
Acoustic Design Note 0132022_AC02

To: Edge Lane Design Team

From: Complete Sustainability Solutions Ltd

Date: 20/09/2022

Subject: Discharge of Condition 17, Part B – Validation Monitoring Summary

Overview

Complete Sustainability Solutions has been appointed to undertake a validation survey to confirm that noise level limits imposed by the Local Planning Authority (LPA) at a consented residential development for 168 dwellings and 48 apartments at Edge Lane, Manchester have been achieved.

The planning permission for the development (reference: 126674/FO/2020) includes several noise related Planning Conditions. This note aims to provide information pursuant to part (b) of Condition 17, such that the Condition may be discharged. Information pursuant to the discharge of part (a) of Condition 17 has been submitted previously (Acoustic Design Note 0132022_AC02).

Condition 17 is repeated below for ease of reference:

“(a) Notwithstanding the noise assessment stamped stamped [sic] as received by the City Council, as Local Planning Authority, on the 5 June 2020, a scheme for acoustically insulating the proposed residential accommodation against noise from the local traffic network shall be submitted for approval in writing by the City Council, as Local Planning Authority. The approved noise insulation scheme shall be completed before the first occupation of the development.

Noise survey data must include measurements taken during a rush-hour period and night-time to determine the appropriate sound insulation measures necessary. The following noise criteria will be required to be achieved:

Bedrooms (night time - 23.00 - 07.00) 30 dB Aeq (individual noise events shall not exceed 45 dB Amax,F by more than 15 times)

Living Rooms (daytime - 07.00 - 23.00) 35 dB LAeq

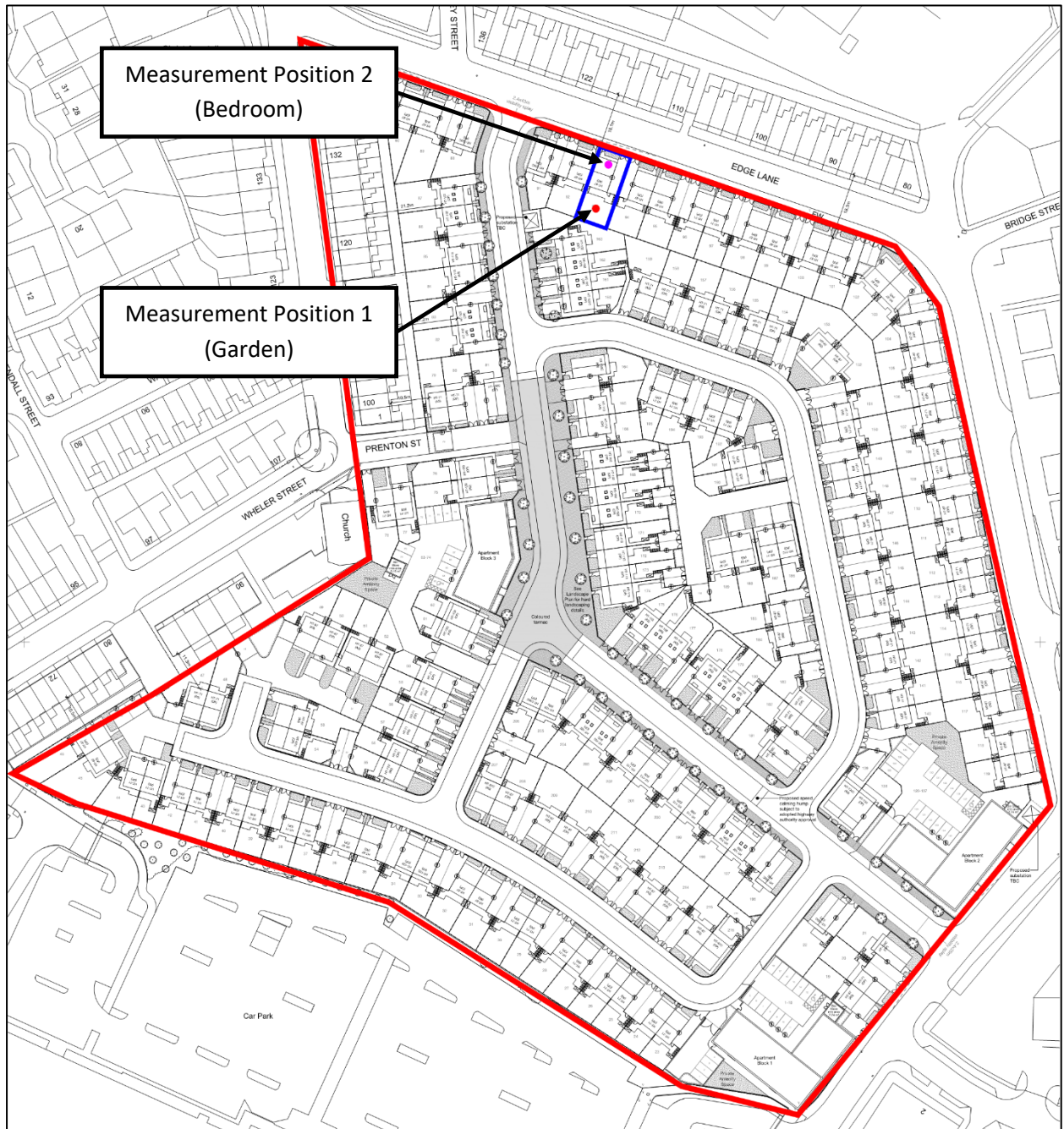
Gardens and terraces (daytime) 55 dB LAeq (where practically possible)”

(b) Prior to the first occupation of of [sic] the development, a verification report for the development will be required to validate that the work undertaken conforms to the recommendations and requirements approved as part of part (a) of this planning condition. The verification report shall include post completion testing to confirm the noise criteria has been met. In instances of non conformity, these shall be detailed along with mitigation measures required to ensure compliance with the noise criteria. Any mitigation measures shall be implemented in accordance with a timescale to be agreed with the City Council, as Local Planning Authority, and thereafter retained and maintained in situ.”

Validation Survey Summary

To demonstrate compliance with the criteria outlined in part (a) of Condition 17, a noise survey has been undertaken to measure noise levels within a first floor bedroom, and in the rear garden of a completed dwelling adjacent to the Edge Lane. The measurement positions adopted during the survey are identified in Figure 1.

Figure 1: Noise Survey Measurement Positions



Measurement Position 1

Monitoring at Measurement Position 1 (MP1) was undertaken over a 24-hour period commencing at 15:45 on Thursday 15th September 2022. Measurement equipment was established in the centre of the rear garden of Plot 93, with the microphone located in free-field conditions at a height of 1.5 m above local ground level. The garden perimeter included circa. 1.5 m high feather-edged board fencing.

Noise levels measured at MP1 are considered representative of those within the worst affected gardens across the site (i.e. closest to Edge Lane). It should be noted that all gardens associated with dwellings located around the perimeter of the site adjacent to Edge Lane are located on the screened side of the dwellings.

Measurement Position 2

Monitoring at Measurement Position 2 (MP2) was undertaken over a 24-hour period commencing at 15:45 on Thursday 15th September 2022. Measurement equipment was established in the centre of the first floor bedroom of Plot 93 overlooking Edge Lane at a height of 1.5 m above local ground level. The bedroom windows were closed during the survey, with the minimum background ventilation rates being achieved using mechanical extraction and a specifically designed air permeability rate in excess of 5m³/(h.m²), as per guidance from Approved Document F: Ventilation (ADF). The mechanical extract ventilation system was understood to be operational during the survey.

Comments / Observations

The noise climate at MP1 and MP2 was dominated by road traffic on Edge Lane and the wider road network between 16:00 on Thursday 15th September and 09:00 on Friday 16th September 2022. However, the noise climate between 09:00 and 15:45 on Friday 16th September was dominated by construction activities on the wider site (earth works, construction traffic, drilling, hammering etc). For the purposes of validating noise levels due to typical environmental sources incident on the finished development, data captured between 09:00 and 15:45 on Friday 16th September has been excluded.

Measurement Equipment

Noise monitoring was undertaken using the Class 1 specification noise measurement equipment detailed in Table 1. Equipment was calibrated using a portable calibrator immediately before and after the measurements with no significant drift in calibration observed. The sound level meters, pre-amplifiers and microphones were calibrated to traceable standards at an accredited laboratory within the 24 months prior to the measurements. The portable calibrators were calibrated within the 12 months preceding the date of the survey.

Table 1 – Measurement Equipment Details

Position	Equipment	Make & Model	Serial Number	Calibration due Date
1	Sound Level Meter	01 dB Fusion	11327	18/06/2023
	Microphone	Grass 40CE	259479	
	Pre-amp	01 dB PRE 22	1605201	

Position	Equipment	Make & Model	Serial Number	Calibration due Date
2	Sound Level Meter	Larson Davis NXT	0001957	16/08/2023
	Microphone	PCB37B02	LW133276	
	Pre-amp	PCB PRMLxT1	12248	
1 & 2	Calibrator	01dB-Stell Cal 21	34675335	14/02/2023

Meteorological Conditions

The weather throughout the survey remained conducive to environmental noise measurement, it being dry with negligible winds ($< 5\text{ms}^{-1}$).

Survey Results

Table 2 – Summary of Measured Sound Pressure Levels at MP1 (Garden of Plot 93)

Description	Start Time	Period (T)	Measured Sound Pressure Level (dB)		
			$L_{Aeq,T}$	$L_{A90,T}^2$	L_{AFmax}
Daytime	15:45 15/09/2022	9-hrs 15-mins ¹	53	41	-
Night-Time	23:00 15/09/2022	8-hours	42	33	63 ³

¹ includes periods between 15:45 and 23:00 on 15/09/22 and between 07:00 – 09:00 on 16/09/22
² Arithmetic average $L_{A90,15mins}$ sound pressure levels during survey period
³ 10th highest discrete event (discrete events separated by at least 5-mins)

Table 3 – Summary of Measured Sound Pressure Levels at MP2 (Bedroom of Plot 93 overlooking Edge Lane)

Description	Start Time	Period (T)	Measured Sound Pressure Level (dB)		
			$L_{Aeq,T}$	$L_{A90,T}^2$	L_{AFmax}
Daytime	15:45 15/09/2022	9-hrs 15-mins ¹	34	20	-
Night-Time	23:00 15/09/2022	8-hours	26	18	45 ³

¹ includes periods between 15:45 and 23:00 on 15/09/22 and between 07:00 – 09:00 on 16/09/22
² Arithmetic average $L_{A90,15mins}$ sound pressure levels during survey period
³ 10th highest discrete event (discrete events separated by at least 5-mins)

Discussion

The noise level measured in the centre of the garden of Plot was 53 dB $L_{Aeq,T}$ which is below the criteria from Condition 17 for noise levels in external amenity spaces during daytime hours (i.e. ≤ 55 dB $L_{Aeq,T}$).

The noise levels measured in the bedroom of Plot 93 during daytime and night-time periods were 34 dB $L_{Aeq,T}$ and 26 dB $L_{Aeq,T}$, respectively. Furthermore, the L_{AFmax} noise level from the 10th highest discrete event was 45 dB at night. The measured noise levels show compliance with the internal noise level limits outlined in Condition 17.

The measurement positions adopted during the validation survey are considered representative of the typical noise levels in the worst affected gardens and internal spaces across the scheme (i.e. dwellings located adjacent to Edge Lane). Given that compliance with the noise level limits outlined in Condition 17 has been demonstrated at MP1 and MP2, it is considered that Condition 17 may be discharged without delay.