

Proposed Irrigation Compound Hough End Playing Fields, Manchester

Technical Note – Noise Impact Assessment for Planning Purposes

Prepared by:	Paul Knowles (MIOA)
Checked by:	Warren King (MIOA)

1.0 INTRODUCTION

- 1.1 Acoustic and Engineering Consultants Limited (AEC) has been appointed by Just H Architects to assess the potential impact of noise emitted by the proposed irrigation pump to be installed within a steel storage container adjacent to the existing electric sub-station at Hough End Playing Fields, Manchester.
- 1.2 The proposed location of the irrigation compound is to the north west of the Hough End Playing Fields, as shown in Figure 3.1, below. To the north west of the compound is a social club and sports pitches.
- 1.3 The nearest noise sensitive receptors are located to the north, on the opposite side of, Mauldeth Road West and to the south, beyond a railway line, on Wintermans Road. These are also shown in Figure 3.1.
- 1.4 AEC has been informed that the irrigation pump will operate during the daytime only, anticipated to be between 0900 and 1700h.
- 1.5 Acoustic terminology is discussed in brief in Appendix A.

2.0 ACOUSTIC CRITERIA

- 2.1 The assessment of noise emitted by mechanical services plant in Manchester city centre is outlined in Manchester City Council's (MCC) document '*Planning and Noise – Technical Guidance*' (PNTG) issued in October 2022. PNTG states that noise from industrial sources should be assessed using British Standard 4142: 2014+A1:2019 '*Methods for rating and assessing industrial and commercial sound*' (BS4142).
- 2.2 In addition, in 'Section 3.7.1.5 Industrial / commercial developments' PNTG states "*The development should be designed so as to achieve a rating level of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location.*"
- 2.3 A 'rating' noise level ($dB_{LA,T,r}$) is obtained by applying a character correction to the 'specific' noise level ($dB_{LAeq,T,r}$) of a noise source (e.g. plant noise). The correction is applied if the noise has a defined acoustic character such as being tonal, impulsive, distinctive or intermittent in nature.

3.0 EXISTING NOISE CLIMATE

- 3.1 An attended daytime noise level survey was undertaken by AEC between approximately 1200 and 1500h on Wednesday 3rd September 2025. Measurements were undertaken at two locations, Location A was adjacent to Mauldeth Road West and Location B was adjacent to the properties on Wintermans Road, as identified on Figure 3.1 below.
- 3.2 All measurements were undertaken under free-field conditions and in general accordance with BS7445-1: 2003 '*Description and measurement of environmental noise. Guide to quantities and procedures*'. A full measurement procedure for the survey is presented in Table B.1 of Appendix B and the measured data is presented in Table B.2.



Imagery @2025 Google, Imagery @2025 Infoterra Ltd & Bluesky, Maxar Technologies, The Geoinformation Group, Map Data @2025

- 3.3 In summary, the background noise level at Mauldeth Road West (Location A) and Wintermans Road (Location B) was consistently around 46dBL_{A90,15m} and 43dBL_{A90,15m} respectively, due to existing plant noise and distant road traffic.

4.0 ASSESSMENT OF PRESSURE IRRIGATION COMPOUND

- 4.1 In order to comply with MCC's noise requirement, noise from the irrigation compound would need to be controlled to 5dB below the existing background noise levels. Therefore, noise would need to be controlled to 41 and 38dB_{L_Ar,Tr} external to Mauldeth Road West and Wintermans Road, respectively.
- 4.2 Based on the information provided for the DAB EsyBox Max, it is understood that the pump emits a sound pressure level of 63dB (assumed to be 'A' weighted at 1m). However, as the steel container is a reverberant sound field it is expected the sound level in the container would be around 66dB_{L_Aeq,T}.
- 4.3 It is understood that the steel forming the container would be around 1.6mm thick. Calculations indicate that 1.6mm thick steel has a sound insulation performance of around 30dB_{D_w}.
- 4.4 Calculations based on the sound level in the container, the sound insulation performance of the steel container and distance attenuation, indicate that the resultant noise level at 1m would be around 20dB.
- 4.5 The properties on Mauldeth Road West and Wintermans Road are approximately 200 and 280m away from the proposed compound, respectively. Therefore, based on the noise level at 1m of 20dB, noise levels due to the irrigation compound would be below 0dB external to all properties.
- 4.6 In addition, even if the door was open, noise from the compound would still not exceed 10dB external to the properties on Mauldeth Road West and Wintermans Road
- 4.7 The above assessment demonstrates that noise from the compound would be significantly below the noise level limits presented above, and therefore, complies with MCC's requirements.

APPENDIX A – Acoustic Terminology in Brief

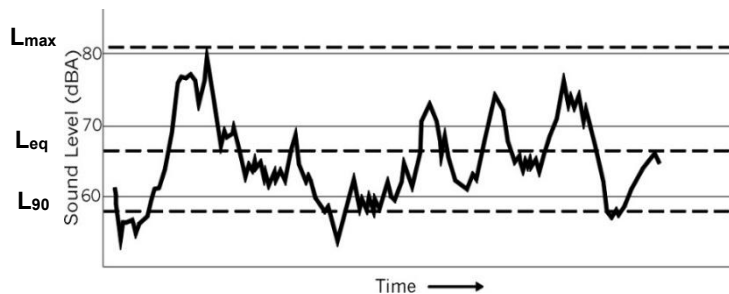
General

Sound is produced by mechanical vibration of a surface, which sets up rapid pressure fluctuations in the surrounding air. The rate at which the pressure fluctuations occur determines the pitch or *frequency* of the sound. The frequency is expressed in Hertz (*Hz*), that is, cycles per second. The human ear is sensitive to sounds from about 20 Hertz to 20,000 Hertz. Although sound can be of one discrete frequency - a 'pure tone' - most noise is made up of many different frequencies.

The human ear is more sensitive to some frequencies than others, and modern instruments can measure sound in the same subjective way. This is the basis of the A-weighted sound pressure level *dBA*, normally used to assess the effect of noise on people. The dBA weighting emphasizes or reduces the importance of certain frequencies within the audible range

Sound / Noise Units

The figure below shows an example of sound level varying with time. Because of this variation over time the same period of noise can be described by several different levels. The most common of these are described below.



Commonly Used Descriptors for Sound / Noise

$L_{Amax,F/S}$	The maximum (A-weighted) sound level measured during a given time. 'Fast' or 'Slow' meter response should be cited.
Free-field Level	This refers to the sound level measured outside, away from reflecting surfaces.
Façade Level	This refers to the sound level measured outside, at 1m from a hard reflecting surface, typically 3dB greater than the free-field level.
Ambient Sound Level, $L_{Aeq,T}$	Equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at a given time, usually from many sources near and far, at the assessment location over a given time interval, T.
Background Sound Level, L_{A90}	A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting, F, and quoted to the nearest whole number of decibels.
Rating Level, $L_{Ar,Tr}$	Specific sound level plus any adjustment for the characteristic features of the sound
Residual Sound, $L_{Aeq,T}$	Ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound.

APPENDIX B – Noise Survey Details

Table B.1 – Environmental Measurement Procedure

Date & Time of Survey:	1200 to 1500h Wednesday 03 September 2025.					
Personnel:	Liam Harrison (AEC).					
Equipment Used:	B&K 2250 Real Time Analyser (AEC Kit 1).					
Calibration:	The sound level analyser, which conforms to BS EN 61672-1: 2013 ' <i>Electroacoustics – Sound level meters - Part 1 Specifications</i> ' for Class 1 Type Z meters, was in calibration and check calibrated before and after the measurement periods using a Brüel & Kjær type 4231 (94dB) calibrator. There was no significant drift of calibration. Calibration certificates are available on request.					
Weather Conditions:	Date	Period	Wet/Dry	Temp°C	Wind Speed & Direction	Cloud Cover
	03.09.25	Day	Dry	17°C	Negligible	100%
Measurement Locations:	<p>Measurements were undertaken at two location Identified as A and B on Figure 3.1 and described below.</p> <p>Location A – 5m from the nearest carriageway of Mauldeth Road West.</p> <p>Location B – on the path adjacent to Wintermans Road.</p>					
Measurement Details:	Measurements were undertaken over various periods in terms of L_{eq} , L_{90} , and L_{max} .					
Measured Data:	Full results for the attended measurements are given in Table B.2.					
	Full octave band centre frequency data was obtained for all measurements.					

Table B.2 – Measured Daytime Noise Levels

Location	Period, h	Noise Level, dB			Comments
		L_{Aeq}	L_{A90}	$L_{Amax, F}$	
A	1317-1417	57.4	46.5	70.1	Noise climate due to road traffic.
	1451-1506	55.5	46.3	66.4	
B	1204-1304	50.9	43.2	74.9	Noise climate due to road traffic.
	1427-1442	49.9	43.0	66.2	

APPENDIX A –