



NOISE ASSESSMENT

on behalf of

AMP ENERGY SERVICES LTD

for the site at

**WYLEX WORKS, SHARSTON INDUSTRIAL
ESTATE, WYTHENSHAW, MANCHESTER
M22 4RA**

REPORT DATE: 26 JANUARY 2023

REPORT NUMBER: 102630-2

**Miller Goodall Ltd
Ground Floor
Ashworth House
Deakins Business Park
Blackburn Road
Egerton
Bolton
Lancashire
BL7 9RP**

Tel: 01204 596166

www.millergoodall.co.uk

Company registration number 5201673

Summary

This report provides evidence to discharge condition 3(b) of planning reference 129564/FO/2021 issued by Manchester City Council.

The consented development is for a biomass boiler within a plant room and an external screw feed auger for the loading of fuel into the storage silo. Condition 3(b) of the consent requires that a verification report demonstrating the target criteria in Condition 3(a) has been complied with. The report shall be submitted to and approved by the Local Planning Authority before development commences.

Noise measurements have been undertaken of noise levels at 1m from the plant room pedestrian entrance, roller door and a sample of the cladding as well as externally located motor and fan used to draw the boiler exhaust gases through the ductwork and filter bag system.

The measured noise level from the external plant has been used to update the noise model that was developed to provide information for Condition 3(a). The predicted levels based on in-situ noise level measurements have been compared against the existing background sound level criteria for the nearest residential and commercial properties to determine in the Local Planning Authority requirement of 5dB below the existing background sound level has been achieved.

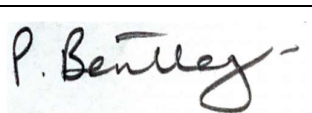
Based on our predictions and comparison with the background sound level the target criteria has been complied with and Condition 3(b) can be discharged.

Record of changes

Prepared By Paul Bentley MIOA

Reviewed By Jo Miller MIOA

Signed



Signed



Date

26 January 2023

Date

26 January 2023

Version	Date	Change	Initials
1	26 January 2023	-	PB

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1 Introduction

- 1.1 Miller Goodall Ltd has, on behalf of AMP Energy Services Ltd undertaken a noise assessment for a site at Wylex Works, Sharston Industrial Estate, Wythenshawe, Manchester M22 4RA.
- 1.2 The site has planning approval ref 129564/FO/2021 and the conditions relating to noise are detailed below:

Condition 3

a) Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme 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. Prior to commencement of the use hereby approved the scheme shall be submitted to and approved in writing by the City Council as local planning authority in order to secure a reduction in the level of noise emanating from the site.

b) Prior to the first use of the development a verification report shall be submitted to and approved in writing by the City Council as local planning authority to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic report. The report shall also undertake post completion testing to confirm that the noise criteria have been met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the agreed noise criteria.

- 1.3 This assessment provides the verification survey in Part B to ensure that the assumptions regarding sound levels and any proposed mitigation in this report are valid.

2 Site Description and Consented Development

- 2.1 The site is located at Wylex Works, Sharston Industrial Estate, Wythenshawe, Manchester M22 4RA. The site location plan & application area and general arrangement plan and elevation drawings are shown in Appendix 1.
- 2.2 The approved biomass boiler plant room, fuel feedstock silo and fuel feed auger are located towards the centre of the site surrounded by existing site buildings. The nearest sensitive residential receptor is located on Longley Lane to the north east of the application area. There are also commercial offices and warehousing located directly opposite the site on Sharston Road
- 2.3 The biomass boiler will be fed using fuel pellets or woodchip via a screw auger that transfers the fuel from the storage silo into the boiler. The boiler itself is located in a purpose-built plant room. The plant room construction is detailed to be uninsulated plastisol steel sheet cladding (0.7mm thick) attached to structural steel frame comprising the walls and roof.
- 2.4 The proposed boiler operational hours are expected to be normal daytime working hours, however this assessment includes for the night-time periods as there is no control on the operational hours of the plant.

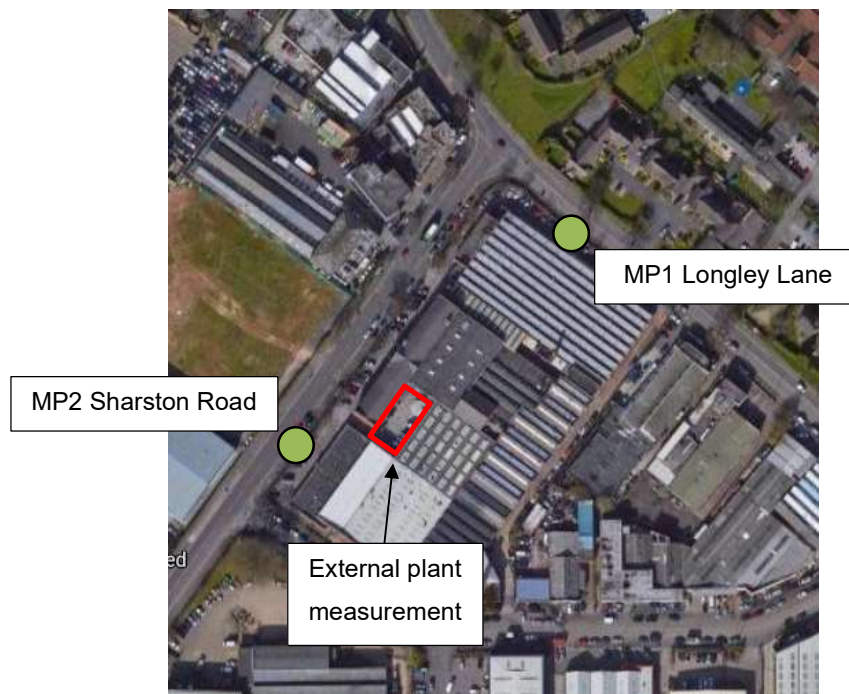
3 Local Authority Consultation

- 3.1 Rebecca Twigg at Manchester City Council was consulted in respect of the methodology used in this assessment¹. It was agreed that the measurement of the background sound level to set the target limits would be based on two positions, one for the residential housing and one for the commercial offices directly opposite.

4 Environmental Noise Survey

- 4.1.1 Measurements of the existing environmental noise sound levels were made at MP1 and MP2 from 09:00 am on the 10th of August to 09:00am on the 11th of August 2021. The survey locations were both located on the boundary of Wylex Works site and are considered representative of the nearest sensitive receptors.
- 4.1.2 Measurements of the ambient were also made on the 17th January 2023. Figure 1 shows the location of the measurement. Figure 2 and Figure 3 present the broadband $L_{A90,5min}$ sound levels for the background survey period at MP1 and MP2.

Figure 1: Monitoring Location Plan



- 4.1.3 Based on the survey data, the typical night-time $L_{A90,5min}$ was 38dB and the typical daytime $L_{A90,5min}$ was 52dB. The target sound levels that comply with the requirements of the planning condition are 33dB $L_{Aeq,t}$ in the night-time and 47dB $L_{Aeq,t}$ for the daytime period.
- 4.1.4 Table 1 presents the measured ambient sound level of the plant room and external plant.

¹ Email to Rebecca Twigg 5th August 2021

Table 1: Ambient Sound Level Measurement January 2023

Description	Sound Pressure Level dB re: 2x10 ⁻⁵ Pa																											
	L _{Aeq,T} dB	Third Octave Band Centre Frequency (Hz) L _{eq} dB																										
		25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
1m from plant room pedestrian door	64.6	73.0	64.4	63.1	65.2	59.8	56.3	63.2	64.1	62.5	61.6	63.2	61.0	56.8	55.6	55.3	53.9	53.7	55.2	54.1	51.5	48.0	45.8	45.0	46.3	41.5	39.5	37.5
1m from plant room cladding	61.9	63.0	63.3	67.5	63.3	59.0	57.1	64.2	63.9	60.6	61.4	63.1	57.5	53.8	53.0	53.0	51.8	50.3	49.8	48.7	47.1	45.5	43.4	42.3	40.5	36.5	34.8	32.0
1m from plant room roller door	63.4	59.7	63.2	65.6	59.8	57.4	56.8	63.6	65.5	62.8	61.1	62.4	58.7	54.1	55.1	54.2	54.2	53.1	51.8	51.1	49.0	47.6	47.0	45.2	43.4	40.4	39.1	35.8
2m from external motor and fan	67.1	63.9	66.1	66.5	62.2	58.9	62.7	60.5	62.8	62.4	62.6	60.9	61.2	55.2	57.0	56.7	55.0	54.7	56.3	53.4	55.7	56.3	52.5	54.2	53.2	50.0	57.1	49.1

Figure 2: MP1 Longley Lane Broadband $L_{A90,5min}$ dB Sound Level

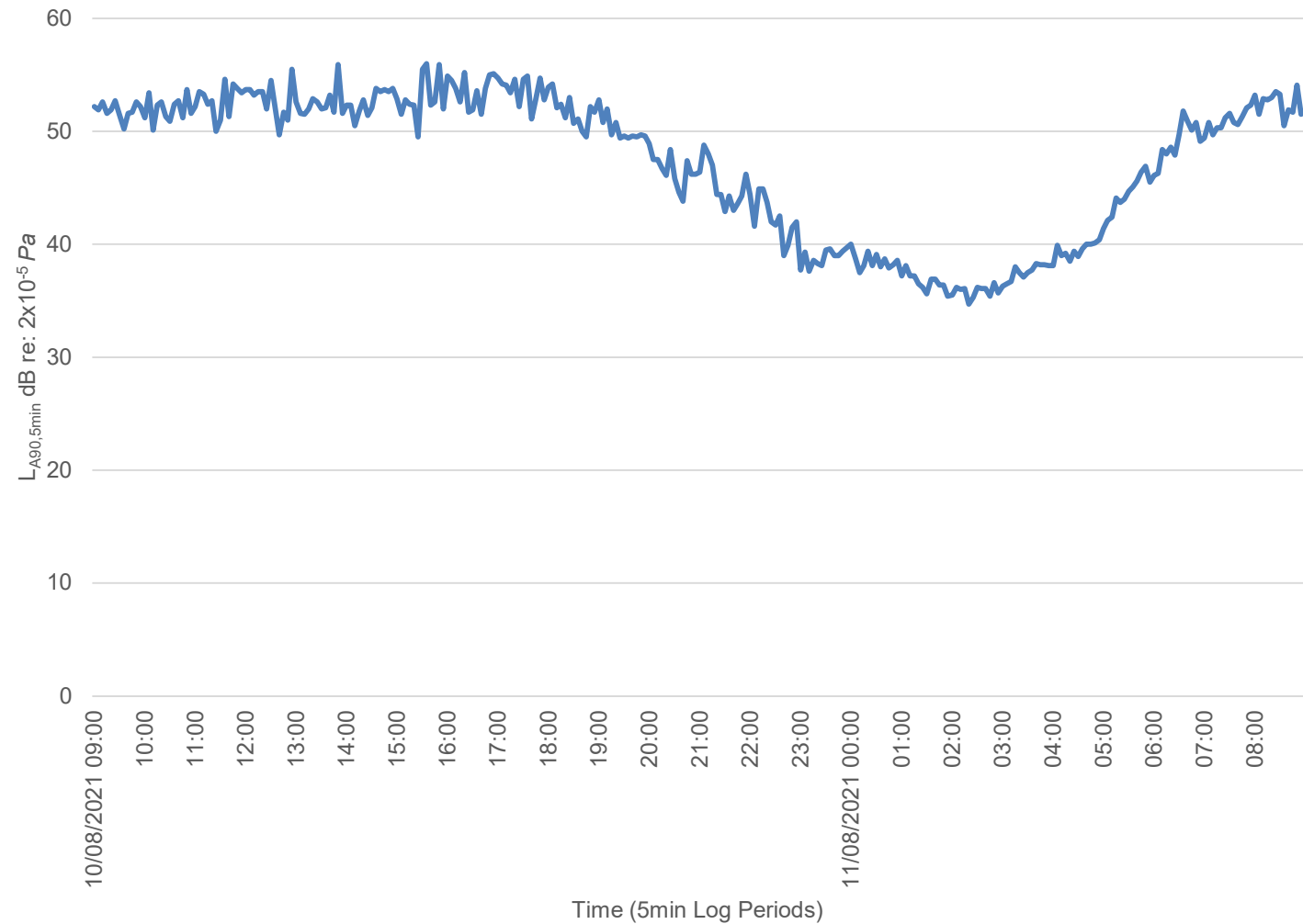
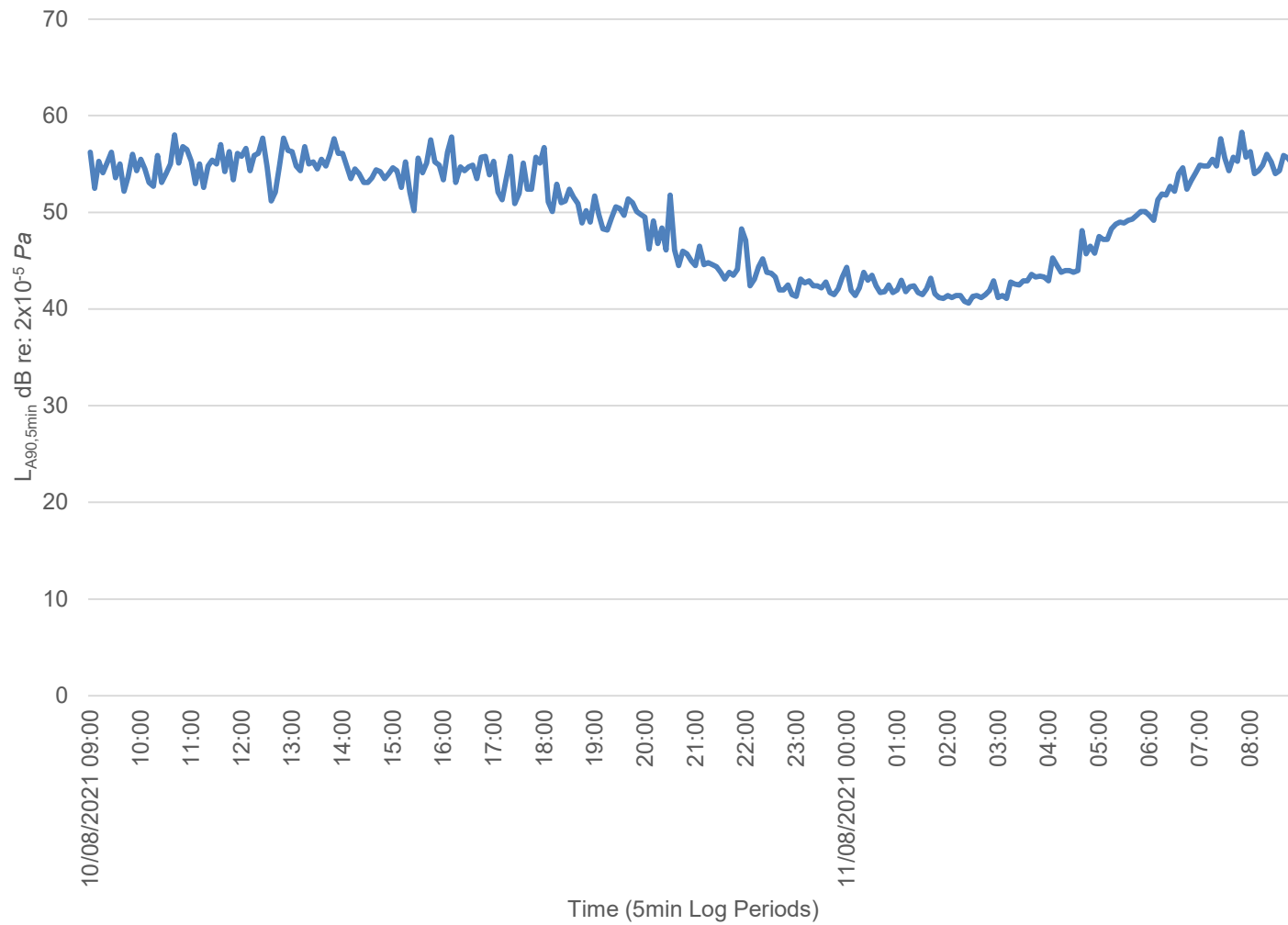


Figure 3: MP2 Sharston Road Lane Broadband $L_{A90,5min}$ dB Sound Level



5 CadnaA Modelling

5.1 Noise Model Parameters

- 5.1.1 The model has predicted the sound level from the biomass boiler within the plant room and noise from the external motor and fan used to draw the exhaust gasses through the filter bag.
- 5.1.2 For a worst case assessment these levels have not been corrected for the residual $L_{Aeq,T}$ sound level. Table 2 presents the sound power level calibrated from the ambient sound level measurements in Table 1.

Table 2: Sound Power Level

Description	Third Octave Band Centre Frequency (Hz) Sound Power Level L_w dB re: 1×10^{-12} W																										
	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
Plant room pedestrian door	79.7	71.1	69.8	71.9	66.5	63	70.2	71.1	69.5	68.6	70.2	68	63.8	62.6	62.3	60.9	60.7	62.2	61.1	58.5	55	52.8	52.1	53.4	48.6	46.7	44.7
Plant room cladding and roof	75.5	75.8	80	75.8	71.5	69.6	77	76.7	73.4	74.2	75.9	70.3	66.6	65.8	65.8	64.6	63.1	62.6	61.5	59.9	58.3	56.3	55.2	53.4	49.5	47.8	45.2
1m from plant room roller door	71.9	75.4	77.8	72	69.6	69	76	77.9	75.2	73.5	74.8	71.1	66.5	67.5	66.6	66.6	65.5	64.2	63.5	61.4	60	59.4	57.6	55.9	52.9	51.7	48.5
2m from external motor and fan	79.8	82	82.4	78.1	74.8	78.6	76.7	79	78.6	78.8	77.1	77.4	71.4	73.2	72.9	71.2	70.9	72.5	69.6	71.9	72.5	68.7	70.4	69.5	66.3	73.5	65.7

5.1.3 Topography for the surrounding land and building heights have been taken from the Environment Agency 2017 LIDAR dataset.

5.1.4 All buildings have been set to reflective and two orders of reflection have been set in the model. The ground absorption has been set to 0.1 to account for hard surfaces.

5.2 Noise Model Prediction Results

5.2.1 The predicted sound level is shown in Figure A3.1 in Appendix 3. This shows the predicted sound level from all plant operating continuously at a height of 1.5m and 4.5m.

5.2.2 For the residential receptor on Longley Lane the predicted sound level would be 18dB and 20dB $L_{Aeq,t}$ at 1.5m and 4.5m respectively at the façade of the closest residential dwelling. For the office receptor on Sharston Road the predicted sound level at the office location at 4.5m grid height at the façade of the office is 39dB $L_{Aeq,t}$.

6 Impact Assessment

6.1.1 Table 3 presents the assessment of the predicted sound level against the background measured $L_{A90,t}$ sound level. A comparison of the predicted sound level at 4.5m at the offices with the night-time target has not been presented as the offices are not likely to be occupied during the night-time period.

Table 3: BS4142:2014 Impact Assessment

Receptor Location	Predicted Sound Level $L_{Aeq,t}$ dB ²	Typical Background Sound Level $L_{A90,t}$		Comparison of Predicted Level vs Background Sound Level		Compliant with LA Criteria of 5dB Less than $L_{A90,t}$ (Yes/No)	
		Day	Night	Day	Night	Day	Night
Commercial offices on Sharston Road at 4.5m grid height	39	52	NA	-13	NA	Yes	NA
Residential dwellings on Longley Lane 1.5m grid height	18	52	38	-34	NA	Yes	NA
Residential dwellings on Longley Lane 4.5m grid height	20	NA	38	NA	-18	NA	Yes

² No acoustic features have been allowed for in the assessment as it expected the plant is likely to be inaudible at the receptor location.

- 6.1.2 Table 3 shows that the target requirement of 5dB below the typical background sound level has been complied with and no additional mitigation is required.

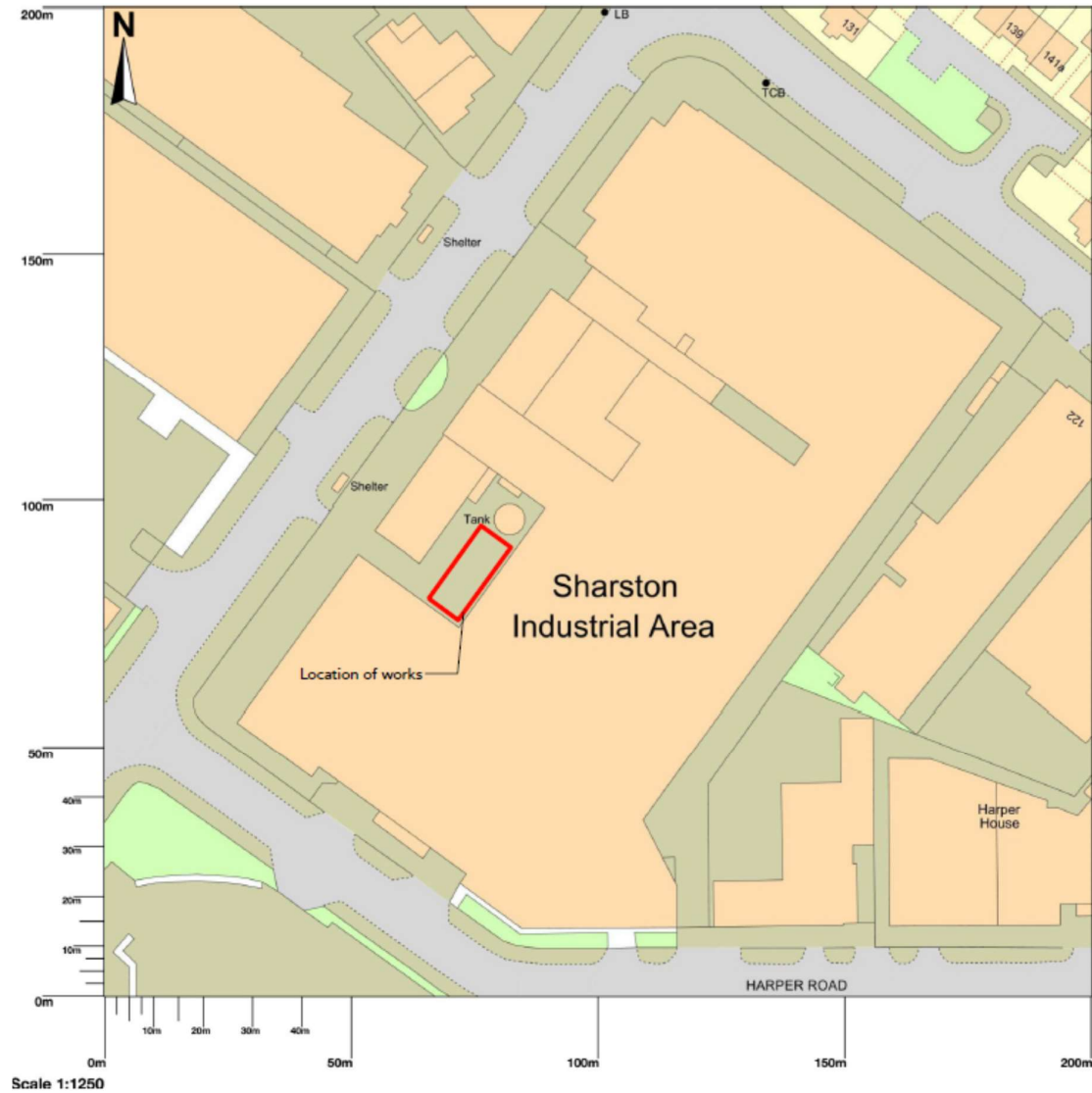
7 Conclusions

- 7.1.1 Conditional planning consent has been granted for an industrial development at Wylex Works, Sharston Industrial Estate, Wythenshawe, Manchester M22 4RA, planning reference 129564/FO/2021. Conditions 3(b) has been addressed as part of this assessment.
- 7.1.2 Façade levels have been predicted to 1.5m and 4.5m at the nearest sensitive property to compare against the target criteria which are based on the typical daytime and night-time background sound level.
- 7.1.3 The predicted sound level, based on in-situ measurements of the plant room and external plant items, when compared to the typical background sound level shows that the target criteria of 5dB below the background has been complied with.
- 7.1.4 The requirements of condition 3(b) have therefore been complied with and condition 3(b) can be discharged.

APPENDICES

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Appendix 1: Site Location, Layout and Elevation Plans



Electrium Sales Ltd, Sharston Road,
Wythenshawe, Manchester, M22 4RA

Map area bounded by: 383149,389233 383349,389433.

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Unique plan reference: p4buk/583980/791709

XL PLANNING LTD		
XL Planning Ltd, 1A Fore Street, Cullumpton, Devon EX15 1JW T: 01884 38982 E: dnoeman@xlplanning.co.uk		
Project Name Electrium Sales Ltd Sharston Road, Wythenshawe		
Drawing Title Site Location Map		
Scale 1 : 2500 Size A4 Drawn DC		
Job No 2106	Drawing No 0002	Rev. -

Plant Room

Sections manufactured from Z45 high tensile, pre-galvanised, high yield, cold rolled steel conforming to Industrial Building Standard BS5950 Part 5, and wind Calculations BS6399 part 2.

Roof

Roof Cladding Non insulated Plastisol 0.7 with Anti Con
Number of Roof lights per bay 0
Roof Cladding Colour Anthracite RAL7016
Rain Water System PVC - Black BS00E53

Left Gable

Left Gable Cladding Non insulated Plastisol 0.5 without Anti Con
Left Gable Cladding Colour Anthracite RAL7016
Left Gable Flashing Colour Anthracite RAL7016

Right Gable

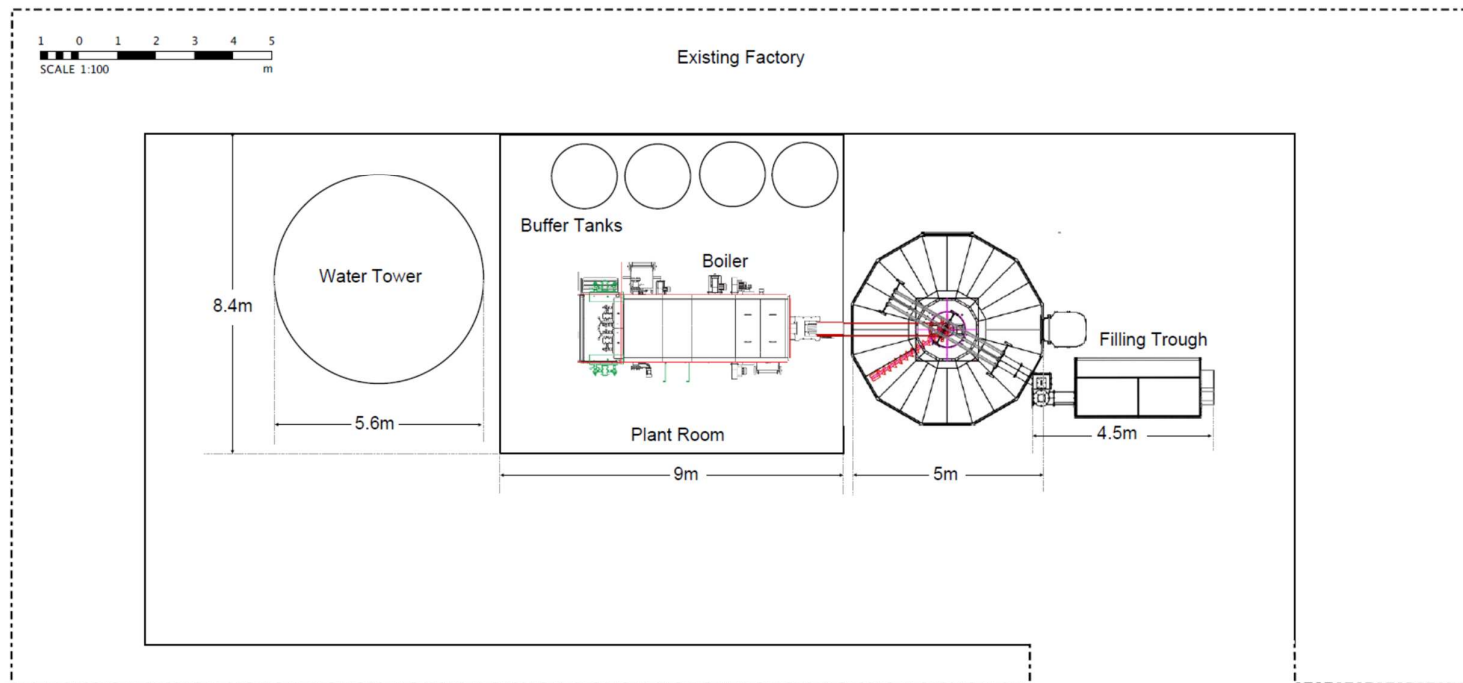
Right Gable Cladding Non insulated Plastisol 0.5 without Anti Con
Right Gable Cladding Colour Anthracite RAL7016
Right Gable Flashing Colour Anthracite RAL7016

Front Side Elevation

Front Side Elevation Cladding Non insulated Plastisol 0.5 without Anti Con
Front Side Elevation Cladding Colour Anthracite RAL7016
Front Side Elevation Flashing Colour Anthracite RAL7016

Rear Side Elevation

Rear Side Elevation Cladding Non insulated Plastisol 0.5 without Anti Con
Rear Side Elevation Cladding Colour Anthracite RAL7016
Rear Side Elevation Flashing Colour Anthracite RAL7016



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AFS Biomass

Title: Electrium Sharston Plan

Drawing No. ES1430-1

Plant Room

Sections manufactured from Z45 high tensile, pre-galvanised, high yield, cold rolled steel conforming to Industrial Building Standard BS5950 Part 5, and wind Calculations BS6399 part 2.

Roof

Roof Cladding Non insulated Plastisol 0.7 with Anti Con
Number of Roof lights per bay 0
Roof Cladding Colour Anthracite RAL7016
Rain Water System PVC - Black BS00E53

Left Gable

Left Gable Cladding Non insulated Plastisol 0.5 without Anti Con
Left Gable Cladding Colour Anthracite RAL7016
Left Gable Flashing Colour Anthracite RAL7016

Right Gable

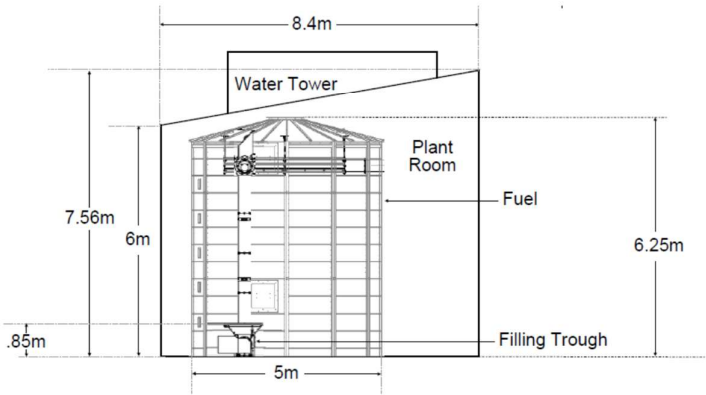
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Front Side Elevation

Front Side Elevation Cladding Non insulated Plastisol 0.5 without Anti Con
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Front Side Elevation Flashing Colour Anthracite RAL7016

Rear Side Elevation

Rear Side Elevation Cladding Non insulated Plastisol 0.5 without Anti Con
Rear Side Elevation Cladding Colour Anthracite RAL7016
Rear Side Elevation Flashing Colour Anthracite RAL7016



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		DRAWN BY	R Raymond			
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			#			

Plant Room

Sections manufactured from Z45 high tensile, pre-galvanised, high yield, cold rolled steel conforming to Industrial Building Standard BS5950 Part 5, and wind Calculations BS6399 part 2.

Roof

Roof Cladding Non insulated Plastisol 0.7 with Anti Con
Number of Roof lights per bay 0
Roof Cladding Colour Anthracite RAL7016
Rain Water System PVC - Black BS00E53

Left Gable

Left Gable Cladding Non insulated Plastisol 0.5 without Anti Con
Left Gable Cladding Colour Anthracite RAL7016
Left Gable Flashing Colour Anthracite RAL7016

Right Gable

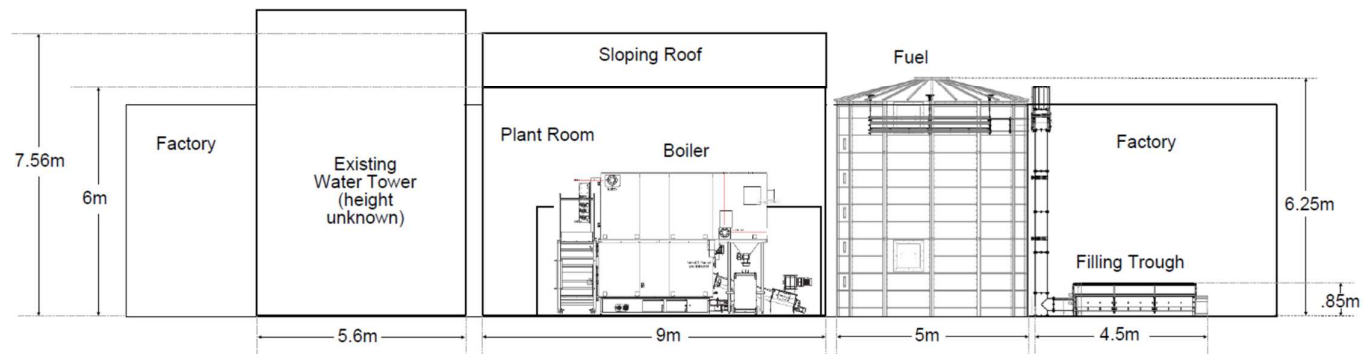
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Front Side Elevation Flashing Colour Anthracite RAL7016

Rear Side Elevation

Rear Side Elevation Cladding Non insulated Plastisol 0.5 without Anti Con
Rear Side Elevation Cladding Colour Anthracite RAL7016
Rear Side Elevation Flashing Colour Anthracite RAL7016



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AFS Biomass

Title:
Electrium Sharston
North West Side Elevation

Drawing No.
ES1430-2

Appendix 2: Noise Monitoring

Measurements of Background Noise Levels August 2021

Noise measurements were undertaken at locations representative of the background sound levels at the residential dwellings on Longley Lane and the commercial offices on Sharston Road in accordance with BS 7445-1: 2003³ by Paul Bentley of Miller Goodall Ltd. The calibration of the sound level meter was checked before and after measurements with negligible deviation (<0.1 dB). Details of the equipment used are shown in Table A2.1, below.

Table A2.1: Noise monitoring equipment

Monitoring Location	Equipment Description	Type Number	Manufacturer	Serial No.	Date Calibrated	Calibration Certification Number
MP1	Class 1[4],[5] Integrating Real Time 1/3 Octave Sound Analyser	NOR 140	Norsonic	1406017	22/10/2019	U33164
	Microphone	NOR 1225	Norsonic	358159	22/10/2019	33163
MP2	Class 1[1],[2] Integrating Real Time 1/3 Octave Sound Analyser	NOR 140	Norsonic	1407510	13/12/2019	473910536
	Microphone	NOR 1225	Norsonic	384687	15/01/2021	N/a*
Both	Class 1 Calibrator ^[6]	Type 4231	Brüel & Kjær	2478249	20/07/2020	04743/1

*No reference number available, but the certificate is available upon request.

Weather conditions were determined both at the start and on completion of the survey. It is considered that meteorological conditions were appropriate for environmental noise measurements.

Measurements of Ambient Noise Levels January 2023

Noise measurements were undertaken at locations representative of the ambient and residual sound level in the plant room and ambient sound level in the external plant area in accordance with BS 7445-1: 2003⁴ by Paul Bentley of Miller Goodall Ltd. The calibration of the sound level meter was checked before and after measurements with negligible deviation (<0.1 dB). Details of the equipment used are shown in Table A2.3, below.

³ BS 7445-1: 2003 Description and measurement of environmental noise - Part 1: Guide to quantities and procedures

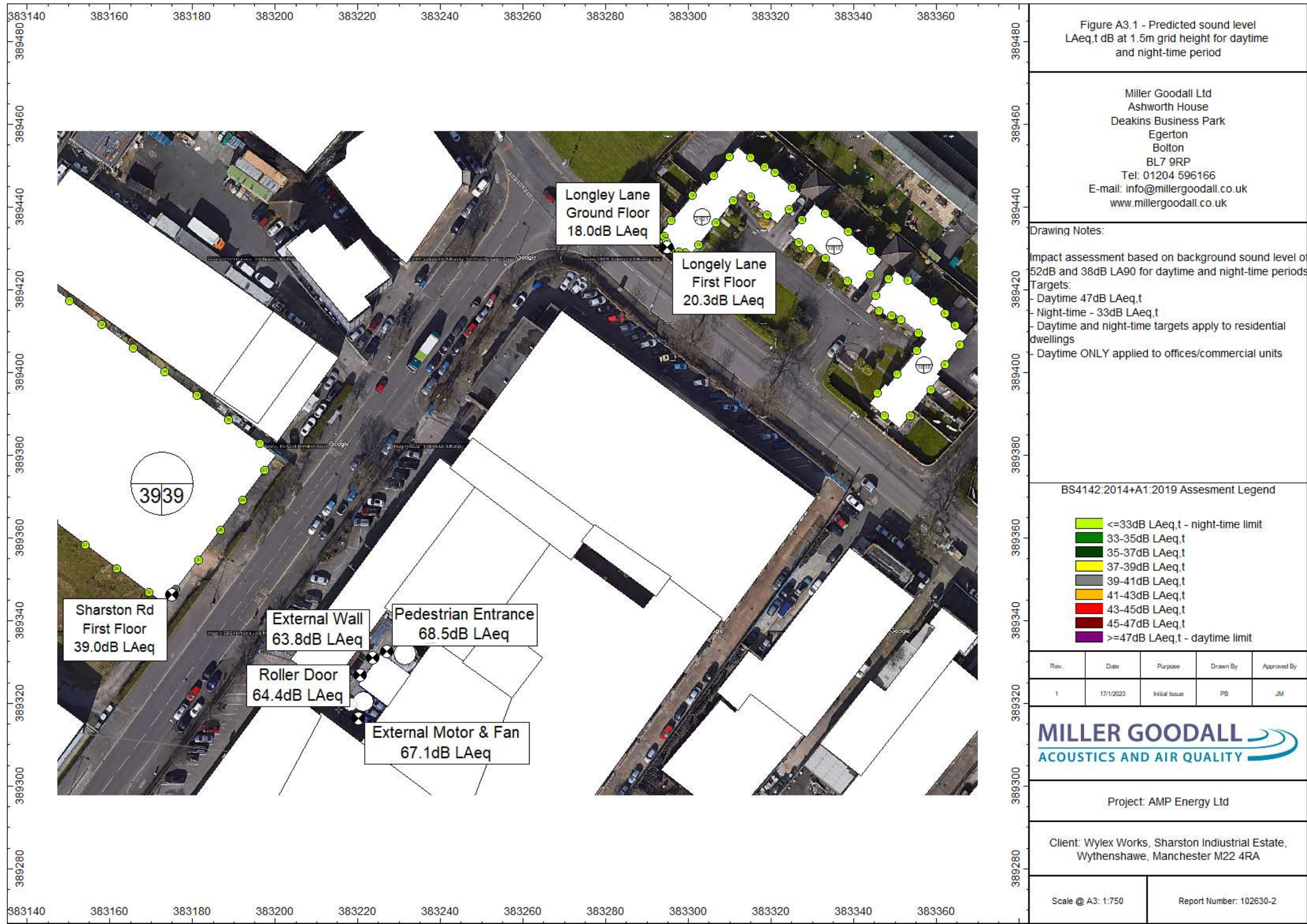
⁴ BS 7445-1: 2003 Description and measurement of environmental noise - Part 1: Guide to quantities and procedures

Table A2.2: Noise monitoring equipment

Monitoring Location	Equipment Description	Type Number	Manufacturer	Serial No.	Date Calibrated	Calibration Certification Number
1m from pedestrian door, cladding, roller door and 2m from external motor and fan	Class 1 Integrating Real Time 1/3 Octave Sound Analyser	NTi XL2-TA	NTi Audio	A2A-15860-E0	01/03/2021	05145/1
	Microphone	NTi MC230A	NTi Audio	A16445	01/03/2021	05145/1
	Preamplifier	NTi MA220	NTi Audio	8102	01/03/2021	05145/1
	Calibrator	NOR 1251	Norsonic	34123	13/10/2022	05972/1

Weather conditions were determined both at the start and on completion of the survey. It is considered that meteorological conditions were appropriate for environmental noise measurements.

Appendix 3: Noise Modelling



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Glossary of Terms

Decibel (dB) The unit used to quantify sound pressure levels; it is derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure level the reference quantity is 20 μPa , the threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain. A change of 1 dB is usually only perceptible under controlled conditions.

dB L_A Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB L_A broadly agree with an individual's assessment of loudness. A change of 3 dB L_A is the minimum perceptible under normal conditions, and a change of 10 dB L_A corresponds roughly to halving or doubling the loudness of a sound. The background noise level in a living room may be about 30 dB L_A ; normal conversation about 60 dB L_A at 1 meter; heavy road traffic about 80 dB L_A at 10 meters; the level near a pneumatic drill about 100 dB L_A .

$L_{A90,T}$ The A weighted noise level exceeded for 90% of the specified measurement period (T). In BS 4142: 2014+A1:2019 it is used to define background noise level.

$L_{Aeq,T}$ The equivalent continuous sound level. The sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period (T). $L_{Aeq,T}$ is used to describe many types of noise and can be measured directly with an integrating sound level meter.

L_{Amax} The highest A weighted noise level recorded during the time period. It is usually used to describe the highest noise level that occurred during the event.

R_w Single number rating used to describe the sound insulation of building elements and is defined in BS EN ISO 10140-2: 2010 (formerly BSEN ISO 140-3:1995). It is derived by measurement under laboratory conditions and does not take into account the effects of flanking transmissions.

