



Acoustic Survey and Assessment for Proposed Commercial unit to form a tracking bay at 717 Manchester Old Road, Middleton, M24 4GF.

Prepared for:

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1. Introduction

- 1.1. Martin Environmental Solutions has been commissioned to undertake an acoustic survey and assessment to support a planning application for a new commercial unit to operate a vehicle tracking bay at 717 Manchester Old Road, Middleton, M24 4GF.

Site Location and Context

- 1.2. The development site forms part of a wider site offering tyre repairs and replacements and vehicle washing/valeting services. The busy Manchester Old Road is located to the north of the wider site, with residential properties to the east and beyond the main road to the north. A former garage is to the west with a road behind the site to the south and housing beyond. The existing structure on the site runs across the rear southern boundary. This consists of a 2-storey brick built building.
- 1.3. An aerial Photograph is enclosed in Figure 1, together with a proposed layout drawing in Figure 2.
- 1.4. The report has been produced to clarify the potential impact on the proposed development and to identify mitigation measures if required to ensure the development is appropriate in terms of noise impact.



2. Policy and Guidance

- 2.1. The impact of noise can be a material consideration in the determination of planning applications. The planning system has the task of guiding development to the most appropriate locations. It is recognised that on occasions it will be difficult to reconcile some land uses, such as housing, hospitals, or schools, with other activities that generate high levels of noise. However, the planning system is tasked to ensure that, wherever practicable, noise-sensitive developments are separated from major sources of noise (such as road, rail and air transport and certain types of industrial development).
- 2.2. The Government's publication of the National Planning Policy Framework (NPPF), updated in December 2023, states that planning policies and decisions should prevent new and existing development from contributing to or being put at unacceptable risk from, of being adversely affected by unacceptable levels of noise pollution.
- 2.3. The Government have also issued the Noise Policy Statement for England (NPSE). The NPSE clarifies the Government's underlying principles and aims in relation to noise and sets a vision to promote good health and a good quality of life through the effective management of noise while having regard to the Government's sustainable development strategy. The NPSE aims to mitigate and minimise adverse impacts on health and quality of life through the effective management and control of noise.
- 2.4. The NPSE introduces the following terms, although no sound levels are given to represent these, many authorities have identified the sound level criteria in line with the World Health Organisation, BS8233:2014 and BS4142: 2014 levels. The terms introduced by the NPSE are:
- NOEL – No Observed Effect Level (<30dB(A) inside <50dB(A) outside, 10dB below background)
- LOAEL – Lowest Observed Adverse Effect Level (30-35dB(A) inside 50-55dB(A) outside, background to +5dB)
- SOAEL – Significant Observed Adverse Effect Level (>35dB(A) inside, >55dB(A) outside, >+10dB above background)
- 2.5. The sound levels within the brackets of the previous paragraph are those determined as appropriate levels to indicate the relevant effect levels represented by the NPSE.



- 2.6. Other commonly used examples of standards utilised by Local Planning authorities for the consideration of noise impacts include comparison of the likely noise levels to be experienced at a development, with levels that have been recommended by the World Health Organisation (WHO) as Guidelines for the prevention of Community Noise Annoyance and within BS8233: 2014.
- 2.7. The WHO recommended noise levels for outdoor amenity areas (gardens) that should not be exceeded are 55dB(A) $L_{Aeq,16hr}$ in order to avoid 'Serious Community Annoyance' or 50dB(A) $L_{Aeq,16hr}$ to avoid 'Moderate Community Annoyance' during the day. For indoor levels WHO set 35dB(A) $L_{Aeq,16hr}$ during the day to prevent Moderate Annoyance and 30 dB(A) $L_{Aeq,8hr}$ at night to prevent sleep disturbance.
- 2.8. The WHO guidance also recommends that maximum sound levels at night should not regularly exceed 45dB(A) within bedrooms to prevent sleep disturbance. Regularly is considered to be more than 10 times during any 8-hour night-time period.
- 2.9. BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings' also specifies desirable noise levels to be achieved inside dwellings.
- 2.10. BS 8233:2014 'Sound insulation and noise reduction for buildings – Code of Practice' also specifies desirable noise levels to be achieved inside dwellings. BS 8233 presents two levels, the first between the hours of 07:00 – 23:00 and the second between 23:00 -07:00.
- 2.11. The daytime period suggests internal noise levels of 35dB $L_{Aeq,16hr}$, for resting in living rooms and bedrooms while for night-time a level of 30dB $L_{Aeq,8hr}$ is recommended. Criteria for external areas mirrors that within the WHO guidance.
- 2.12. Another commonly used standard is British Standard 4142:2014 'Method for rating industrial and commercial sound' compares the sound predicted by the source in question against the background, L_{A90} sound levels.
- 2.13. The "residual" L_{Aeq} measurement is then subtracted from the "ambient" L_{Aeq} measurement (with the sound source) to calculate the sound level created by the "problem" sound alone -termed the "specific" sound level.



- 2.14. If the "problem" sound is tonal, such as whine or hum, or if it is impulsive such as bangs or clatters or if it is irregular enough to attract attention a correction is added to the "specific level" to produce the "rating level". The "background" L_{A90} measurement is then compared against the "rating level".
- 2.15. If the "rating level" exceeds the "background" by around 10dB(A) or more this "indicates a significant adverse impact". A difference of around 5dB(A) 'indicates an adverse impact. The lower the commercial noise level is, the lower the likely impact.
- 2.16. In addition, the 'ProPG Planning & Noise, Professional Practice Guidance on Planning & Noise, New Residential Development' provides a 4-staged approach to undertaking a risk assessment in relation to anticipated sound levels at new residential development and the provision of mitigation measures. The guidance is principally aimed at sites exposed predominantly to noise from transportation sources.
- 2.17. The first stage consists of an initial noise risk assessment, based on indicative day and night-time *noise* levels. Simply put, the higher the ambient noise in an area the greater the impact. The levels given are shown below although it should be noted that these are in excess of both the WHO and BS 8233: 2014 guidance.

Noise Risk Category*	Potential Effect if Unmitigated	Pre-Planning Application Guidance
0 – Negligible $L_{Aeq,16hr} < 50dB$ $L_{Aeq,8hr} < 40dB$	May be noticeable but no adverse effect on health and quality of life	In this category the development is likely to be acceptable from a noise perspective, nevertheless a good acoustic design process is encouraged to improve the existing environment and/or safeguard against possible future deterioration and to protect any designated tranquil areas. A noise assessment may be requested to demonstrate no adverse impact from noise. Application need not normally be delayed on noise grounds.
1 – Low $L_{Aeq,16hr} 50-63dB$ $L_{Aeq,8hr} 40-55dB$	Adverse effect on health and quality of life	In this category the development may be refused unless a good acoustic design process is followed and is demonstrated via a Level 1 Acoustic Design Statement which confirms how the adverse impacts of noise on the new development will be mitigated and minimised and that a significant adverse impact will not arise in the finished development. Planning conditions and other measures to control noise may be required.
2 – Medium $L_{Aeq,16hr} 63-69dB$ $L_{Aeq,8hr} 55-60dB$ $L_{AFmax} > 80dB^{**}$	Significant adverse effect on health and quality of life	In this category the development is likely to be refused unless good acoustic design process is followed and is demonstrated via a Level 2 Acoustic Design Statement which confirms how the adverse impacts of noise on the new development will be mitigated and minimised, and clearly demonstrates that a significant adverse noise impact will not arise in the finished development. Planning conditions and other measures to control noise will normally be required.
3 – High $L_{Aeq,16hr} > 69dB$ $L_{Aeq,8hr} > 60dB$ $L_{AFmax} > 80dB^{**}$	Unacceptable adverse effect of health and quality of life	In this category the development is very likely to be refused on noise grounds, even if a good acoustic design process is followed and is demonstrated via a Level 2 Acoustic Design Statement. Applicants are advised to seek expert advice on possible mitigation measures. Advice on the circumstances when the refusal of a new housing on noise grounds should normally be anticipated is included in the ProPG.

2.18. Stage 2, consists of a full assessment of the prevailing ambient noise and requires 4 elements to be considered:

- I. Element 1 – Good Acoustic Design
- II. Element 2 – Internal Noise Level Guidelines
- III. Element 3 – External Amenity Area Noise Assessment
- IV. Element 4 – Assessment of Other Relevant Issues

2.19. A good acoustic design is implicit in meeting the requirements of the NPPF and can help to resolve many potential acoustic issues.

2.20. Details of the criteria considered suitable are provided above for both internal and external sound levels. Element 4 includes such issues as local and national policy, likely occupants, wider planning objectives.



3. The Assessment

The development

- 3.1 The development site forms part of an existing vehicle wash and tyre repair/replacement centre.
- 3.2 The proposed development will consist of a steel framed extension to the existing building with composite metal cladding to the walls and roof. The building will be situated to the southeastern corner of the existing open yard. And accessed from the northern façade. To the east is the rear garden of the adjacent residential property.
- 3.3 Figure 2 below provides an overview of the proposed development.
- 3.4 The building will house a single vehicle lift and associated equipment to undertake tyre balancing checks and alterations. Typical lasers, hand tools. Manufacturers data for the lifts has identified sound levels of <70dB(A). Vehicle noise at low speeds are ~59dB(A) and not dissimilar to the sounds already heard from the other operations on site.
- 3.5 The building structure will provide a reduction of at least 40dB R_w consisting of a 19/1000 liner, 120mm rock wool, 32/1000 outer¹ (40dB R_w) to the upper section and a dense concrete block wall to the lower (43dB R_w). The rear wall is also to be extended beyond the front of the building until it falls flush with the rear of the neighbouring residential property. This has the benefit of reducing noise emissions from the front of the building into the garden area to the side and also preventing the possibility of existing spray from the vehicle wash blowing over to the neighbours.
- 3.6 Assuming an internal sound level of 80dB(A), above that referenced by the equipment manufacturers and equal to the lower action level within the Control of Noise at Work Regulations 2005, the above will result in sound levels of 34dB(A) in the neighbouring garden.

$$SPL_{ext,1m} = SPR_{int} - attenuation (R_w) - 6$$

$$SPL_{ext,1m} = 80 - 40 - 6$$

$$SPL_{ext,1m} = 34dB$$

¹ <https://www.coverworld.co.uk/wp-content/uploads/2015/09/Coverworld-UK-Ltd-Acoustic-Performance-Built-Up-Standard.pdf>



- 3.7 The access doors to the northern façade will remain closed during assessment activities, however assuming that the door is left open the resulting sound level in the neighbouring garden will <40dB(A). (Barrier attenuation of 26-28dB, distance attenuation of 14dB)
- 3.8 At the first-floor level the rear annex of the neighbouring property has no windows to the southern elevation and as such noise impact at this level is not an issue for consideration. The window is located on the far eastern elevation thus protected by the building itself.

Existing Situation.

- 3.9 In order to obtain representative background sound levels for the area on site monitoring was undertaken over the 19th June 2024, during the proposed operational times 08:30-18:00.
- 3.10 A Cirrus Optimus Green sound level meter was utilised for the monitoring. The meter was placed along the eastern boundary of the site in the location of the proposed building and away from reflecting services at a height of ~1.3m.
- 3.11 The meter was field calibrated at the start and end of the monitoring period with no significant variation and full laboratory calibration certificates are available on request.
- 3.12 The weather during the monitoring was dry with little to no wind <5m/s.
- 3.13 The full results are shown in Appendix A, sound levels over the monitoring period were impacted by passing traffic along the main road and the activities at the existing vehicle wash and tyre businesses. $L_{Aeq,1hr}$ sound levels ranged from 67.1-74.9dB over the day, with background sound levels of 54.2-60.2dB L_{A90} .
- 3.14 The anticipated elevated sound levels of 80dB(A) from the proposed unit will therefore result in sound levels below the currently measured background sound level on site. In addition, the positioning of the building and extended eastern façade will result in the creation of a substantial barrier between the existing activities of the wider site and the rear garden area of the neighbouring properties. Substantially reducing the existing sound levels within the garden to below those recommended by the guidance documents detail ed in section 2 of the report.



3.15 The development will therefore result in an improvement to the amenity areas of the neighbouring properties reducing noise emissions observed and preventing overspray from the vehicle washing facility.

3.16 In terms of a BS4142:2014+A1:2019 assessment. No tonal noise is anticipated from the operations however they will be intermittent and occasional impulsive sounds may result as such a correction of 6dB has been applied to the specific sound level. The activities are also sporadic with a large percentage of each assessment creating no discernible noise once the vehicle is lifted and the measurements are underway. Assessments will take approx. 30 mins to complete with noise emissions only lasting less than 10 minutes. An on-time correction of -4.8dB is therefore applied.

3.17 BS4142:2014 assessment

	Day	
Measured Ambient sound level		No current operations present
Residual Sound level	$L_{Aeq} = 67.1\text{dB}$	Lowest hourly reading on site
Background Sound Level	$L_{A90} = 54.2\text{dB}$	Lowest background reading on site
Reference period	60 minutes	Normal ref period,
Specific sound Level	$L_{Aeq} = 40\text{dB}$	Calculated from front door into neighbouring garden
Acoustic feature	+6	Intermittency and impulsivity
On-time correction	-4.8	
Rating level	41.2dB	
Background sound level	$L_{A90} = 54.2\text{dB}$	
Excess of Rating level over background level	$(41.2-54.2) \text{ dB} = -13\text{dB}$ indicates no significant adverse impact	
Uncertainty		Sound levels from the unit area likely to be lower than those used within the assessment. Assumes back-to-back testing of



		vehicles with no break between customers
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3.18 The assessment indicates no adverse impact will be experienced from the development on the neighbouring property.

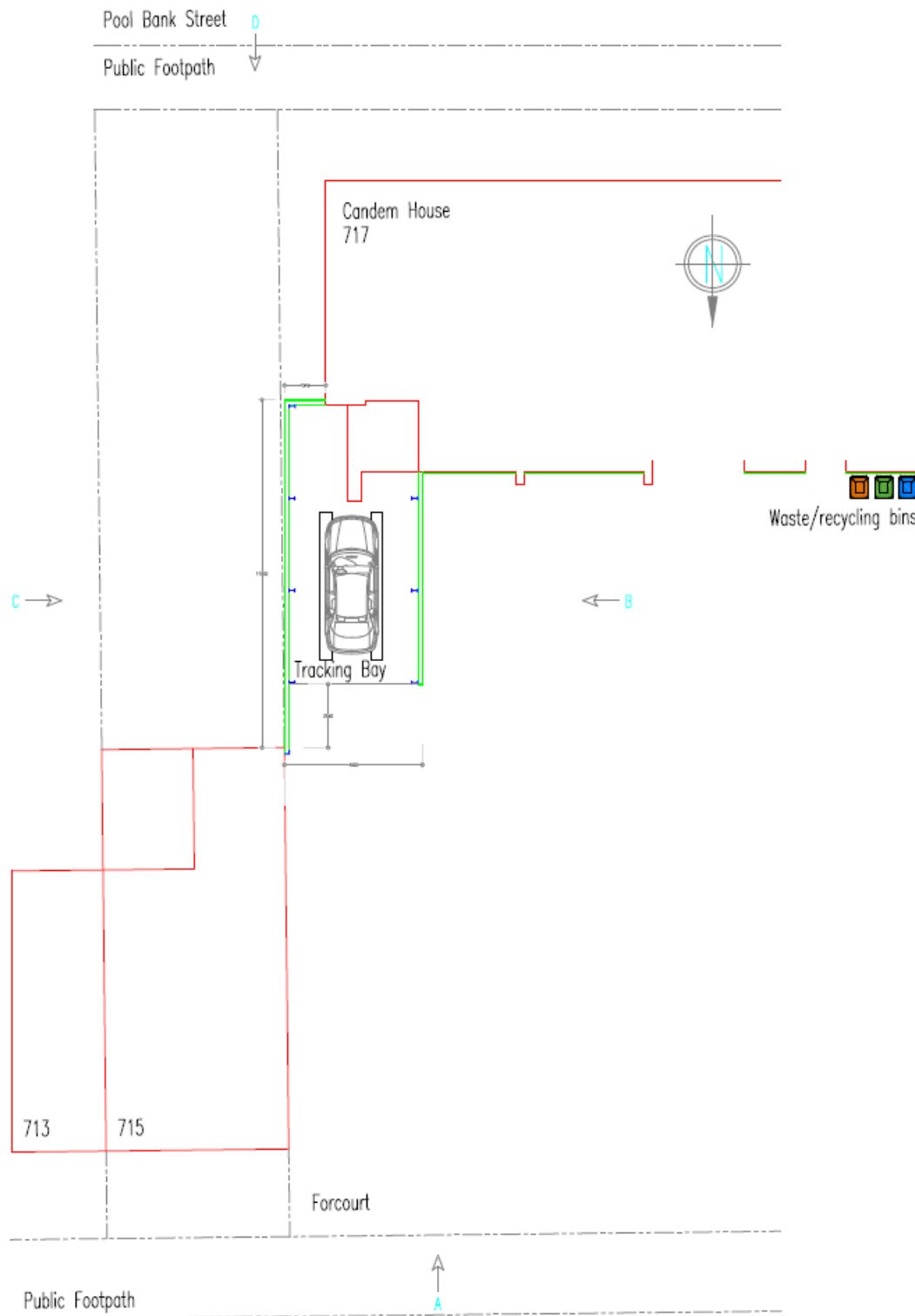
4 Conclusion

- 4.1 An assessment of likely sound levels from the development has been undertaken and a consideration of the building elements made to determine a worst-case impact on the neighbouring property.
- 4.2 On-site monitoring has identified existing background sound levels for the area and the proposed development has been compared to these.
- 4.3 The impact from the development will be below the current sound levels experienced at the property which will also be reduced as a result of the development providing additional attenuation.
- 4.4 The development will ensure that the internal and external sound levels are acceptable and will result in a No Observe Effect on the future residents in line with the Noise Policy Statement for England.
- 4.5 As such the development will meet the objectives of the National Planning Policy Framework in ensuring that no significant adverse impact is experienced by the future residents. The development is therefore considered to be acceptable in terms of noise.

Figure 1 – Aerial Photograph



Figure 2 – Proposed Layout Plan





Appendix A – Full Monitoring Results

Time	L _{Aeq} (dB)	L _{AMax} (dB)	L _{A90} (dB)
19/06/2024 08:20	65.9	82.8	53.5
19/06/2024 09:00	70.6	86	58.3
19/06/2024 10:00	69.8	87.9	56.1
19/06/2024 11:00	71.1	89.4	54.2
19/06/2024 12:00	70.7	86.4	58.0
19/06/2024 13:00	70.6	89.3	57.3
19/06/2024 14:00	69.4	96.2	56.7
19/06/2024 15:00	67.1	86.5	57.9
19/06/2024 16:00	74.9	102.4	56.7
19/06/2024 17:00	71.6	100.1	60.2
19/06/2024 18:00	73.2	84.9	55.2



Appendix B – Report Author Details

This report has been produced by Neil Martin, BSc (Hons), PGDip, CEnvH MCIEH, MIOA.

Neil is the principal acoustic consultant at Martin Environmental Solutions Ltd, a consultancy company specialising in Environmental Health disciplines including environmental noise assessment and control. He holds a Bachelor's degree in Environmental Health and Diploma in Acoustics. He is a Chartered Member of the Chartered Institute of Environmental Health and a Full member of the Institute of Acoustics.

Neil has over 20 years' experience working within a Local Authority Environmental Health setting, principally in the Environmental Protection and Public Health areas and has been working as an acoustic consultant since 2011.

Since its formation, Martin Environmental Solutions has advised and assisted many groups including residents, developers and local authorities about the problems of noise and vibration in the environment and the possible solutions. Neil also acts as an expert witness in the area of acoustics.