}$)				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	$L_{\text{Max},1}$	92	76	66	61	71	68	56	27	$L_{A\text{Max},1}$	74 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1	$L_{\text{Max},ff}$	92	76	66	61	71	68	56	27	$L_{A\text{Max},ff}$	74 dB	
ROOM DATA															
Room description and reverberation time	Volume	34	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2		s	
FAÇADE ELEMENTS (Façade 1)															
Glazing	Area	1.9	Pilkington 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB	
Wall	Area	20	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB	
Vent	No. off.	1	Greenwood 4000 SBW (Hit and miss)	Dn,e	38	38	37	34	30	34	37	46	Dn,e,w / Dn,e,w+Ctr	33 / 32 dB	
None			--												
RESULTS															
Total calculated indoor noise level				$L_{\text{Max},2}$	68	51	43	33	42	35	22	-	$L_{A\text{Max},2}$	46 dB	

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	57 - Type 356 (Pos 4)
Room:	Lounge

Daytime (<i>L</i> _{Aeq,16hr})				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	<i>L</i> _{eq,1}	70	58	47	43	51	48	38	16		<i>L</i> _{Aeq,1}	54 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0					
INCIDENT FAÇADE NOISE LEVEL																	
Incident noise level			Façade 1	<i>L</i> _{eq,ff}	70	58	47	43	51	48	38	16		<i>L</i> _{Aeq,ff}	54 dB		
ROOM DATA																	
Room description and reverberation time	Volume	33.0	Living Room	RT60	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3			s		
FAÇADE ELEMENTS (Façade 1)																	
Glazing	Area	2.5	Pilkington 4/6-16/4	R _w	20	21	17	25	35	37	31	36		R _w / R _w +C _{tr}	29 / 25 dB		
Wall	Area	17.5	Brick and block external wall	R _w	34	40	44	45	51	56	60	63		R _w / R _w +C _{tr}	50 / 47 dB		
Vent	No. off.	2	Greenwood 4000 SBW (Hit and miss)	D _{n,e}	38	38	37	34	30	34	37	46		D _{n,e,w} / D _{n,e,w} +C _{tr}	33 / 32 dB		
None			--														
RESULTS																	
Total calculated indoor noise level				<i>L</i> _{eq,2}	49	36	27	18	26	19	7	-		<i>L</i> _{Aeq,2}	29 dB		

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	57 - Type 356 (Pos 4)
Room:	Bedroom

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	<i>L</i> _{eq,1}	70	58	47	43	51	48	38	16	<i>L</i> _{Aeq,1}	54 dB			
Façade correction factor				C	0	0	0	0	0	0	0	0					
INCIDENT FAÇADE NOISE LEVEL																	
Incident noise level			Façade 1	<i>L</i> _{eq,ff}	70	58	47	43	51	48	38	16	<i>L</i> _{Aeq,ff}	54 dB			
ROOM DATA																	
Room description and reverberation time	Volume	34.0	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2		s			
FAÇADE ELEMENTS (Façade 1)																	
Glazing	Area	1.4	Pilkington 4/6-16/4	R _w	20	21	17	25	35	37	31	36	R _w / R _w +C _{tr}	29 / 25 dB			
Wall	Area	20.0	Brick and block external wall	R _w	34	40	44	45	51	56	60	63	R _w / R _w +C _{tr}	50 / 47 dB			
Vent	No. off.	1	Greenwood 4000 SBW (Hit and miss)	D _{n,e}	38	38	37	34	30	34	37	46	D _{n,e,w} / D _{n,e,w} +C _{tr}	33 / 32 dB			
None			--														
RESULTS																	
Total calculated indoor noise level				<i>L</i> _{eq,2}	46	32	23	14	22	14	3	-	<i>L</i> _{Aeq,2}	26 dB			

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	57 - Type 356 (Pos 4)
Room:	Bedroom

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	$L_{eq,1}$	63	52	44	40	47	40	31	14	$L_{Aeq,1}$	49 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1	$L_{eq,ff}$	63	52	44	40	47	40	31	14	$L_{Aeq,ff}$	49 dB	
ROOM DATA															
Room description and reverberation time	Volume	34.0	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2		s	
FAÇADE ELEMENTS (Façade 1)															
Glazing	Area	1.4	Pilkington 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB	
Wall	Area	20.0	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB	
Vent	No. off.	1	Greenwood 4000 SBW (Hit and miss)	Dn,e	38	38	37	34	30	34	37	46	Dn,e,w / Dn,e,w+Ctr	33 / 32 dB	
None			--												
RESULTS															
Total calculated indoor noise level				$L_{eq,2}$	39	26	20	11	18	6	-	-	$L_{Aeq,2}$	21 dB	

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



Project:	Northons Lane, Holbeach
Project number:	20061
Date:	07/02/2022

Plot:	57 - Type 356 (Pos 4)
Room:	Bedroom

Night time ($L_{A\text{Max}}$)		Unit	Value	Description	Term	Octave band centre frequency								Broadband term	
						63	125	250	500	1k	2k	4k	8k		
EXTERNAL NOISE LEVEL															
External noise level				Façade 1	$L_{\text{Max},1}$	81	70	62	58	65	59	50	32	$L_{A\text{Max},1}$	67 dB
Façade correction factor					C	0	0	0	0	0	0	0	0		
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level				Façade 1	$L_{\text{Max},ff}$	81	70	62	58	65	59	50	32	$L_{A\text{Max},ff}$	67 dB
ROOM DATA															
Room description and reverberation time		Volume	34.0	Bedroom	RT ₆₀	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2		s
FAÇADE ELEMENTS (Façade 1)															
Glazing	Area	1.4	Pilkington 4/6-16/4	Rw	20	21	17	25	35	37	31	36		Rw / Rw+Ctr	29 / 25 dB
Wall	Area	20.0	Brick and block external wall	Rw	34	40	44	45	51	56	60	63		Rw / Rw+Ctr	50 / 47 dB
Vent	No. off.	1	Greenwood 4000 SBW (Hit and miss)	Dn,e	38	38	37	34	30	34	37	46		Dn,e,w / Dn,e,w+Ctr	33 / 32 dB
None			--												
RESULTS															
Total calculated indoor noise level					$L_{\text{Max},2}$	57	44	38	29	36	25	15	-	$L_{A\text{Max},2}$	39 dB