



# **ENVIRONMENTAL NOISE ASSESSMENT ADDENDUM FOR ANGLIA SQUARE, NORWICH**

**Project Reference:**

ENV01-ANGL-049 – Anglia Square, Norwich

**Site Address:**

Anglia Square  
Norwich  
Norfolk, NR13 1DZ

**Version Number:**

Version 2

**Report Date:**

July 2022

**Customer:**

Weston Homes Plc  
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**Prepared By:**

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## **Environmental Noise Assessment Addendum: Comments on Norwich City Council Environmental Protection Team Response on ENA (NCC Ref: 18/00330/F)**

A hybrid planning application (Ref. 22/00434/F) (the Application) was submitted by Weston Homes (the Applicant) to Norwich City Council (NCC) on 1st April 2022 for the comprehensive redevelopment of Anglia Square and various parcels of mostly open surrounding land, (the Site), as shown within a red line on drawing 'ZZ-00-DR-A-01-0200'. The Application, which is still to be determined, comprises a full set of technical documents to assess the potential impacts of the proposals, including an Environmental Statement which covers a number of topics. In respect of the acoustic assessment for the whole site, this is described and explained in the Environmental Noise Assessment report (March 2022, v3. Please refer to the original documents for further details.

Following submission of the Application, and completion of the statutory consultation exercise, the Applicant has worked with NCC to review the consultation responses received from the local community, statutory consultees and other key stakeholders, so as to identify an appropriate response where considered relevant. As a result of consideration of these comments, as well as on going discussions with NCC, a number of changes to the Application as originally submitted are now proposed, including the reduction in height by 1 storey of Blocks A and D; realignment of basement and ground level car park accesses to Block A; repositioning of houses and apartments forming Block B; amendments to the housing mix; raising of Block C ground level to above 100year (+climate change) flood levels; distance between Block C and 4-10 Beckham Place increased; elevational changes and repositioning of Block L (Stump Cross building); roof ridge and eaves on east side of Block M reduced in height; introduction of 2 storey podium between Blocks E and EF to provide larger car park; proposed crossings on Edward Street (opposite Beckham Place) and Pitt Street (by Tooley Lane removed; and landscape amendments. These changes comprise the Amended Application submitted in July 2022. Overall, the Amended Application continues to seek consent for up to 1,100 dwellings and up to 8,000 Sqm (NIA) non-residential floorspace and associated development. However, since the amendments result in minor changes to the full development description, an updated version of the full Amended Application description is contained in Appendix B.

This Noise Assessment Addendum sets out where necessary a response to the Planning Application consultation responses relating to noise received on the Application as originally submitted, then describes how the design has been developed and adapted, (or can be via planning conditions), in respect of noise mitigation, as a result of these and other comments, and finally considers the implications of the changes to the scheme now proposed. It should therefore be read in conjunction with the Environmental Noise Assessment report (updated March 2022).

The changes in the Amended Application impact assessment arising from the Environmental Noise Assessment related comments are summarised in the following text.

Stansted Environmental Services (SES) had prepared an Environmental Noise Chapter within the Environmental Statement (ES) forming part of the application, which included in Appendices 9.1 to 9.3 three Environmental Noise Assessments (ENA). This has been the subject of statutory consultation.

Accordingly, SES has been instructed to prepare this Note to address the consultation comments received in relation to noise, from the Environmental Protection Team at NCC following submission of the Application and its associated documentation.

The NPPF 2021 Paragraph 185 (part 4) requires new developments to, inter alia, "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 life".

In preparing this Note, SES has reviewed comments received from NCC Landscape and Design officers, and the Noise and Air Quality Consultee (MCAL) including

- Review of the application for the comprehensive redevelopment of Anglia Square, and car parks fronting Pitt Street and Edward Street (Air quality and Noise Reports) (MCAL, 20/05/2022);
- **Anglia Square redevelopment (22/00434/F): Conservation and Design Comments (30/06/2022)**
- **Anglia Square ref: 22/00434/F: Landscape Comments (20/06/2022)**

Comments from the public relating to noise have also been considered.

For ease, consultation responses have been reproduced in bold italic, followed by the relevant response.

1. ***Monitoring concerns arise at spot measurements no.5 as this monitoring point is below the level of the elevated carriageway and road noise is shrouded by the carriage way itself. This monitoring position provided one of the key points for determining the sound reduction value at 36dB and the performance level of the glazing may need revision. Further monitoring has been promised by Stansted Environmental Services Ltd. This issue can be covered by condition if necessary.***

SES response:

Included in the figure below is an example calculation showing expected internal ambient noise levels. The octave data which forms the basis of this calculation has been taken from the attended daytime survey undertaken by Stansted Environmental Services in June 2022 on St Crispins Road. Full data can be supplied upon request.

Line source noise measurements were taken at the roadside. A conservative distance of 9 metres has been assumed from the roadside to the new façade. This will provide a line source attenuation of -10dB.

All measurements were undertaken on axis with the proposed new façade and therefore clear line of sight between source and receiver.

Room dimensions are based upon a typical bedroom of 30m<sup>3</sup> along with an average reverberation time for such a space.

BS8233:2014 Calculation of Sound transmission into a building								
Project:		Anglia Square			Date:		08-Jul-22	
Client:		Westons			Consultant:		NL	
Building elements & Areas				Total M <sup>2</sup>				
S <sub>ew</sub> - External Wall Area				14.00				
S <sub>wi</sub> - Area of Windows within Room				4.98				
S <sub>ir</sub> - Area of Ceiling within Room				20.11				
Total Façade Area:				21.00				
Total Area of transmitting elements:				41.11				
				Constants				
				A0		10		
				A (0.16w/T) or calc		9.6		
				No. Vents		1		
				W	L	H	V	Rt (s)
Room Data				4	3	2.5	30	0.5
								for simple only
								Constructions & Performance Data:
Construction		63	125	250	500	1K	2K	4K
Window: As 8233		15	25	22	33	40	43	44
Vent: As 8233		31.6	39	40	36	32	39	31.7
Wall: As 8233		41	47	42	45	53	62	71
Ceiling: As 8233		41	47	42	45	53	62	71
								<<<<<Alpha From RT Calc
		11	11	14	16	16	15	14
or simple from overall RT ^^^								Source Noise & Element Contributions
		63	125	250	500	1K	2K	4K
Source Lp		66	61	58	58	62	57	47
Window		-24.2	-34.2	-31.2	-42.2	-49.2	-52.2	-53.2
Vent		-37.7	-45.1	-46.1	-42.1	-38.1	-45.1	-37.8
Wall		-45.7	-51.7	-46.7	-49.7	-57.7	-66.7	-75.7
Ceiling		-44.1	-50.1	-45.1	-48.1	-56.1	-65.1	-74.1
Cumulative SRI		-23.9	-33.7	-30.8	-38.3	-37.7	-44.3	-37.7
Plus 10log S/A		5.7	5.7	4.7	4.1	4.1	4.4	4.6
Façade Effect		3	3	3	3	3	3	3
RESULT		50.7	35.7	34.7	27.1	31.5	20.3	16.8
								A weighted Internal Level
								34.3

As can be seen from the above calculation sheet, using a standard façade build up will achieve daytime requirements for indoor ambient noise levels with a glazing build up achieving 36dB R<sub>w</sub> (Ctr-6)

- The number and position of balconies that will be subject to road traffic noise in excess of 55dB has not yet been determined, (the Stansted Environmental Services Ltd assessment has not calculated noise levels at the facades or balconies but has taken monitoring levels from individual measurement positions). Further data manipulation will be required and it may also be appropriate to regard St Crispin's Way (Road?) as a line source.***

SES response:

Referring to the latest master plan for the Site, a degree of line source attenuation will be achieved as it noted the proposed units are setback from the local road network. For example, every doubling of distance from the road line source will facilitate a -3dB attenuation at the receiver location(s). For example, locating a façade 6 metres back from a road source will produce 8dB of line source attenuation. Furthermore, sympathetic design which uses the new buildings to act as barriers will also provide benefit for outdoor amenity space.

Please refer to the various CadnaA screen shots at the end of this Addendum note. Whilst some facades are not expected to achieve the targeted 55dB<sub>L</sub>Aeq for external amenity space for the

daytime, avoiding such facades for balcony placement should be carefully considered. For example, St Crispins Rd shows a calculated dB level 65dB at the façade. Areas within the development will benefit from shielding produced by the building themselves. This is shown the Pitt Street elevation with areas of 45dB (yellow) and less.

3. ***Once the number and location of balconies and amenity spaces affected are identified, a scheme of abatement measures (where practical) needs to be agreed with NCC planning authority. Where abatement is not achievable, revision of the façade design may be required.***

SES response:

Noted and agreed. As previously highlighted, sympathetic design to the provision of outdoor amenity space should be considered at early design stage. Guidance contained with BS8233: 2014 states whilst an upper limit 55dBLAeq (daytime) is acceptable and reasonable, it also concedes this is not always achievable.

4. ***Addressing outdoor space noise levels will be required in some areas, as Stansted Environmental Services Ltd acknowledge “Where outdoor amenity spaces backs on to noisier roads such as New Botolph Street, mitigation measures should be considered to attenuate daytime environmental noise levels.” Again, this issue can be covered by condition.***

SES response:

Noted and agreed. The private / communal amenity spaces that adjoin roads are Block B gardens and Block C, to be situated along Edward Street could have the opportunity for an acoustic fence to mitigate environmental noise levels within the proposed outdoor amenity space if planning conditions allow it.

From further recent correspondence received at the time of writing, the following additional comments have been received:

i. **General public comment;**

***Disturbance from noise of demolition and construction works associated with the development.***

SES response:

All construction works shall be undertaken in line with appropriate British Standard guidance, namely BS5228 'Code of practice for noise and vibration control on construction and open sites'

ii. **NCC Design Officer and Landscape officer;**

***Concern proximity of block J to St Crispins flyover will result in unacceptable noise levels for dwellings facing the flyover***

SES response:

As previously highlighted when addressing point 1 within this document, additional daytime attended environment noise measurements were undertaken at the roadside. A conservative estimate of 9 metres has been included in the calculation at the proposed façade.

The above information addresses each of the points raised by the NCC Environmental Protection, and other parties, including confirming where planning conditions are anticipated by the Applicant in order to properly mitigate and control noise impact. Accordingly, it is contended that the Environmental Statement Chapter 9 and Environmental Noise Assessment, together with this Note, jointly demonstrate that the Hybrid Amended Application scheme is acceptable in terms of its construction and operational noise impact, and that a satisfactory noise environment will be produced both within the proposed dwellings, and in their communal amenity spaces and private balconies, when the latter are likely to be used.

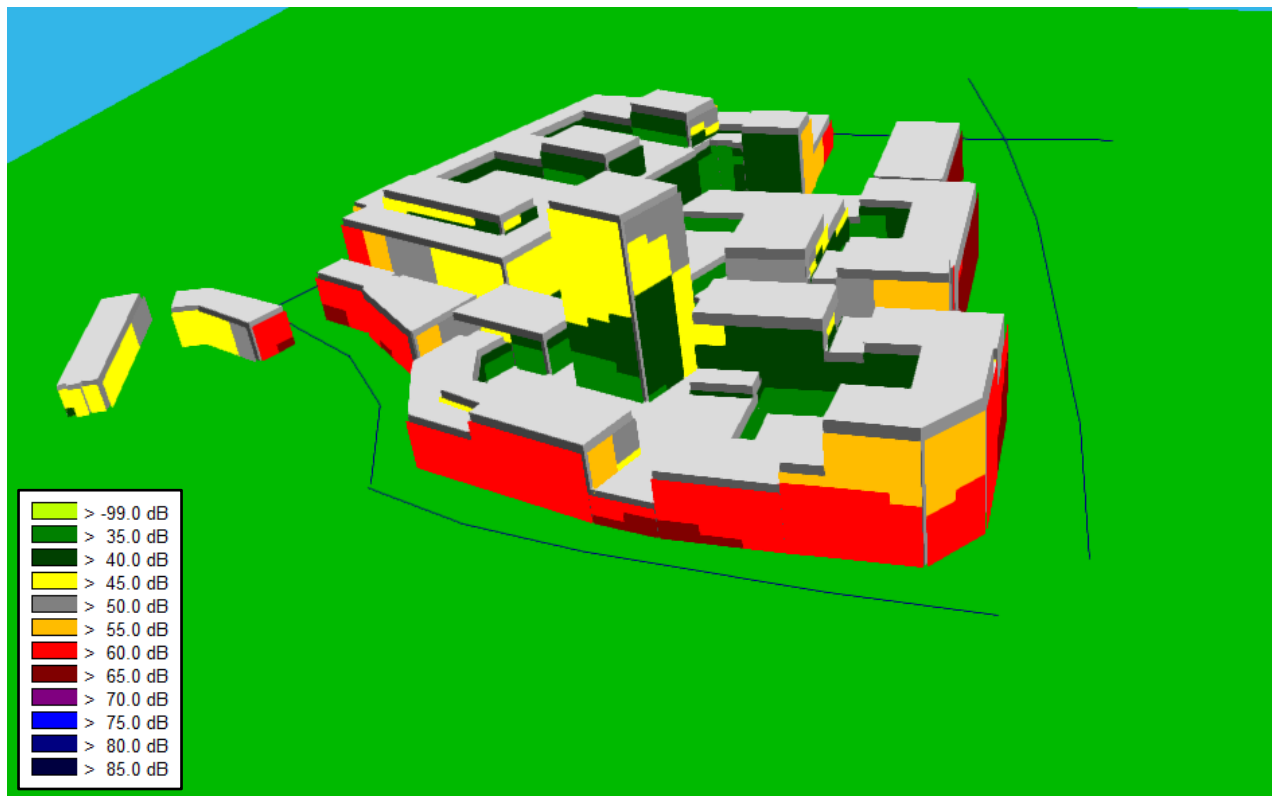
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Nick Long

**MSc, BA (Hons), IEng MIOA.**

**Acoustic Consultant**

## Appendix A (Cadna-A screen shots)

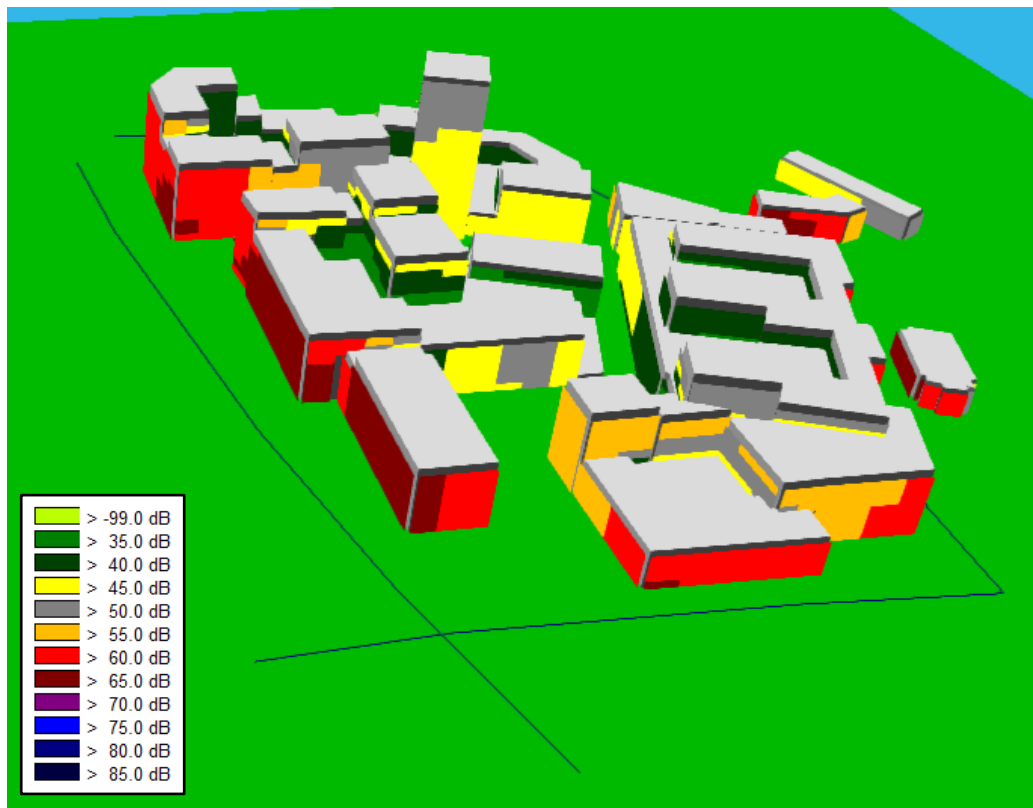


Pitt Street elevation

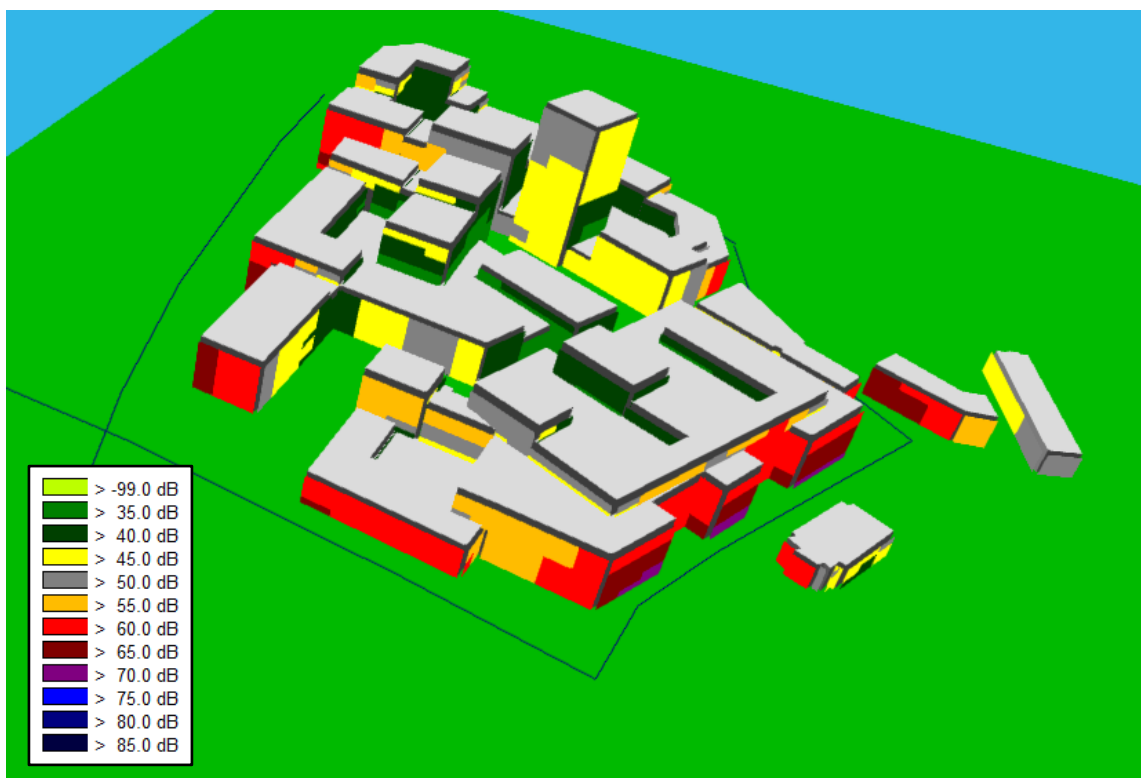


St Crispins Road elevation





Magdalen Street elevation



Edward Street elevation

## Appendix B

### **Anglia Square: Hybrid Application Development Description**

“Hybrid (part full/part outline) application on site of 4.65ha for demolition and clearance of all buildings and structures and the phased, comprehensive redevelopment of the site with 14 buildings ranging in height from 1 to 8 storeys, for a maximum of 1,100 residential dwellings, (houses, duplexes and flats) (Use Class C3); a maximum of 8,000 sqm flexible retail, commercial and other non-residential floorspace (retail, business, services, food and drink premises, offices, workshops, non-residential institutions, community hub, local community uses, and other floorspace (Use Classes E/F1/F2/Sui Generis (public conveniences, drinking establishments with expanded food provision, bookmakers and/or nail bars (up to 550sqm), and dry cleaner (up to 150sqm))); service yard, cycle and refuse stores, plant rooms, car parking and other ancillary space; with associated new and amended means of access on Edward Street and Pitt Street, closure of existing means of access on Edward Street, New Botolph Street, Pitt Street and St Crispins Road flyover, formation of cycle path between Edward Street and St Crispins Road, formation of wider footways, laybys and other associated highway works on all boundaries, formation of car club parking area off New Botolph Street, up to 450 car parking spaces (at least 95% spaces for class C3 use, and up to 5% for class E/F1/F2/Sui Generis uses), hard and soft landscaping of public open spaces comprising streets and squares/courtyards for pedestrians and cyclists, other landscape works within existing streets surrounding the site, service infrastructure and other associated work; (All floor areas given as maximum Net Internal Area);

Comprising;

Full planning permission on 2.25ha of the site for demolition and clearance of all buildings and structures, erection of 8 buildings ranging in height from 1 to 7 storeys for 353 residential dwellings (Use Class C3) (142 dwellings in Block A, 25 dwellings in Block B, 21 dwellings in Block C, 28 dwellings in Block D, 8 dwellings in Block J3, 81 dwellings in Block K/L, and 48 dwellings in Block M) with associated cycle and refuse stores), and, for 5,411sqm flexible retail, commercial and other non-residential floorspace (retail, business, services, food and drink premises, offices, workshops, non-residential institutions, community hub, local community uses, and other floorspace (Use Classes E/F1/F2/Sui Generis (public conveniences, drinking establishments with expanded food provision, bookmakers and/or nail bars (up to 550sqm), and dry cleaner (up to 150sqm))), service yard, cycle and refuse stores, plant rooms, car parking and other ancillary space, with associated new and amended means of access on Edward Street, closure of existing means of access on Edward Street and New Botolph Street, formation of cycle path from Edward Street to St Crispins Road, formation of wider footways, laybys and other associated highway works on Edward Street, New Botolph Street, and Magdalen Street, formation of car club parking area off New Botolph Street, 134 car parking spaces (at least 95% spaces for class C3 use, and up to 5% for class E/F1/F2/Sui Generis uses) within Blocks A and B, hard and soft landscape works to public open spaces comprising streets and squares for pedestrians and cyclists, other landscape works, service infrastructure and other associated works; (All floor areas given as maximum Net Internal Areas);

and

Outline planning permission on 2.4ha of the site, with landscaping and appearance as reserved matters, for demolition and clearance of all buildings and structures, erection of 6 buildings (Blocks E – H and J) ranging in height from 2 to 8 stories for up to 747 residential dwellings, (houses, duplexes, and flats) (Use Class C3), a maximum of 2,589 sqm flexible retail, commercial and other non-residential floorspace (retail, business, services, food and drink premises, offices, non-residential institutions, local community uses and other floorspace (Use Classes E/F1/F2/Sui Generis (drinking

establishments with expanded food provision, bookmakers and/or nail bars (up to 550sqm), and dry cleaner (up to 150sqm)); cycle and refuse stores, plant rooms, car parking and other ancillary space; with associated new and altered means of access on Pitt Street and St Crispins Road, closure of means of access on Pitt Street and St Crispins Road flyover, formation of wider footways, laybys and other associated highway works on Pitt Street and St Crispins Road, a maximum of 316 car parking spaces (at least 95% spaces for class C3 use, and up to 5% for class E/F1/F2/Sui Generis uses), service infrastructure and other associated works (landscaping and appearance are reserved matters); (All floor areas given as maximum Net Internal Areas)."