

Lord Street, Manchester

Noise Assessment

A118537

**Planning Application for a Proposed Homeless
Accommodation Centre**

Prepared on Behalf of LBG1.10 Ltd c/o MCR Property Group

June 2021

Document control

Document:	Noise Assessment
Project:	Lord Street, Manchester
Client:	LBG1.10 Ltd c/o MCR Property Group
Job Number:	A118537
File Origin:	O:\Acoustics Air Quality and Noise\Fee Earning Projects\A118537

Revision:	1	Status:	First Issue
Date:	2 nd October 2020		
Prepared by:	Checked by:	Approved By:	
George Lund Environmental Consultant	Graham Davis Principal Consultant	Nigel Mann Director	
Description of revision:			

Revision:	2	Status:	Second Issue
Date:	28 th May 2021		
Prepared by: George Lund Environmental Consultant		Checked by: Graham Davis Principal Consultant	Approved By: Nigel Mann Director
Description of revision: Minor amendments			

Revision:	3	Status:	Third Issue
Date:	17 th June 2021		
Prepared by: George Lund Environmental Consultant		Checked by: Graham Davis Principal Consultant	Approved By: Nigel Mann Director
Description of revision: Minor amendments and updated plans			

CONTENTS

1.0	INTRODUCTION	1
2.0	ASSESSMENT CRITERIA	4
3.0	ASSESSMENT METHODOLOGY	5
4.0	NOISE SURVEY.....	8
5.0	ASSESSMENT OF KEY EFFECTS	11
6.0	MITIGATION	13
7.0	CONCLUSIONS	15

APPENDIX A – ACOUSTIC TERMINOLOGY AND ABBREVIATIONS

APPENDIX B – SKETCHES

APPENDIX C – REPORT CONDITIONS

1.0 INTRODUCTION

1.1 Purpose of this Report

This report presents the findings of a noise assessment in support of the full planning application for the re-development of 3 derelict buildings on the corner of Lord Street, Stocks Street and Stocks Street East, in Manchester. The proposal is to regenerate these vacant buildings to provide a new homeless accommodation centre to help with the growing number of rough sleepers within the city. The new facility will comprise a total of 31 standalone bedrooms with en-suite shower rooms (including two DDA compliant rooms), associated communal amenity space, an NHS facility, staff offices, internal and external breakout areas and internal and external storage areas.

A description of the existing noise environment in and around the site is provided. Noise surveys have been undertaken and the results used to verify predictions of the short-term and long-term effects of noise. The noise levels surrounding the proposed development have been predicted at local representative receptors using CADNA noise modelling software which incorporates ISO 9613 methodologies and calculations.

A list of acoustic terminology and abbreviations used in this report is provided in Appendix A and a set of location plans relevant to the assessment are presented in Appendix B.

1.2 Legislative Context (England)

This report is intended to provide information relevant to the local planning authority and their consultees in support of a planning application for the above proposed development. Policy guidance with respect to noise is found in National Planning Policy Framework (NPPF), published on 24th July 2018. With regard to noise and planning, NPPF contains the following statement at paragraph 170:

“170. Planning policies and decisions should contribute to and enhance the natural and local environment by:

- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans*

A further 2 short statements are presented at paragraph 180, which state:

“180. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- a) *“mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life*
- b) *identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational an amenity value for this reason.”*

Furthermore, paragraphs 182 and 183 state:

“182. Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or ‘agent of change’) should be required to provide suitable mitigation before the development has been completed.

183. The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.”

Planning Practice Guidance (PPG): Noise provides further guidance with regard to the assessment of noise within the context of Planning Policy. The overall aim of this guidance, tying in with the principles of the NPPF and the Explanatory Note of the Noise Policy Statement for England, is to, *‘identify whether the overall effect of noise exposure is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation.’*

A summary of the effects of noise exposure associated with both noise generating developments and noise sensitive developments is presented within the PPG and repeated as follows:

Table 1.1 NPPG Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not present	No Effect	No Observed Effect	No Specific Measures Required
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No Specific Measures Required
Lowest Observed Adverse Effect Level			

Perception	Examples of Outcomes	Increasing Effect Level	Action
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

The NPPF, NPSE and PPG: Noise do not, however, present absolute noise level criteria which define SOAEL, LOAEL and NOEL which is applicable to all sources of noise in all situations. Therefore, within the context of the Proposed Development, national planning policy and appropriate guidance documents including the 'World Health Organisation Community Noise Guidelines' (1999) and 'BS 8233 – Guidance on Sound Insulation and Noise Reduction for Buildings' (2014), Section 2.0 presents the noise level criteria used as a basis of this assessment.

The PPG: Noise also states that *neither the NPSE nor the NPPF (which reflects the Noise Policy Statement for England) expects noise to be considered in isolation, separately from the economic, social and other environmental dimensions of the proposed development.*

2.0 ASSESSMENT CRITERIA

2.1 National Planning Practice Guidance - Assessment Criteria

In order to enable the assessment of the proposed development in terms of LOAEL and SOAEL, Table 2.1 presents equivalent noise levels and associated actions with the target noise level criteria identified. The noise level criteria detailed below have been derived from standards and design guidance:

BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings – Code of practice'
Manchester City Council (MCC) Planning & Noise Technical Guidance

Table 2.1 Noise Level Criteria and Actions

Effect Level	Noise Level Criteria	Action / Justification
No Observed Adverse Effect Level (NAOEL)	Internal noise levels less than: Bedrooms (night-time) – 30 dB $L_{Aeq,8hours}$ / 45 dB L_{Amax} Living Rooms (daytime) – 35 dB $L_{Aeq,16hours}$ External Amenity Space – 50 dB $L_{Aeq,16hours}$	None Within BS8233 / WHO criteria
Lowest Observed Adverse Effect Level (LOAEL)	Internal noise levels achieve (with windows open): Bedrooms (night-time) – 30 dB $L_{Aeq,8hours}$ / 45 dB L_{Amax} (up to 15 times per night) Living Rooms (daytime) – 35 dB $L_{Aeq,16hours}$ External Amenity Space (daytime) – 55 dB $L_{Aeq,16hours}$	Mitigate to achieve: Bedrooms – 30 dB $L_{Aeq,8hours}$ / 45 dB L_{Amax} Living Rooms – 35 dB $L_{Aeq,16hours}$ External Amenity Space – 55 dB $L_{Aeq,16hours}$ Within BS8233 / WHO / MCC criteria
Significant Observed Adverse Effect Level (SOAEL)	Noise levels exceed: Bedrooms – 35 dB $L_{Aeq,8hours}$ Living Rooms – 40 dB $L_{Aeq,16hours}$ External Amenity Space – 60 dB $L_{Aeq,16hours}$	Avoid, however, if due to other design considerations noise criteria is not achievable or that the target criteria can be achieved for certain periods (e.g. when windows are closed), the following noise levels may be acceptable as an upper limit: Bedrooms – 35 dB $L_{Aeq,8hours}$ Living Rooms – 40 dB $L_{Aeq,16hours}$ External Amenity Space – 60 dB $L_{Aeq,16hours}$ This is on the basis that the guideline noise values do not represent people's response to noise in all cases with the specified criteria only a marginal exceedance of the target criteria. Furthermore, both BS 8233:2014 and ProPG identify that "These guideline values may not be achievable in all circumstances where development might be desirable. In such a situation, development should be designed to achieve the lowest practicable noise levels in these external amenity spaces but should not be prohibited"

3.0 ASSESSMENT METHODOLOGY

3.1 Noise Modelling Methodology

Three-dimensional noise modelling has been undertaken to predict L_{Aeq} noise levels at a large number of locations both horizontally and vertically. CADNA noise modelling software has been used (as shown in Figure 3.1). This model is based on the ISO 9613 noise propagation methodology.

Figure 3.1 CADNA Noise Model



The modelling software calculates noise levels based on the emission parameters and spatial settings that are entered. Input data, assumptions and model settings as given in the table below have been used.

Table 3.1 Modelling Parameters Sources and Assumptions

Parameter	Source	Details
Horizontal distances – around site	Ordnance Survey	Ordnance Survey
Ground levels – around site	Ordnance Survey	Ordnance Survey
Ground levels – other areas	Site Observations and Ordnance Survey	OS 1:25,000 contours and OS 1:10,000 spot heights.
Receptor positions	Tt	1 m from façade, height of 1.5 m for ground floor, 4 m for first floor properties and 3m per additional storey.
Reflections	Tt	First order reflections have been applied based on mirror image sources.

Parameter	Source	Details
Absorbent Ground	CADNA	Frequency dependant ground absorption has been applied based on values specified in VDI 2714/16 clause 6.3.
Façade Correction	CADNA	Façade corrections have been incorporated into the modelling.
Proposed Plans	LeachRhodesWalker Architects	Proposed Plans Reference: 7970_L(00)10A – 59A

It is acknowledged that a number of these assumptions will affect the overall noise levels presented in this report. However, it should be noted that certain assumptions made, as identified above, are worst-case.

3.2 Model Input Data

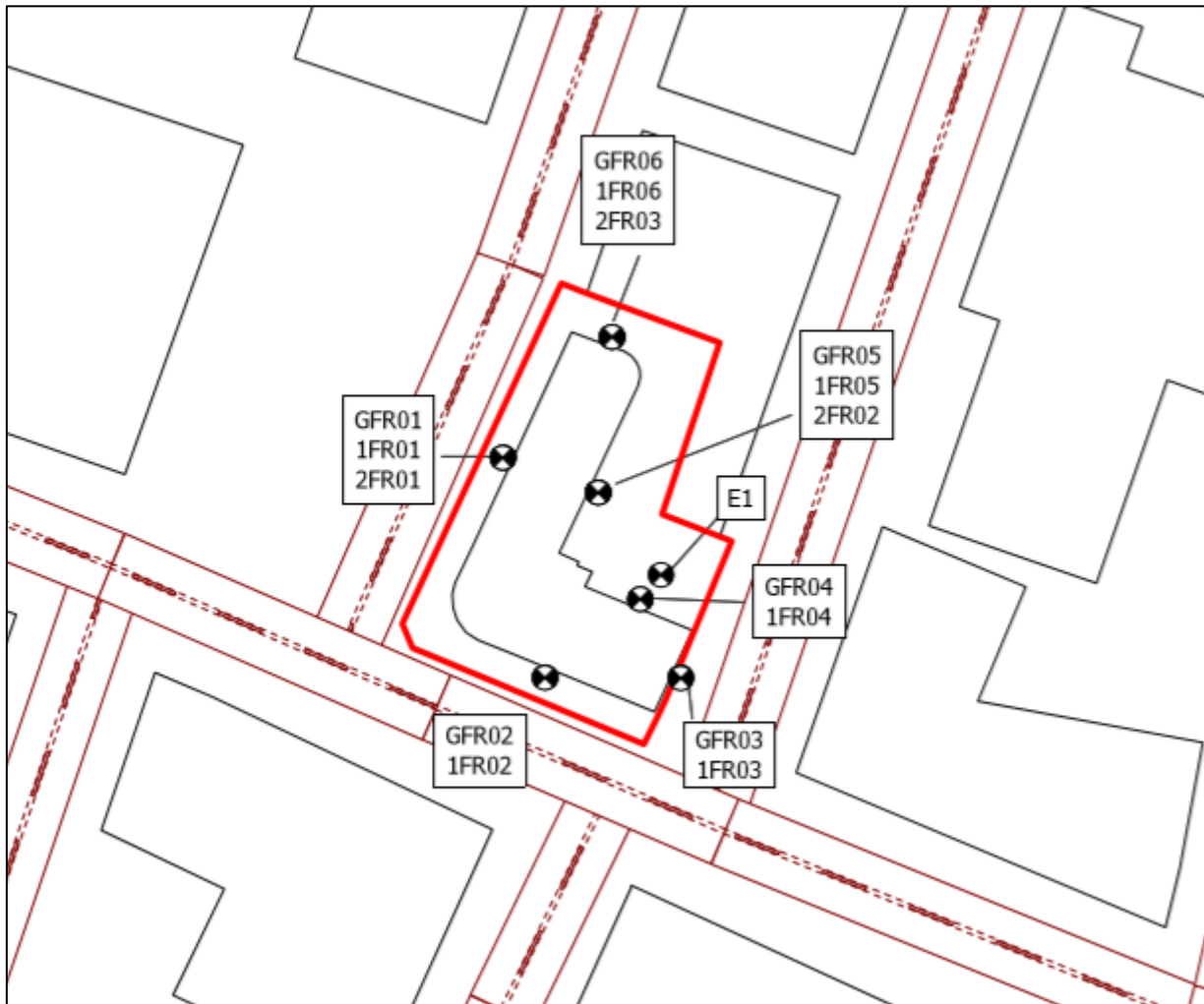
3.2.1 Sensitive Receptors

The closest existing residential receptor locations surrounding the site have been assessed. The locations of the sensitive receptors are shown in SK02 of Appendix B.

Table 3.2 Sensitive Receptor Locations

Ref.	Description
GFR01	Ground Floor, Western Façade
GFR02	Ground Floor, Southern Façade
GFR03	Ground Floor, Eastern Façade
GFR04	Ground Floor, Northern Façade
GFR05	Ground Floor , Eastern Façade
GFR06	Ground Floor, Northern Façade
1FR01	First Floor, Western Façade
1FR02	First Floor, Southern Façade
1FR03	First Floor, Eastern Façade
1FR04	First Floor, Northern Façade
1FR05	First Floor, Eastern Façade
1FR06	First Floor, Northern Façade
2FR01	Second Floor, Western Façade
2FR02	Second Floor, Eastern Façade
2FR03	Second Floor, Northern Façade
E1	Ground Floor External Terrace Area

Figure 3.2 Location of Sensitive Receptors



4.0 NOISE SURVEY

4.1 Noise Survey Methodology

A monitoring survey was undertaken to characterise baseline ambient noise levels currently experienced on the site and to establish the relative local background and traffic noise levels. Equipment used during the survey included:

Norsonic 140	Environmental Noise Analyser	s/n	1402987
Norsonic 1251	Sound Calibrator	s/n	25010
Rion NL-52	Environmental Noise Analyser	s/n	976224
Rion NC-75	Sound Calibrator	s/n	35270131

The measurement equipment was checked against the appropriate calibrator at the beginning and end of the measurements, in accordance with recommended practice, a drift of 0.2 dB was observed. The accuracy of the calibrators can be traced to National Physical Laboratory Standards, calibration certificates for which are available on request.

A baseline monitoring survey was undertaken at five locations (as specified in the following table and shown in SK01 of Appendix B) from Friday 21st August 2020 to Wednesday 26th August 2020. Attended short-term measurements were undertaken at four locations during day, evening and night-time periods with one additional location being measured unattended over a 120-hour period. The raw data collected from the long-term monitoring is available upon request.

Measurements were taken in general accordance with BS 7445-1:2003 *The Description and Measurement of Environmental Noise: Guide to quantities and procedures*. Weather conditions during the survey period were observed as being dry with scattered showers. Anemometer readings confirmed that wind speeds were less than 5 ms⁻¹ at all times during the survey, with a predominant westerly wind direction during the survey.

Table 4.1 Noise Monitoring Locations

Ref	Description
LT1	First floor window of the building on corner of Stocks Street and Lord Street
ST1	Junction of St. Chad's Street and A665
ST2	Stocks Street
ST3	Lord Street
ST4	Stocks Street East

4.2 Noise Survey Results

The dominant noise sources observed in the area and recorded during the baseline noise survey include contributions from road traffic noise from A665 and Lord Street.

Ambient and background noise levels are usually described using the L_{Aeq} index (a form of energy average) and the L_{A90} index (i.e. the level exceeded for 90% of the measurement period) respectively. Road traffic

noise is generally described using the L_{A10} index (i.e. the level exceeded for 10% of the measurement period). For the long-term (LT) locations, the presented $L_{Aeq,T}$ and $L_{A10,T}$ are average noise levels whilst the L_{A90} is the modal noise level of each 5 minute measurement over the stated survey period.

Table 4.2 Meteorological Conditions during the Survey

Survey Location	Date & Time	Temperature (°C)	Wind Speed (m/s)	Wind Direction	Cloud Cover (Oktas)	Dominant Noise Source
Day ST1	26/08/2020 10:08	16	3 – 4	W	8	Road traffic noise A665
Day ST2	26/08/2020 10:29	16	4 - 5	W	8	Road traffic noise A665
Day ST3	26/08/2020 10:47	16	>5	W	8	Road traffic noise Lord Street
Day ST4	26/08/2020 11:05	16	4 - 5	W	8	Road traffic noise Lord Street
Evening ST1	25/08/2020 21:26	15	4 – 5	W	8	Road traffic noise A665
Evening ST2	25/08/2020 20:22	15	>5	W	8	Road traffic noise A665
Evening ST3	25/08/2020 20:46	15	>5	W	8	Road traffic noise Lord Street
Evening ST4	25/08/2020 21:04	15	>5	W	8	Road traffic noise Lord Street
Night ST1	26/08/2020 01:24	15	>5	W	8	Road traffic noise A665
Night ST2	26/08/2020 00:30	15	>5	W	8	Road traffic noise A665
Night ST3	26/08/2020 00:49	15	>5	W	8	Road traffic noise Lord Street
Night ST4	26/08/2020 01:06	15	>5	W	8	Road traffic noise Lord Street

The results of the statistical measurements and frequency measurements conducted during the survey are summarised in the following table. All values are sound pressure levels in dB (re: 2×10^{-5} Pa).

Table 4.3 Results of Baseline Noise Monitoring Survey (Average Levels)

Period	Duration (T)	Monitoring Date and Times	Location	$L_{Aeq,T}$ (dB)	$L_{Amax,T}$ (dB)	$L_{Amin,T}$ (dB)	$L_{A10,T}$ (dB)	$L_{A90,T}$ (dB)
Weekday Daytime 07:00 - 23:00	48 Hours	21/08/2020 – 26/08/2020 12:35 – 11:50	LT1	63.6	95.3	42.4	66.2	52
Weekday Night-time 23:00 – 07:00	24 Hours	21/08/2020 – 26/08/2020 23:00 - 07:00		57.1	92.2	39.3	56.2	49
Weekend Daytime 07:00 - 23:00	32 Hours	22/08/2020 – 23/08/2020 07:00 - 23:00		62.8	103.3	41.4	64.0	51
Weekend Night-time 23:00 – 07:00	16 hours	22/08/2020 – 23/08/2020 23:00 - 07:00		55.3	83.9	39.7	55.5	42
Daytime 07:00 - 19:00	15 Mins	26/08/2020 10:08	ST1	72.3	86.1	53.2	75.9	61.1
	15 Mins	26/08/2020 10:29	ST2	56.0	73.1	47.0	58.2	49.9
	15 Mins	26/08/2020 10:47	ST3	71.1	85.3	51.5	75.9	56.2
	15 Mins	26/08/2020 11:05	ST4	58.9	80.5	47.1	62.1	50.4
Evening 19:00 - 23:00	15 Mins	25/08/2020 21:26	ST1	64.1	82.5	48.4	67.7	54.4
	15 Mins	25/08/2020 20:46	ST3	68.7	84.6	54.1	73.2	57.7

Period	Duration (T)	Monitoring Date and Times	Location	L _{Aeq,T} (dB)	L _{Amax,T} (dB)	L _{Amin,T} (dB)	L _{A10,T} (dB)	L _{A90,T} (dB)
	15 Mins	25/08/2020 21:04	ST4	53.9	72.0	44.7	55.7	48.1
Night-time 23:00 - 07:00	15 Mins	26/08/2020 01:24	ST1	59.6	86.8	41.8	62.0	47.0
	15 Mins	26/08/2020 00:30	ST2	56.2	74.8	43.3	57.7	47.7
	15 Mins	26/08/2020 00:49	ST3	60.0	79.6	32.7	61.8	48.4
	15 Mins	26/08/2020 01:06	ST4	50.5	73.9	39.8	53.1	42.6

All values are sound pressure levels in dB re: 2×10^{-5} Pa

5.0 ASSESSMENT OF KEY EFFECTS

5.1 Noise Intrusion Assessment

Internal noise levels within residential spaces of the proposed development have been assessed both with windows open, where a reduction from a partially open window of 10 dB has been used, and with windows closed where glazing with a sound reduction of 30 dB has been used.

Noise levels within residential spaces of the development would exceed the target noise intrusion criteria if relying on open windows for ventilation. Therefore, an alternative means of ventilation will be required in order to meet both ventilation and internal ambient noise criteria from typical ambient noise sources. Alternative ventilation can be provided in several ways from acoustic trickle vents (which need to have a minimum sound reduction equal to or greater than the glazing), to other passive ventilation systems or mechanical ventilation and air conditioning systems.

The results presented in tables 5.1-5.3 show the predicted worst-case noise intrusion levels at properties across the site. The recommended WHO/BS 8233 internal noise levels are exceeded at nearly all receptors across the site assuming a windows-open scenario. In order to achieve the recommended internal noise criteria, a range of mitigation measures are outlined in Section 6.1 of this report.

Table 5.1 Daytime Noise Intrusion Levels $L_{Aeq,16\text{hour}}$

Location	External L_{Aeq} at 1m from facade	Internal L_{Aeq} with windows open	Internal L_{Aeq} with windows closed	Criteria Internal L_{Aeq}
Ground Floor				
GFR01 (Western Façade)	56.6	46.6	26.6	35
GFR02 (Southern Façade)	64.1	54.1	34.1	35
GFR03 (South-eastern Façade)	60.9	50.9	30.9	35
GFR04 (Northern Façade)	53.7	43.7	23.7	35
GFR05 (South-eastern Façade)	49.3	39.3	19.3	35
GFR06 (Northern Façade)	45.6	35.6	15.6	35
First Floor				
1FR01(Western Façade)	56.6	46.6	26.6	35
1FR02(Southern Façade)	63.9	53.9	33.9	35
1FR03(South-eastern Façade)	61.2	51.2	31.2	35
1FR04(Northern Façade)	53.5	43.5	23.5	35
1FR05(South-eastern Façade)	49.3	39.3	19.3	35
1FR06(Northern Façade)	46.5	36.5	16.5	35
Second Floor				
2FR01(Western Façade)	56.5	46.5	26.5	35
2FR02(South-eastern Façade)	49.3	39.3	19.3	35
2FR03(Northern Façade)	47.4	37.4	17.4	35

Table 5.2 Night-time Noise Intrusion Levels $L_{Aeq,8hour}$

Location	External L_{Aeq} at 1m from facade	Internal L_{Aeq} with windows open	Internal L_{Aeq} with windows closed	Criteria Internal L_{Aeq}
Ground Floor				
GFR01 (Western Façade)	52.9	42.9	22.9	30
GFR02 (Southern Façade)	56.7	46.7	26.7	30
GFR03 (South-eastern Façade)	52.9	42.9	22.9	30
GFR04 (Northern Façade)	44.6	34.6	14.6	30
GFR05 (South-eastern Façade)	40.8	30.8	10.8	30
GFR06 (Northern Façade)	43.7	33.7	13.7	30
First Floor				
1FR01(Western Façade)	52.8	42.8	22.8	30
1FR02(Southern Façade)	56.8	46.8	26.8	30
1FR03(South-eastern Façade)	53.7	43.7	23.7	30
1FR04(Northern Façade)	44.5	34.5	14.5	30
1FR05(South-eastern Façade)	41.0	31.0	11.0	30
1FR06(Northern Façade)	43.8	33.8	13.8	30
Second Floor				
2FR01(Western Façade)	52.6	42.6	22.6	30
2FR02(South-eastern Façade)	41.1	31.1	11.1	30
2FR03(Northern Façade)	43.9	33.9	13.9	30

Table 5.3 –Night-time Noise Intrusion Levels L_{Amax}

Location	External L_{Amax} at 1m from facade	Internal L_{Amax} With windows open	Internal L_{Amax} With windows closed	Criteria Internal L_{Amax}
Ground Level				
GFR01 (Western Façade)	77.2	67.2	47.2	45
GFR02 (Southern Façade)	84.3	74.3	54.3	45
GFR03 (South-eastern Façade)	78.8	68.8	48.8	45
GFR04 (Northern Façade)	66.9	56.9	36.9	45
GFR05 (South-eastern Façade)	62.4	52.4	32.4	45
GFR06 (Northern Façade)	66.3	56.3	36.3	45
First Floor				
1FR01(Western Façade)	77.0	67.0	47.0	45
1FR02(Southern Façade)	84.0	74.0	54.0	45
1FR03(South-eastern Façade)	79.5	69.5	49.5	45
1FR04(Northern Façade)	66.8	56.8	36.8	45
1FR05(South-eastern Façade)	62.9	52.9	32.9	45
1FR06(Northern Façade)	66.6	56.6	36.6	45
Second Floor				
2FR01(Western Façade)	76.8	66.8	46.8	45
2FR02(South-eastern Façade)	63.2	53.2	33.2	45
2FR03(Northern Façade)	66.9	56.9	36.9	45

Noise levels within external community space of the development would not exceed the target noise intrusion criteria. Therefore, no mitigation methods will be required for the external community area.

Table 5.4 External Amenity Area Daytime Noise Levels $L_{Aeq,16hour}$

Location	External L_{Aeq} Noise Level	Criteria External L_{Aeq}
E1	43.8	55

6.0 MITIGATION

6.1 Glazing and Ventilation Strategy

The glazing and ventilation strategy highlight which areas will feature enhanced glazing and an alternative means of ventilation in order to meet both ventilation and internal ambient noise criteria.

Bedrooms will feature enhanced glazing with a minimum sound reduction of up to R_w 31-40 dB, with an alternative means ventilation which matches the performance of this glazing.

- Bedrooms that overlook Lord Street on the southern façade of the proposed development will require a minimum sound reduction of R_w 40 dB.
- Bedrooms that overlook Stocks Street on the western façade of the proposed development will require a minimum sound reduction of R_w 35 dB.
- Bedrooms that overlook Stocks Street East on the south-eastern façade of the proposed development will require a minimum sound reduction of R_w 34 dB,

All of these facades will also have an alternative means ventilation which matches the performance of this glazing; the glazing and ventilation specifications are shown illustratively on Figure 6.1 below and SK05 of Appendix B.

All other areas will benefit from standard double glazing with a sound reduction of R_w 30 dB and a means of alternative ventilation in order to meet both ventilation and internal ambient noise criteria.

Alternative ventilation can be provided in several ways from acoustic trickle vents (which will have a minimum sound reduction equal to or greater than the glazing) to other passive ventilation systems.

Figure 6.1 Glazing Specification – Bedrooms



7.0 CONCLUSIONS

This report presents the findings of a noise assessment to support of the full planning application for the re-development of 3 derelict buildings on the corner of Lord Street, Stocks Street and Stocks Street East, in Manchester. The proposal is to regenerate these vacant buildings to provide a new Homeless Accommodation Centre to help with the growing number of rough sleepers within the city.

In considering the NPPF, the proposed development is not expected to have an 'adverse impact' on health or quality of life. Similarly, with regard to NPPF 180 A, it is considered that all 'adverse impacts on health and quality of life' (relating to noise) are mitigated by the use of the following mitigation:

A glazing and ventilation strategy has been provided which achieves both ventilation and internal ambient noise level requirements of 35 dB $L_{Aeq, 16 \text{ hours}}$, 30 dB $L_{Aeq, 8 \text{ hours}}$ and 45 dB L_{Amax} within bedroom spaces and 35 dB L_{Aeq} within living spaces of the proposed development. All areas of the proposed development will feature an alternative form of mechanical or passive ventilation with a minimum sound reduction equal to or greater than the glazing to achieve the BS8233:2014 guideline levels.

- Bedrooms that overlook Lord Street on the southern façade of the proposed development will require a minimum sound reduction of R_w 40 dB.
- Bedrooms that overlook Stocks Street on the western façade of the proposed development will require a minimum sound reduction of R_w 35 dB.
- Bedrooms that overlook Stocks Street East on the south-eastern façade of the proposed development will require a minimum sound reduction of R_w 34 dB,

The noise mitigation measures outlined in Section 6.0 of this report have been defined reduce the effects of identified sources of noise being currently emitted from the surrounding environment to prevent the adopted thresholds (within the context of BS 8233 and MCC guideline values) and avoid the Significant Observed Adverse Effect Level.

As such, the proposed development satisfies the relevant policy considerations set out in the NPPF and the PPG: Noise.

APPENDICES

APPENDIX A – ACOUSTIC TERMINOLOGY AND ABBREVIATIONS

Acoustic Terminology

dB Sound levels from any source can be measured in frequency bands in order to provide detailed information about the spectral content of the noise, i.e. whether it is high-pitched, low-pitched, or with no distinct tonal character. These measurements are usually undertaken in octave or third octave frequency bands. If these values are summed logarithmically, a single dB figure is obtained. This is usually not very helpful as it simply describes the total amount of acoustic energy measured and does not take any account of the ear's ability to hear certain frequencies more readily than others.

dB(A) Instead, the dBA figure is used, as this is found to relate better to the loudness of the sound heard. The dBA figure is obtained by subtracting an appropriate correction, which represents the variation in the ear's ability to hear different frequencies, from the individual octave or third octave band values, before summing them logarithmically. As a result, the single dBA value provides a good representation of how loud a sound is.

L_{Aeq} Since almost all sounds vary or fluctuate with time it is helpful, instead of having an instantaneous value to describe the noise event, to have an average of the total acoustic energy experienced over its duration. The $L_{Aeq, 07:00 - 23:00}$ for example, describes the equivalent continuous noise level over the 12-hour period between 7 am and 11 pm. During this time period the L_{pA} at any particular time is likely to have been either greater or lower than the $L_{Aeq, 07:00 - 23:00}$.

L_{Amin} The L_{Amin} is the quietest instantaneous noise level. This is usually the quietest 125 milliseconds measured during any given period of time.

L_{Amax} The L_{Amax} is the loudest instantaneous noise level. This is usually the loudest 125 milliseconds measured during any given period of time.

L_n Another method of describing, with a single value, a noise level which varies over a given time period is, instead of considering the average amount of acoustic energy, to consider the length of time for which a particular noise level is exceeded. If a level of x dBA is exceeded for say 6 minutes within one hour, then that level can be described as being exceeded for 10% of the total measurement period. This is denoted as the $L_{A10, 1 \text{ hr}} = x \text{ dB}$.

The L_{A10} index is often used in the description of road traffic noise, whilst the L_{A90} , the noise level exceeded for 90% of the measurement period, is the usual descriptor for underlying background noise. L_{A1} and L_{Amax} are common descriptors of construction noise.

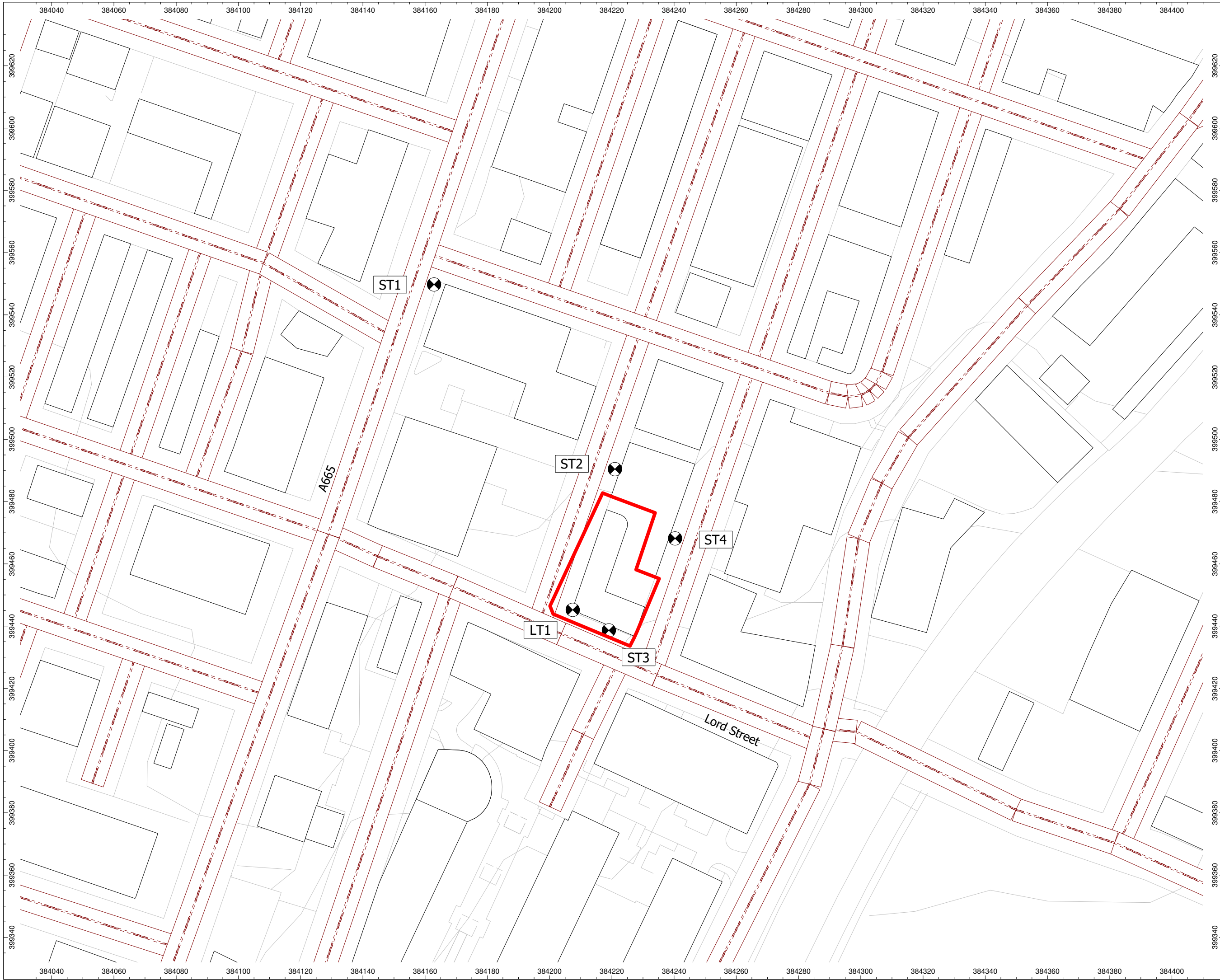
R_w The *weighted sound reduction index* determined using the above *measurement* procedure, but weighted in accordance with the procedures set down in BS EN ISO 717-1. Partitioning and building board manufacturers commonly use this index to describe the inherent sound insulation performance of their products.

Abbreviations

CADNA – Computer Aided Noise Abatement
DMRB – Design Manual for Roads and Bridges
HGV – Heavy Goods Vehicle
PPG – Planning Practice Guidance
UDP – Unitary Development Plan
UKAS – United Kingdom Accreditation Service

APPENDIX B – SKETCHES

- SK01 Noise and Vibration Monitoring Locations
- SK02 Sensitive Receptor Locations
- SK03 Daytime $L_{Aeq,16hr}$ Noise Levels
- SK04 Night-time $L_{Aeq,8hr}$ Noise Levels
- SK05 Glazing and Ventilation Strategy



Client:
LBG1.10 Ltd c/o
MCR Property Group

Project:
A118537

Drawing Title / Scenario:
Noise Monitoring
Location Plan

Drawing Number:
SK01

Key:
Site Boundary: ---

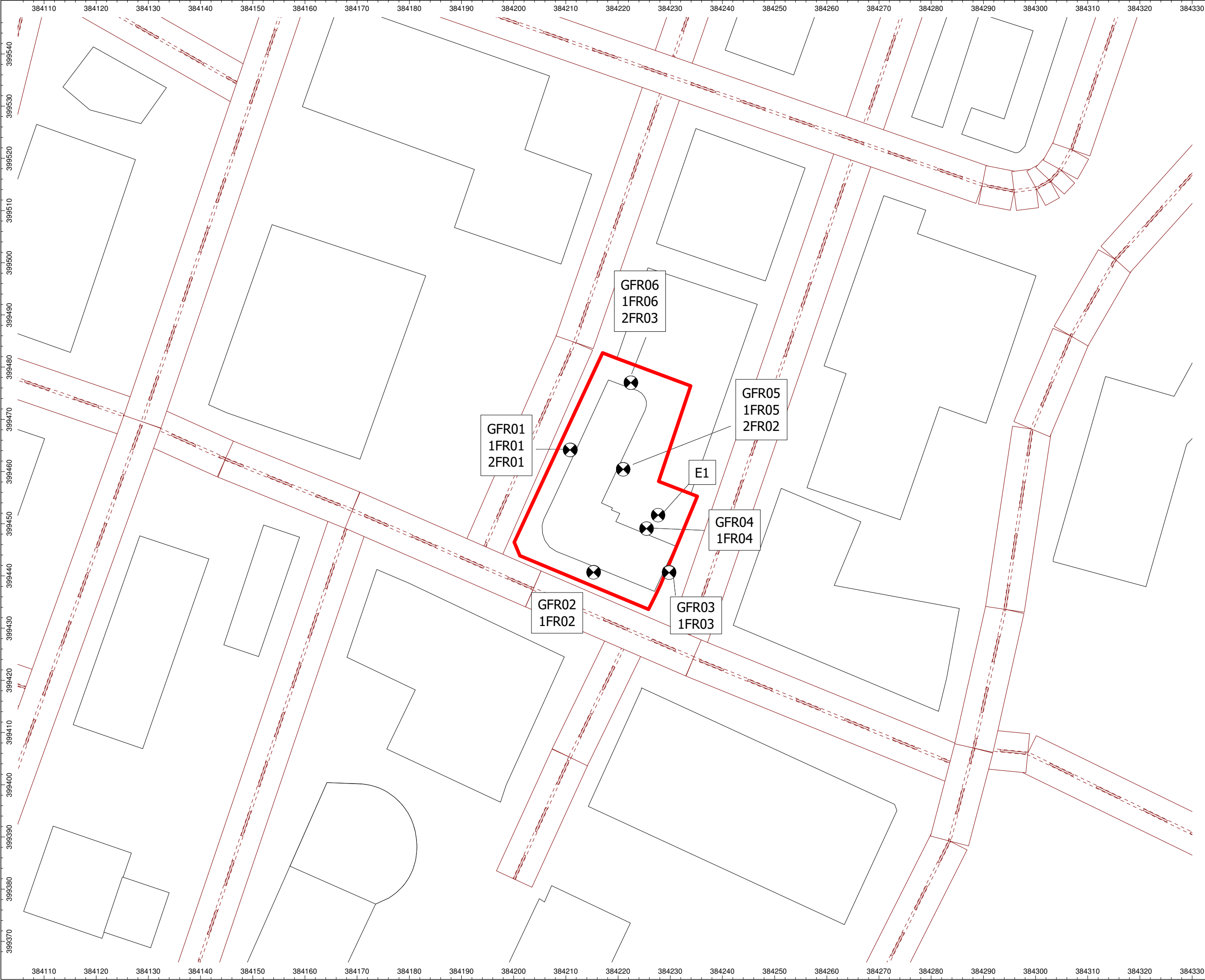
Scale : Not to scale

Tetra Tech 28.05.21



Executive Park
Avalon Way
Anstley
Leicestershire
LE7 7GR
Tel 0116 234 8000

© Tetra Tech Ltd



Client:
LBG1.10 Ltd c/o
MCR Property Group

Project:
A118537

Drawing Title / Scenario:
Sensitive Receptor
Location Plan

Drawing Number:
SK02

Key:
Site Boundary: ——

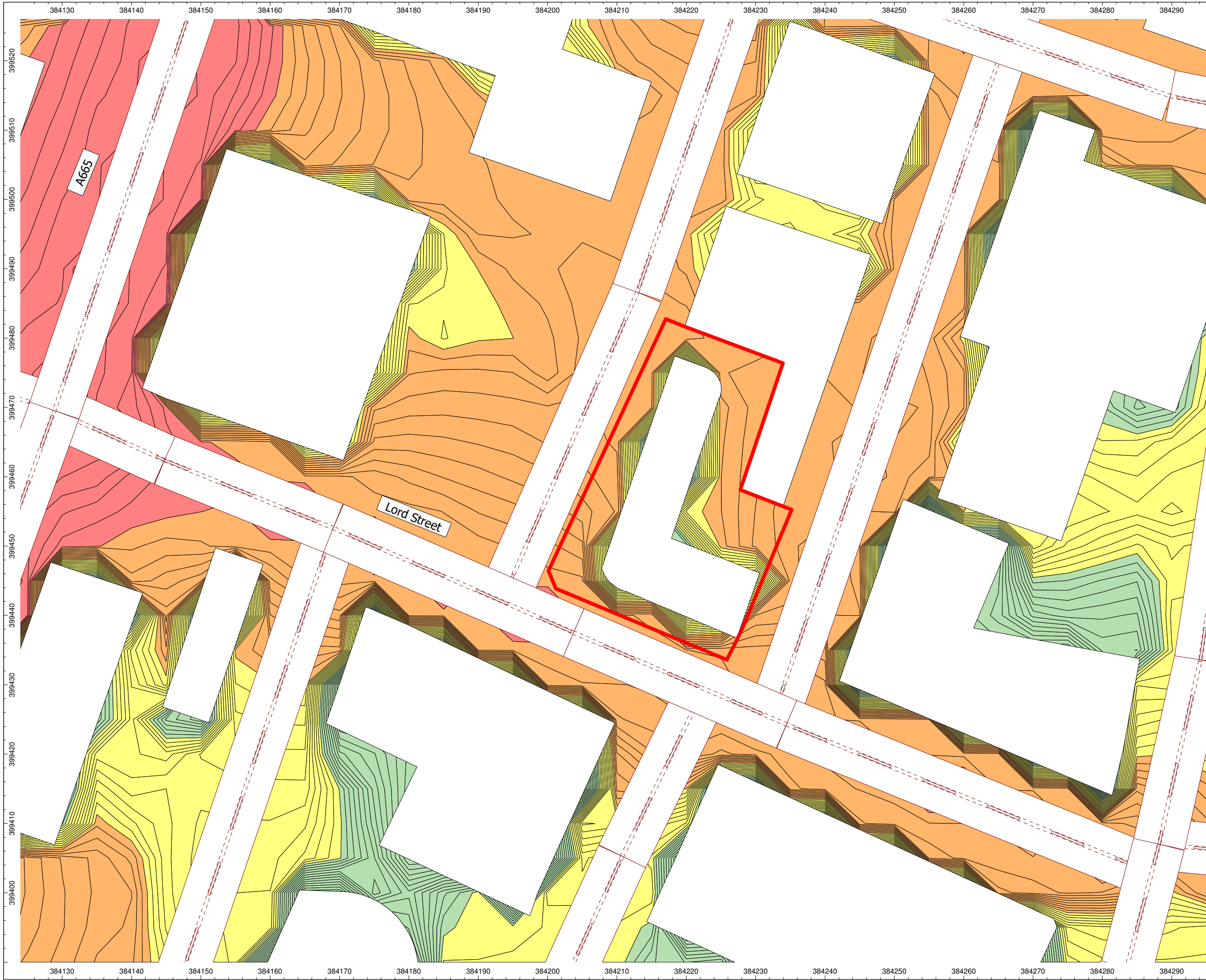
Scale : Not to scale

Tetra Tech 28.05.21



Executive Park
Avalon Way
Anstley
Leicestershire
LE7 7GR
Tel 0116 234 8000

© Tetra Tech Ltd



Client:
LBG1.10 Ltd c/o
MCR Property Group

Project:
A118537

Drawing Title / Scenario:
Noise Contour
Plot (Daytime)
LAeq,1hour

Drawing Number:
SK03

Key:

Site Boundary: —

0.0 - 45.0 dB
45.0 - 55.0 dB
55.0 - 65 dB
>65 dB

Scale : Not to scale

Please note: Noise contour
plots are for illustrative
purposes only

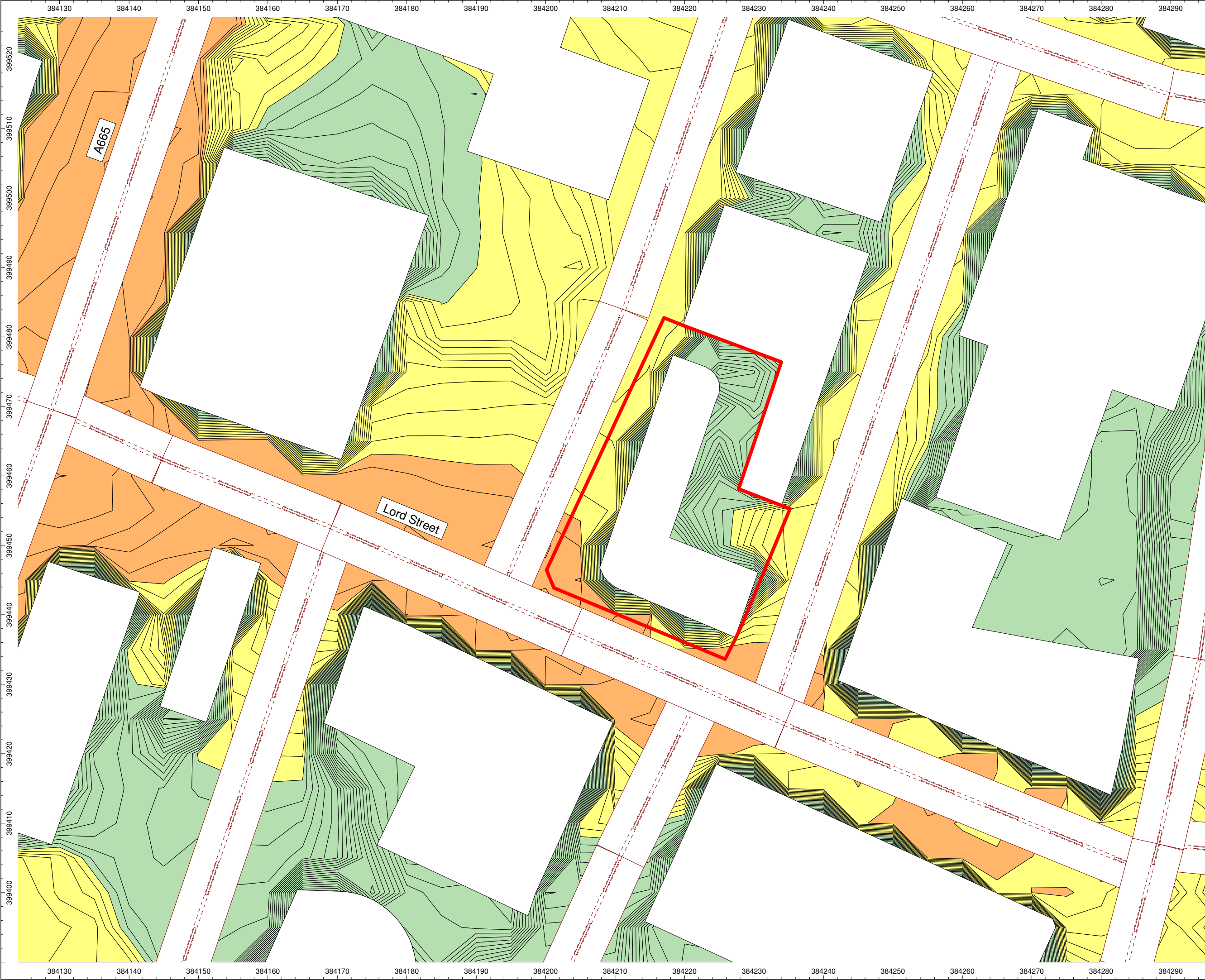
Contour Plot at 1.5m Height

Tetra Tech 28.05.21



Executive Park
Avalon Way
Anstley
Leicestershire
LE7 7GR
Tel 0116 234 8000

© Tetra Tech Ltd



Client:
LBG1.10 Ltd c/o
MCR Property Group

Project:
A118537

Drawing Title / Scenario:
Noise Contour
Plot (Night-time)
LAeq,15mins

Drawing Number:
SK04

Key:

Site Boundary: ---

■ 0.0 - 45.0 dB
■ 45.0 - 55.0 dB
■ 55.0 - 65 dB
■ >65 dB

Scale : Not to scale

Please note: Noise contour
plots are for illustrative
purposes only

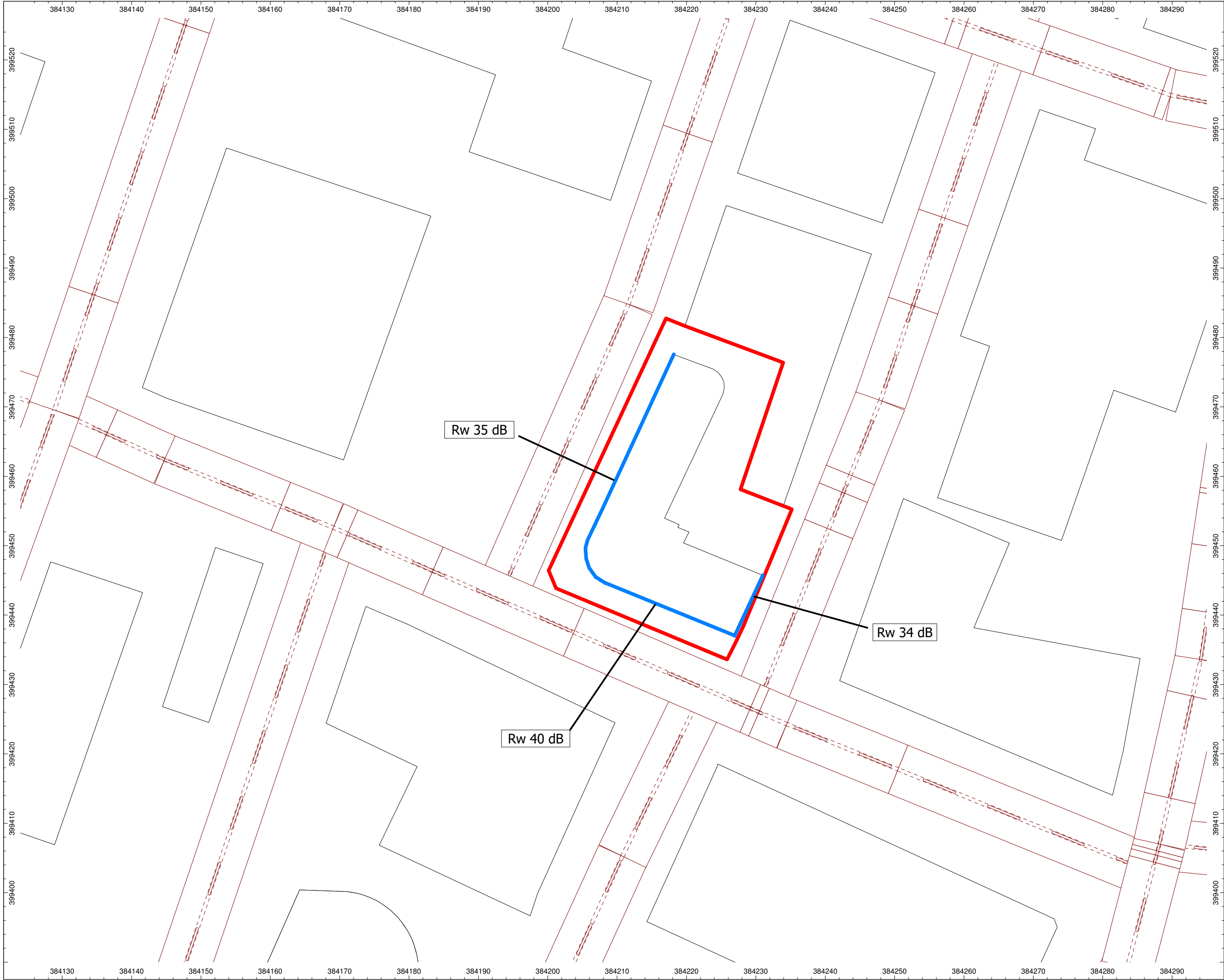
Contour Plot at 4.0m Height

Tetra Tech 28.05.21



Executive Park
Avalon Way
Anstey
Leicestershire
LE7 7GR
Tel 0116 234 8000

© Tetra Tech Ltd



Client:
LBG1.10 Ltd c/o
MCR Property Group

Project:
A118537

Drawing Title / Scenario:
Glazing and Ventilation
Strategy

Drawing Number:
SK05

Key:

Site Boundary: —

Enhanced Glazing &
Alternative Ventilation
Rw 31 - 40 dB: —

All other facades will
require standard double
glazing (Rw 30 dB)
and Alternative Ventilation

Scale : Not to scale

Tetra Tech 28.05.21



Executive Park
Avalon Way
Anstey
Leicestershire
LE7 7GR
Tel 0116 234 8000

© Tetra Tech Ltd

APPENDIX C – REPORT CONDITIONS

This Report has been prepared using reasonable skill and care for the sole benefit of LBG1.10 Ltd c/o MCR Property Group (“the Client”) for the proposed uses stated in the report by Tetra Tech Environment Planning Transport Limited. Tetra Tech Environment Planning Transport Limited exclude all liability for any other uses and to any other party. The report must not be relied on or reproduced in whole or in part by any other party without the copyright holder’s permission.

No liability is accepted or warranty given for; unconfirmed data, third party documents and information supplied to Tetra Tech Environment Planning Transport Limited or for the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report. Tetra Tech Environment Planning Transport Limited does not purport to provide specialist legal, tax or accounting advice.

The report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections'. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times. No investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions. The “shelf life” of the Report will be determined by a number of factors including; its original purpose, the Client’s instructions, passage of time, advances in technology and techniques, changes in legislation etc. and therefore may require future re-assessment.

The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. Tetra Tech Environment Planning Transport Limited accept no liability for issues with performance arising from such factors.