Date: 18th August 2026

THE WELLS CENTRE, CLAYTON, MANCHESTER
AIR SOURCE HEAT PUMP NOISE VALIDATION

1. INTRODUCTION

1.1. BACKGROUND & OBJECTIVES

E3P has undertaken a post-completion noise test of the installed Air Source Heat Pumps (ASHPs) at Clayton Sure Start in Manchester.

The purpose of the testing was to verify the noise levels associated with the completed ASHP installation and to compare the measured results and site observations against the predictions presented within the Noise Impact Assessment referenced "R2330-REP01C-JW" provided by Red Acoustics on the 30th April 2025.

The Noise Impact Assessment considered noise from the proposed ASHP installation using the manufacturer's supplied noise data.

The Noise Impact Assessment predicted sound levels in the range of 45–50 dB at a distance of approximately 3 m from the proposed enclosure.

E3P therefore attended the site once the ASHPs were operational to undertake source measurements and subjective observations of the completed installation. The results have been reviewed against the predicted noise levels presented within the Noise Impact Assessment to determine whether the installed plant is operating in general accordance with the assumptions and conclusions of that assessment.

This Technical Note has been prepared by Ollie Harrison, Acoustic Consultant at E3P, and reviewed and authorised by Lee Faulkner, Associate Director at E3P and a full corporate member of the Institute of Acoustics.

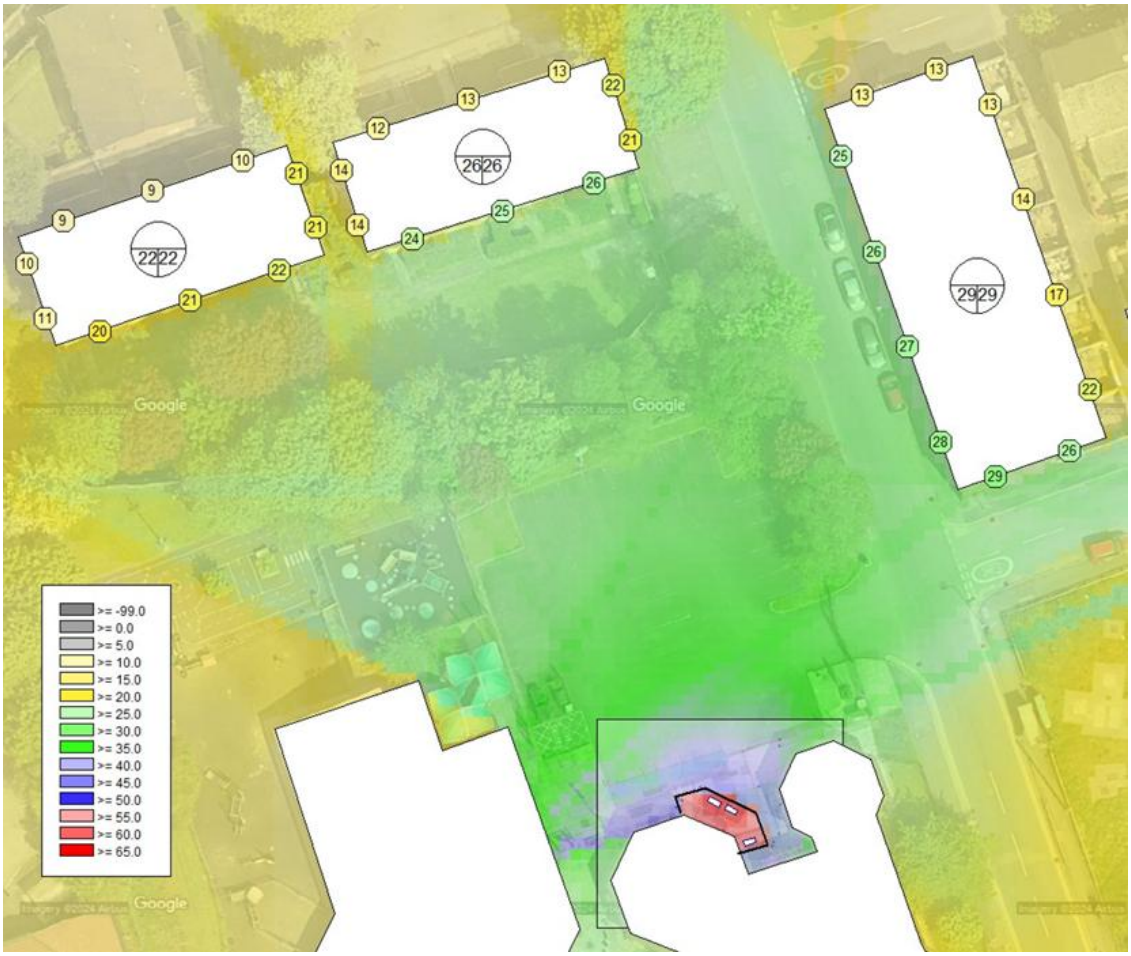
2. APPROVED DETAILS AND NIA OUTCOME

The previous Noise Impact Assessment evaluated noise from the proposed ASHP installation using manufacturer-supplied noise data. The assessment considered mitigation in the form of 3 m high acoustic barriers around the ASHP units.

During the post-completion visit, E3P confirmed that the ASHPs had been installed within an open-top enclosure with an access door on the northern elevation.

The Noise Impact Assessment concluded that, with the proposed mitigation measures in place, adverse impact at nearby non-associated receptors was unlikely.

The noise model presented within Figure 5.1 on page 15 of the Noise Impact Assessment predicted sound levels of approximately 29 dB at the closest receptor to the development, with the inclusion of a proposed barrier arrangement with height of 3 m, as shown below.



The ASHPs are confirmed to be active between 04:30 to 17:00 Monday to Friday.

The purpose of the post-completion testing was therefore to determine whether the completed ASHP installation displayed any evidence of operating materially above the levels and impacts anticipated within the Noise Impact Assessment.

3. NOISE TEST RESULTS

E3P visited site during a typical weekday period when the site is open. The operator of the site ensured that heating and cooling was activated in multiple rooms in order to engage the ASHP within the barrier arrangement.

The survey was conducted between the following periods:

- 07:11-07:24 Monday 10th August 2026.

The following noise measurement position was chosen for the Noise Survey:

- Noise Measurement Position 1 (NMP1): Located approximately 3 m from the façade/doors of the enclosure on the northern elevation. The microphone was located at a height of 1.4 m above ground level and in free-field conditions. The sound climate was dominated by ASHP operations.

A summary of the measured sound pressure levels is presented in Table 3.1. The measured $L_{Aeq,T}$ values include contributions from the ASHP installation and the prevailing residual sound environment.

Table 3.1 Attended ASHP Noise Measurement Results

MEASUREMENT PERIOD	DOOR TO ENCLOSURE	MEASURED SOUND PRESSURE LEVEL, $L_{Aeq,T}$ (dB)	COMMENTARY
07:11 – 07:24 10/08/2026	Closed	49.2	Surrounding traffic routes were slightly audible but ASHP operation was dominant.

As the NIA did not provide a single specific predicted noise level for the development at 3 m, but instead presented a range of 45–50 dB, direct confirmation against a single predicted value is not possible. However, the measured level of 49.2 dB $L_{Aeq,T}$ falls within the predicted range. Furthermore, direct measurement of ASHP noise at the nearest receptors was not possible due to contributions from extraneous sound sources. Indeed, ASHP noise was inaudible at the receptors. As such, the measured level presented above has been used to predict noise levels at the nearest receptors.

Table 3.2 Noise Measurement Equipment and Calibration Dates

MEASUREMENT POSITION	EQUIPMENT DESCRIPTION	MANUFACTURER AND TYPE NUMBER	SERIAL NUMBER	CALIBRATION DUE DATE
NMP1	Sound Level Meter	01dB Fusion	14226	17/12/2027
	Pre Amp	01dB Pre22	2135072	
	Microphone	GRAS 40CD	470570	
	Calibrator	Cirrus CR 515	99204	13/08/2026

The sound level meter was field calibrated before and after measurements with no significant drift observed.

4. ASSESSMENT

For the purposes of this Technical Note, E3P has undertaken a simplified propagation calculation to determine the likely sound level associated with the completed ASHP installation at the nearest noise-sensitive receptor.

During the attended measurement, a sound pressure level of 49.2 dB $L_{Aeq,T}$ was measured at approximately 3 m from the northern elevation of the ASHP enclosure. This is within the range of 45–50 dB predicted by the Noise Impact Assessment at approximately 3 m from the enclosure. ASHP operation was the dominant sound source during the measurement, although a minor contribution from the prevailing residual sound environment was also noted. Consequently, use of the measured level without correction for residual sound provides a conservative basis for the following calculation.

The nearest noise-sensitive receptor is located approximately 36 m from the ASHP enclosure. Applying a distance correction between 3 m and 36 m results in an attenuation of approximately 21.6 dB.

On this basis, the measured installation would result in a predicted sound level of approximately 27.6 dB $L_{Aeq,T}$ at the nearest noise-sensitive receptor.

This compares closely with the 29 dB specific sound level predicted at the receptor within the referenced Noise Impact Assessment and therefore indicates that the completed installation is operating generally in accordance with the assumptions of that assessment.

For completeness, applying a conservative +5 dB character correction would result in a rating level of approximately 33 dB $L_{Ar,Tr}$. This is approximately 11 dB below the measured daytime background sound level of 44 dB $L_{A90,T}$ and approximately 9 dB below the measured night-time background sound level of 42 dB $L_{A90,T}$.

E3P therefore considers that the noise-related requirements of the provided NIA have been satisfactorily addressed.

I trust the information provided in this letter report is satisfactory however if there is anything further, please do not hesitate to contact me.

Yours sincerely,
For and on behalf of E3P Ltd

Ollie Harrison
Acoustic Consultant