Noise Impact Assessment

Concord Logistics, Wythenshawe

December 2025

Prepared for:
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Project Number:
332613153

Revision	Description	Author	Date	Quality Check	Date	Independent Review	Date
0	1st issue	GW	December 2025	PT	December 2025	MB	December 2025
1	Amended following comments	GW	December 2025	PT	December 2025	MB	December 2025

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Contents

1 Introduction 6
1.1 Background 6
1.2 Scope of Assessment 6
1.3 Site Location and Description of Development 6
1.4 Noise Sensitive Receptors 7
2 Policy, Standards and Criteria 9
2.1 National Policy 9
2.2 Local Planning Policy 11
2.3 Standards and Guidance 13
2.4 Proposed Assessment Criteria 16
3 Environmental Sound Survey 18
3.1 Methodology 18
3.2 Meteorological Conditions 19
3.3 Assumptions/Limitations 19
3.4 Environmental Sound Climate 19
3.5 Environmental Sound Survey Results 20
3.6 Residual and Background Sound Levels 20
4 Proposed Plant Noise Emission Limits 22
5 Noise Impact Assessment – Vehicular Movements on Surrounding Road Network 23
6 Vehicular Movements On-Site 24
6.1 Acoustic Modelling 24
6.2 Acoustic Mitigation 24
6.3 Vehicle Movements 24
6.4 Sound Source Data 25
6.5 Assessment Results 25
7 On-Site Activities 27
7.1 Acoustic Modelling 27
7.2 Vehicle Movements 27
7.3 Sound Source Data 27
7.4 Specific Sound Levels 27
7.5 Preliminary Assessment Results 29
7.6 MCC Technical Guidance Considerations 29
7.7 Context and Mitigating Factors 30
7.8 Uncertainty 31
8 Conclusions 33

Figures

Figure 1. Site Location 7

Figure 2. Location of Noise Sensitive Receptors 8
Figure 3. Environmental Sound Measurement Locations 18

Tables

Table 1. Description of Noise Sensitive Receptors 8
Table 2. DMRB Assessment Criteria – Noise from Road Traffic 14
Table 3. DMRB SOAEL and LOAEL Values for Road Noise 15
Table 4. Proposed Assessment Methodology and Criteria – Vehicle Movements on Surrounding Road Network 16
Table 5. Proposed Assessment Methodology and Criteria – Vehicle Movements on Site 16
Table 6. Proposed Assessment Methodology and Criteria – Delivery On-Site Activities 17
Table 7. Description of Measurement Locations 19
Table 8. Meteorological Conditions 19
Table 9. Summary of Measured Environmental Sound Survey Results – LT1 20
Table 10. Summary of Measured Environmental Sound Survey Results – LT2 20
Table 11. Residual and Background Sound Levels 21
Table 12. Plant Noise Emission Limits 22
Table 13. Change in Basic Noise Level – Vehicle Movements on Surrounding Road Network 23
Table 14. Vehicle Movements Assumed During Day and Night, Per Hour 24
Table 15. Sound Level Data – Vehicle Movements On-Site 25
Table 16. On-Site Vehicular Movements – Results 25
Table 17. Sound Level Data – On-Site Activities 27
Table 18. Specific Sound Level Results – On-Site Activities 27
Table 19. Preliminary Assessment Results – On-Site Activities 29
Table 20. Maximum Sound Levels – On-Site Activities 30
Table 21. Instrumentation 36
Table 22. Traffic Flows on Surrounding Road Network Used Within Assessment 39
Table 23. Development Traffic Flows (Unrounded Values) 39

Appendices

Appendix A Acoustic Terminology
Appendix B Instrumentation
Appendix C Time History Graphs
Appendix D Traffic Flows Used Within Assessment
Appendix E Noise Change Associated with Vehicular Movements on Surrounding Road Network
Appendix F Modelled Sound Levels From Vehicular Movements On-Site
Appendix G Modelled Specific Sound Levels From Activities On-Site

1 Introduction

1.1 Background

1.1.1 Stantec UK Ltd. has been commissioned by Karlin VMH Ltd. to undertake a noise impact assessment of a proposed logistics site on the Concord Business Park, Wythenshawe. The description of the development is as follows:

> *Erection of two-storey Warehouse Units (Use Class B2/ B8/ E(g)(iii)), with ancillary offices and trade counters, along with all associated works including landscaping, car parking and alterations to access arrangements.*

1.1.2 An environmental sound survey has been undertaken to support the assessment. The assessment considers:

- Potential noise impacts of operational activities on the site (e.g delivery and servicing movements).
- Potential noise impacts associated with vehicular movements to and from the development on the surrounding road network.
- Plant noise emission criteria for fixed items of building services plant.

1.1.3 This report presents the results of the environmental sound survey and details the results of the noise impact assessment of the proposed development, based on national and local planning policy, industry standards and guidance.

1.1.4 An explanation of the terminology used in this report is contained in Appendix A.

1.2 Scope of Assessment

1.2.1 The scope of the noise impact assessment report is to present:

- Noise impact assessment criteria based on the requirements of national and local policy, industry standards and guidance.
- The results of the environmental sound survey undertaken by Stantec at locations considered representative of nearby noise sensitive receptors.
- The results of an assessment of the noise impact associated with the operation of the proposed development.

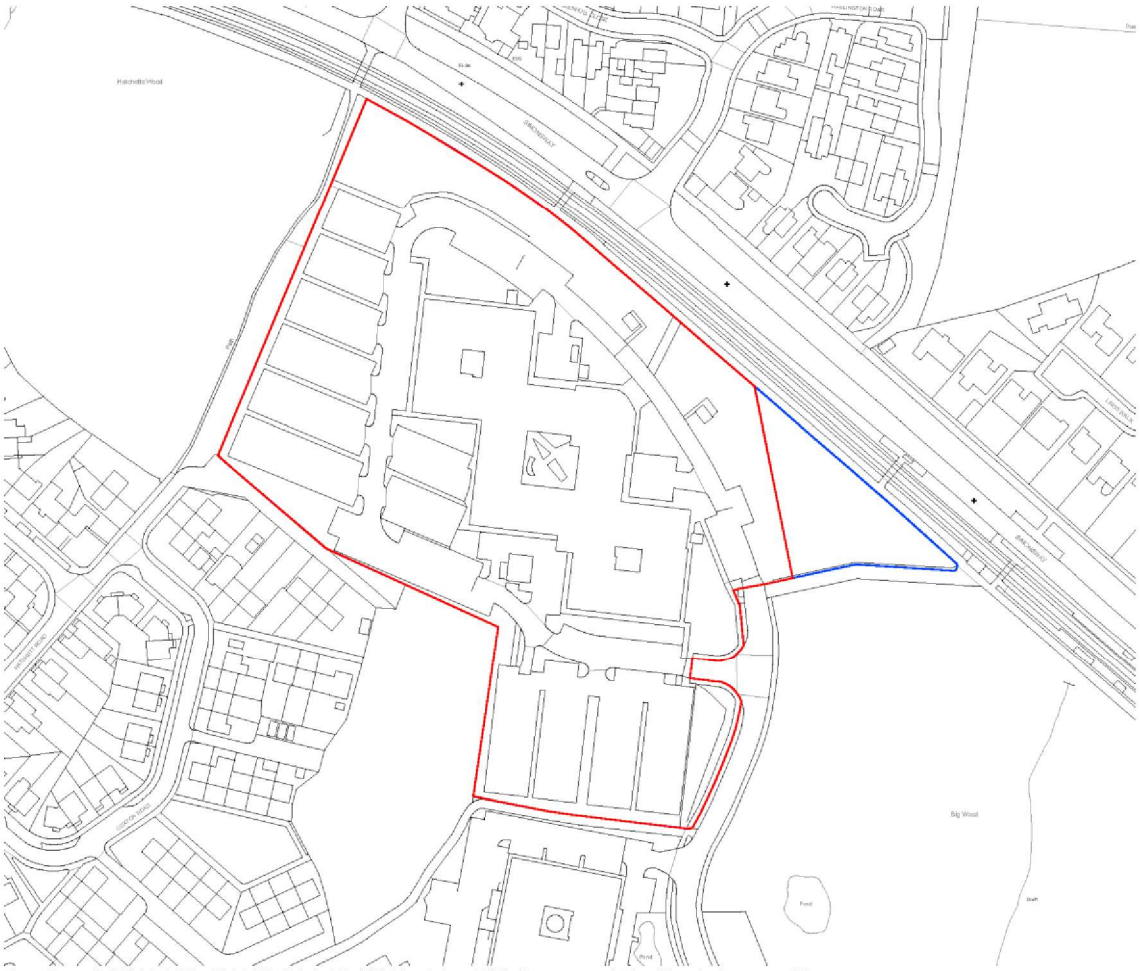
1.3 Site Location and Description of Development

1.3.1 The site (known as Concord House) is part of Concord Business Park, located in Wythenshawe, south of Manchester. It is located approximately 1 km north of Manchester Airport. The site falls within the jurisdiction of Manchester City Council.

1.3.2 The site is bound by Simonsway and the Manchester Airport Metrolink Line to the north and areas of vegetation to the east and west. Residential development is located to the north and south-west, and further commercial development forming remaining areas of Concord Business Park to the south.

1.3.3 Figure 1 presents the location of the proposed development.

Figure 1. Site Location



Drawings 21701-THPL-XX-XX-DR-A-PL100 Revision P02 Courtesy of The Harris Partnership

1.4 Noise Sensitive Receptors

1.4.1 Noise sensitive receptors considered in the assessment are presented in Figure 2 and described in Table 1. For clarity, where there are multiple receptors, they have been grouped. The worst-case receptor from each group is considered in the assessment.

Figure 2. Location of Noise Sensitive Receptors



Esri Community Maps Contributors, Esri UK, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS, Maxar, Microsoft

Table 1. Description of Noise Sensitive Receptors

Ref	Description
NSR1	Residential dwellings north of Simonsway, to the north of the site
NSR2	Residential dwellings north of Coxton Road, to the south of the site

2 Policy, Standards and Criteria

2.1 National Policy

The National Planning Policy Framework (NPPF)

2.1.1 The revised National Planning Policy Framework (NPPF)[1] was published in December 2024. In respect of noise, paragraph 187 states that in relation to conserving and enhancing the natural environment:

> *"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 … noise pollution..."*

2.1.2 In relation to ground conditions and pollution, paragraph 198 states that:

> *"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 quality of life;*
>
> *b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason…"*

2.1.3 The NPPF indicates that the Noise Policy Statement for England (NPSE)[2] should be used to define the "significant adverse impacts".

2.1.4 In relation to the integration of new development with existing premises and community facilities, paragraph 200 states that:

> *"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."*

Planning Practice Guidance: Noise

2.1.5 The Planning Practice Guide (PPG)[3] was launched in 2014 (with the latest update being in 2019) and provides additional guidance and interpretation to the Government's strategic policies outlined within the NPPF in a regularly updated, web-based resource.

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[1] Ministry of Housing, Communities & Local Government (MHCLG) (2024) National Planning Policy Framework

[2] Department for Environment and Food and Rural Affairs (Defra) (2010) Noise Policy Statement for England

[3] Department for Levelling Up, Housing and Communities (DLUHC) (2019) Planning Practice Guidance: Noise

2.1.6 The PPG provides guidance on the effects of noise exposure, relating these to people's perception of noise, and linking them to the no observed effect level (NOEL) and, as exposure increases, the lowest observed adverse effect level (LOAEL) and significant observed adverse effect level (SOAEL).

2.1.7 As exposure increases above the LOAEL, the noise begins to have an adverse effect and consideration needs to be given to mitigating and minimising those effects, taking account of the economic and social benefits being derived from the activity causing the noise. As the noise exposure increases, it will then at some point cross the SOAEL boundary.

2.1.8 Exposure to noise above the LOAEL is described in PPG (Paragraph: 005 Reference ID: 30-005-20190722) as:

> *"…noise starts to cause small changes in behaviour and/or attitude, for example, having to turn up the volume on the television or needing to speak more loudly to be heard. The noise therefore starts to have an adverse effect and consideration needs to be given to mitigating and minimising those effects (taking account of the economic and social benefits being derived from the activity causing the noise)."*

2.1.9 Exposure to noise above SOAEL is described as:

> *"…noise causes a material change in behaviour such as keeping windows closed for most of the time or avoiding certain activities during periods when the noise is present. If the exposure is predicted to be above this level the planning process should be used to avoid this effect occurring, for example through the choice of sites at the plan-making stage, or by use of appropriate mitigation such as by altering the design and layout. While such decisions must be made taking account of the economic and social benefit of the activity causing or affected by the noise, it is undesirable for such exposure to be caused."*

Noise Policy Statement for England

2.1.10 The Noise Policy Statement for England (NPSE)[4] was published in March 2010 and clarifies the underlying principles and aims of existing policy documents that relate to noise. It also sets out the long-term vision of Government noise policy which is: "to promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development".

2.1.11 The NPSE states that noise should not be considered in isolation of the wider benefits of a scheme or development, and that the intention is to minimise noise and its effects as far as is reasonably practicable having regard to the underlying principles of sustainable development.

2.1.12 Paragraphs 2.20 and 2.21 define 'significant adverse' and 'adverse' impacts as applied to noise as follows:

> *"There are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation. They are:*
>
> *NOEL – No Observed Effect Level*
>
> *This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.*
>
> *LOAEL – Lowest Observed Adverse Effect Level*
>
> *This is the level above which adverse effects on health and quality of life can be detected.*

[4] Department for Environment and Food and Rural Affairs (Defra) (2010) Noise Policy Statement for England

Extending these concepts for the purpose of this NPSE leads to the concept of a significant observed adverse effect level.

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur."

2.1.13 Paragraph 2.22 clarifies that:

"It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available."

2.1.14 The three aims of the NPSE are defined as follows:

"Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development."

"Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development." (Note: Applies when the impact lies somewhere between the LOAEL and SOAEL and does not mean that adverse effects cannot occur)."

"Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development."

2.1.15 It is necessary to define the LOAEL and SOAEL for the potential source of noise so that the potential impact can be related to the aims and requirements of the NPSE.

2.2 Local Planning Policy

Manchester Core Strategy 2012 to 2027

2.2.1 The Core Strategy was adopted by Manchester in 2012 and outlines the Council's vision for Manchester in 2027 along with the planning policies which will be used to deliver that vision.

2.2.2 In relation to noise, Policy DM1 Development Management states:

"All development should have regard to the following specific issues for which more detailed guidance may be given within a supplementary planning document.

- *Appropriate siting, layout, scale, form, massing, materials and detail.*
- *Impact on the surrounding areas in terms of the design, scale and appearance of the proposed development. Development should have regard to the character of the surrounding area.*
- *Effects on amenity, including privacy, light, night, vibration, air quality, odours, litter, vermin, birds, road safety and traffic generation. This could also include proposals which would be sensitive to existing environmental conditions, such as noise.*

[…]"

Manchester City Council Planning and Noise Technical Guidance October 2022

2.2.3 The Planning and Noise Technical Noise, in conjunction with the "Our Manchester Strategy" document, *"outlines what is expected in relation to current guidance and policy with the aspiration that new developments achieve the highest possible standards".*

2.2.4 With regards to National policy, the technical guidance states:

> *"In the context of government policy, the Council require that developments aim for:*
>
> 1. *A noise level between the No Observed Effect Level (this is the level of noise exposure below which no effect at all on health or quality of life can be detected) and the Lowest Observed Adverse Effect Level (this is the level of noise exposure above which adverse effects on health and quality of life can be detected). Conditions may be attached.*
>
> *If point 1 cannot be achieved, then:*
>
> 2. *If the assessment results in a level between the Lowest Observed Adverse Effect Level and the Significant Observed Adverse Effect Level (this is the level of noise exposure above which significant adverse effects on health and quality of life occur), mitigation will be necessary to reduce the level and thus conditions will be attached."*

2.2.5 With regards to noise from industrial and commercial sources, it states:

> *"BS4142 should be used to assess the likely impact of noise from industrial and commercial sources at noise sensitive premises."*
>
> *"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.*
>
> *Where this criterion cannot be achieved, the various noise control measures considered as part of the assessment should be fully explained (i.e relocation of noise sources, use of quieter equipment, enclosures, screening, restriction of hours of operation) and the achievable noise level should be identified. This information will allow a judgement to be made concerning the application and its likely impact on the surrounding area.*
>
> *In addition to the above, maximum noise levels should be adequately controlled. Where particular uses generate high noise levels of a short duration (e.g loud bangs) on a regular basis, these should aim to be controlled so as not to exceed 60 dB (L_{Amax}) at the façade of noise sensitive premises nearby in accordance with the recommendations of the WHO""*

2.2.6 With specific regards to deliveries, the guidance states:

> *"Deliveries and collections are usually controlled by restricting operational hours but depending on the extent of these activities, a Noise Management Plan (NMP) may be requested, which would include assessment of noise. This would usually involve assessing the noise upon arrival, loading/unloading period and then departure.*
>
> *The NMP may also need to include controls such as acoustically sealed delivery bays, and restrictions on vehicle mounted refrigeration units and audible alarm systems. Where applicable, the noise assessment will take account of multiple noise sources simultaneously and report the cumulative impact"*

2.2.7 With regards to noise emissions from fixed plant, the guidance states:

> *"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."*

Places for Everyone Joint Development Plan Document for Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan

2.2.8 The Places for Everyone Joint Development Plan Document was adopted in March 2024. The document provides a spatial strategy and seeks to deliver sustainable inclusive growth.

2.2.9 In relation to noise and the proposed development, there is no relevant policy or guidance within the document.

2.3 Standards and Guidance

British Standard 4142:2014 +A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound

2.3.1 BS 4142:2014+A1:2019[5] describes methods for rating and assessing sound of an industrial and/or commercial nature. The methods described in the standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

2.3.2 The standard is used to determine the rating levels for sources of sound of an industrial and/or commercial nature and the ambient, background and residual sound levels at outdoor locations. These levels could be used for the purposes of investigating complaints; assessing sound from proposed, new, modified or additional source(s) of sound of an industrial and/or commercial nature; and assessing sound at proposed new dwellings or premises used for residential purposes. However, the determination of noise amounting to a nuisance is beyond the scope of the standard.

2.3.3 The standard should not be used to assess sound from the passage of vehicles on public roads and railway systems; recreational activities; music and other entertainment; shooting grounds; construction and demolition; domestic animals; people; public address systems for speech and other sources falling within the scopes of other standards or guidance. The standard cannot be applied to the derivation of indoor sound levels arising from sound levels outside, or the assessment of indoor sound levels.

2.3.4 The procedure contained in BS 4142 assesses the significance of sound which depends upon the margin by which the rating level of the specific sound sources exceeds the background sound level and the context in which the sound occurs/will occur. It is noted that a BS 4142 assessment is reliant on measuring relevant background sound levels.

2.3.5 An initial estimate of the impact of the specific sound is obtained by subtracting the measured background sound level from the rating level and considering the following:

2.3.6 Typically, the greater this difference, the greater the magnitude of the impact;

- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context; and
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this

[5] The British Standards Institution (BSI) (2019) British Standard 4142:2014 +A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound

is an indication of the specific sound source having a low impact, depending on the context.

2.3.7 To consider the context, BS 4142 advises that the following factors should be considered:

- The absolute level of sound;
- The character and level of the residual sound compared to the character and level of the specific sound; and
- The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions such as:
  - Façade insulation treatment;
  - Ventilation and/or cooling that will reduce the need to have windows open to provide rapid or purge ventilation; and
  - Acoustic screening.

Design Manual for Roads and Bridges, LA111 Traffic Noise and Vibration, 2020

2.3.8 The Design Manual for Roads and Bridges (DMRB)[6] is considered to be the regulatory standard for the design of a new road or improvements to an existing road. In particular, LA 111 provides guidance on the assessment and the reporting of noise and vibration impacts relating to roads (including the change in traffic flows and construction).

2.3.9 The assessment method considers both the change in noise levels at noise sensitive receptors due to changes in the volume of road traffic and the absolute sound levels at the receptor.

2.3.10 DMRB provides two magnitude scales of impact for the change in noise levels in the 'short-term' (opening year) and in the 'long-term' (future year). The choice of impact scale depends on whether the assessment is comparing the opening year with and without the development, or the opening year without development and the future year with development.

2.3.11 The change in noise levels resulting from changes in traffic flows as a result of the proposed development is considered to be the most appropriate method of assessing the impact of the development at noise sensitive receptors located adjacent to the existing road network.

2.3.12 The short-term magnitude scale identified in Table 2 has been used to inform the assessment.

Table 2. DMRB Assessment Criteria – Noise from Road Traffic

Impact in Noise Terms	Change in Noise Levels ($L_{A10,18h}$ dB) at Noise Sensitive Receptor
Major	≥ 5.0
Moderate	3.0 to 4.9
Minor	1.0 to 2.9
Negligible	< 1.0

[6] Highways England (2020) The Design Manual for Roads and Bridges (DMRB) Sustainability & Environment Appraisal LA 111 Noise and vibration

2.3.13 In addition to the change in noise levels, DMRB also defines LOAELs and SOAELs in terms of absolute sound levels with respect to noise from road traffic as shown in Table 3.

Table 3. DMRB SOAEL and LOAEL Values for Road Noise

Time Period	LOAEL	SOAEL
Day (06:00-24:00)	55dB $L_{A10,18h}$ (façade)	68dB $L_{A10,18h}$ (façade)
Night (23:00-07:00)	40dB $L_{night,outside}$ (free-field)	55dB $L_{night,outside}$ (free-field)

IEMA Guidelines for Environmental Noise Impact Assessment

2.3.14 The Institute of Environmental Assessment (IEMA) Guidelines for Environmental Noise Impact Assessment[7] details an assessment process applicable to a wide range of potential environmental noise sources where a specific assessment method either does not exist or is not considered to be appropriate.

2.3.15 The guidelines suggest that by defining the sensitivity of receptors, the change in noise environment as a result of the source under consideration, and considering the type of noise, an assessment of the potential noise impact can be undertaken.

2.3.16 Receptors are those aspects of the environment sensitive to changes in baseline conditions. The sensitivity of a particular receptor depends upon the extent to which it is susceptible to such changes. Residential receptors are typically considered to have high sensitivity with commercial and industrial receptors considered to have low or negligible sensitivity.

2.3.17 In this instance, the approach suggested by IEMA aligns with the approach taken by DMRB with respect to the assessment of road traffic noise (i.e. it considers the change in noise level due to the changes in traffic flows). It is proposed to apply this approach to the assessment of noise associated with the operation of the on-site car parks.

[7] The Institute of Environmental Assessment (IEMA) (2014) Guidelines for Environmental Noise Impact Assessment Version 1.2

2.4 Proposed Assessment Criteria

2.4.1 In accordance with the requirements of the Local planning Authority (LPA), informed by national and local planning policy and relevant standards and guidance, this section outlines the proposed assessment methodology and criteria.

Vehicle Movements on Surrounding Road Network

2.4.2 Table 4 details the proposed assessment methodology and criteria for assessing vehicle movements on the surrounding road network, based on guidance within DMRB.

Table 4. Proposed Assessment Methodology and Criteria – Vehicle Movements on Surrounding Road Network

Impact	Change in Sound Levels ($L_{A10,18h}$ dB) at Noise Sensitive Receptor
Major	≥ 5.0
Moderate	3.0 to 4.9
Minor	1.0 to 2.9
Negligible	< 1.0

2.4.3 Based on the NPPF, major adverse impacts are associated with significant adverse effects and should be avoided. moderate adverse impacts are associated with adverse effects and should be mitigated. Where adverse impacts are minor, moderate or major, the overall significance (i.e. the LOAEL and SOAEL values) could be influenced by the absolute sound level. This has been considered within the assessment.

Vehicle Movements On-Site

2.4.4 Table 5 details the proposed assessment methodology and criteria for assessing vehicle movements on the site, inclusive of vehicles using the car parks and the access road, based on IEMA guidance. It does not include noise associated with vehicle movements within service yard areas, as these are assessed separately.

Table 5. Proposed Assessment Methodology and Criteria – Vehicle Movements on Site

Impact	Change in Sound Levels ($L_{Aeq,1h}$ dB) at Noise Sensitive Receptor
Major	≥ 5.0
Moderate	3.0 to 4.9
Minor	1.0 to 2.9
Negligible	< 1.0

2.4.5 Based on the NPPF, major and moderate adverse impacts are associated with significant adverse effects (i.e. above the SOAEL) and should be avoided. Moderate and minor adverse impacts are associated with adverse effects (i.e. above the LOAEL) and should be mitigated.

On-Site Activities and Fixed Plant

2.4.6 Table 6 details the proposed preliminary assessment methodology and criteria for assessing on-site activities within service yard areas and fixed plant, based on guidance with BS 4142:2014+A1:2019.

Table 6. Proposed Assessment Methodology and Criteria – Delivery On-Site Activities

Impact	Excess of Rating Level $L_{Ar,Tr}$ over Background Sound Level $L_{A90,15minutes}$ dB
Major	≥10
Moderate	≥5 and <10
Minor	≥0
Negligible	< 0

2.4.7 As per MCC's technical guidance, the No Observed Effect Level (NOEL) is considered to be equivalent to a rating level of 5 dB below the background sound level, depending on the context.

2.4.8 The No Observed Adverse Effect Level (NOAEL) is considered to be equivalent to a rating level which is in-line with the background sound level, depending on the context.

2.4.9 The Lowest Observed Adverse Effect Level (LOAEL) is considered to be equivalent to a rating level which is 5 dB above the background sound level, depending on the context.

2.4.10 The Significant Observed Adverse Effect Level (SOAEL) is considered to be equivalent to a rating level which is 10 dB above the background sound level, depending on the context.

2.4.11 The final significance of the outcome is determined by the context of the assessment, and the results of the preliminary assessment.

3 Environmental Sound Survey

3.1 Methodology

3.1.1 An unattended environmental sound survey was undertaken at two positions between approximately 16:00 on Thursday 2 October 2025 and approximately 15:00 on Tuesday 7 October 2025. The measurement locations are detailed in Figure 3 and described in Table 7. The measurement positions were selected to be representative of the nearest noise sensitive receptors.

3.1.2 Measurements were undertaken over 15-minute intervals of the L_{Aeq}, L_{A90} and L_{AFMax} sound levels.

3.1.3 The sound level meters were located in environmental cases. Each microphone was connected to its associated meter via an extension cable, and fitted with the manufacturer's windshield.

3.1.4 The instrumentation used in the survey (including calibration information) is listed in Appendix B . Calibration certificates are available upon request.

3.1.5 Field calibrations were performed before and after the measurements with no significant fluctuations recorded (< 0.5 dB).

Figure 3. Environmental Sound Measurement Locations



Esri Community Maps Contributors, Esri UK, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS, Maxar, Microsoft

Table 7. Description of Measurement Locations

Location	Description
LT1	The microphone was located in free-field condition along the southern boundary of the proposed development. The microphone was located approximately 1.5 m above the local ground level. The measurement was considered representative of noise sensitive receptors located north of Coxton Road (NSR1)
LT2	The microphone was located in free-field conditions along the northern boundary of the proposed development. The microphone was located approximately 1.5 m above local ground level. The measurement was considered representative of noise sensitive receptors north of Simonsway (NSR2)

3.2 Meteorological Conditions

3.2.1 Due to the unattended nature of the survey, it is not possible to accurately comment on the meteorological conditions throughout the entire survey period. However, based on a review of publicly available weather data and observations at the beginning and end of the survey period, the weather conditions are detailed in Table 8.

Table 8. Meteorological Conditions

Date	Average Temperature (°C)	Total Precipitation (mm)	Wind Speed (m/s)
Thursday 02/10/2025	15	4.4	1 - 4
Friday 03/10/2025	16	18.9	3 - 11
Saturday 04/10/2025	11	10.2	7 - 12
Sunday 05/10/2025	13	0	1 - 12
Monday 06/10/2025	15	0	1 - 2
Tuesday 07/10/2025	14	0	1 - 3

3.2.2 High winds were noted to occur between 13:00 hours on Friday 03/10/2025 until 18:00 hours on Sunday 05/10/2025. This period has been excluded from the survey period.

3.3 Assumptions/Limitations

3.3.1 The engineer noticed nothing unusual in terms of the sound climate at the time of survey. This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of inspections. Environmental conditions can vary. No warranty is given as to the possibility of changes in the environment of the site and surrounding area at different times.

3.4 Environmental Sound Climate

3.4.1 Due to the unattended nature of the survey, it is not possible to accurately comment on the dominant sound sources or the specific events during the entire survey period. However, at the beginning and end of the survey period, it was noted that on-site sound levels were dominated by vehicular movements on the surrounding road and light rail networks, specifically on Simonsway and the Manchester Airport Metrolink Line.

3.5 Environmental Sound Survey Results

3.5.1 The results of the survey are presented in the time history graphs in Appendix C .

3.5.2 A summary of the survey results is provided in Table 9 and Table 10.

Table 9. Summary of Measured Environmental Sound Survey Results – LT1

Date	Period, *T*	Measured Sound Level (dB)				
		$L_{Aeq,T}$	L_{AFMax}*	$L_{A90,15minutes}$		
				Range	Mean	Median
Thursday 02/10/2025	Daytime (07:00 – 23:00 hours)	52	-	44-53	46	46
	Night-time (23:00 – 07:00 hours)	49	64	39-53	43	41
Friday 03/10/2025*	Daytime (07:00 – 23:00 hours)	53	-	46-51	49	49
	Night-time (23:00 – 07:00 hours)	-	-	-	-	-
Saturday 04/10/2025*	Daytime (07:00 – 23:00 hours)	-	-	-	-	-
	Night-time (23:00 – 07:00 hours)	-	-	-	-	-
Sunday 05/10/2025*	Daytime (07:00 – 23:00 hours)	48	-	39-47	44	44
	Night-time (23:00 – 07:00 hours)	45	60	37-46	40	40
Monday 06/10/2025	Daytime (07:00 – 23:00 hours)	48	-	36-48	44	44
	Night-time (23:00 – 07:00 hours)	45	61	34-46	38	38
Tuesday 07/10/2025	Daytime (07:00 – 23:00 hours)	49	-	44-47	45	45
*Data excluded between Friday 3 October 13:00 and Sunday 5 October 18:00						

Table 10. Summary of Measured Environmental Sound Survey Results – LT2

Date	Period, *T*	Measured Sound Level (dB)				
		$L_{Aeq,T}$	L_{AFMax}*	$L_{A90,15minutes}$		
				Range	Mean	Median
Thursday 02/10/2025	Daytime (07:00 – 23:00 hours)	64	-	52-60	56	56
	Night-time (23:00 – 07:00 hours)	59	77	41-55	47	46
Friday 03/10/2025*	Daytime (07:00 – 23:00 hours)	65	-	55-61	58	58
	Night-time (23:00 – 07:00 hours)	-	-	-	-	-
Saturday 04/10/2025*	Daytime (07:00 – 23:00 hours)	-	-	-	-	-
	Night-time (23:00 – 07:00 hours)	-	-	-	-	-
Sunday 05/10/2025*	Daytime (07:00 – 23:00 hours)	61	-	41-54	49	48
	Night-time (23:00 – 07:00 hours)	58	74	39-51	43	42
Monday 06/10/2025	Daytime (07:00 – 23:00 hours)	64	-	40-61	54	55
	Night-time (23:00 – 07:00 hours)	57	75	38-52	43	42
Tuesday 07/10/2025	Daytime (07:00 – 23:00 hours)	64	-	51-59	55	55
*Data excluded between Friday 3 October 13:00 and Sunday 5 October 18:00						

3.6 Residual and Background Sound Levels

3.6.1 Residual and background sound levels have been identified for each measurement location and NSR based on a logarithmic average of the ambient sound levels and statistical

procedure of assessing background sound levels outlined in BS 4142 respectively. The identified sound levels are detailed in Table 11.

Table 11. Residual and Background Sound Levels

Location/ Receptor	Parameter	Sound Level (dB)	
		Daytime Period (*T*, 07:00 – 23:00 hours)	**Night-time Period (*T*, 23:00 – 07:00 hours)**
LT1/NSR1	Residual ($L_{Aeq,T}$)	64	58
	Background ($L_{A90,15mins}$)	54	41
LT2/NSR2	Residual ($L_{Aeq,T}$)	50	47
	Background ($L_{A90,15mins}$)	43	38

4 Proposed Plant Noise Emission Limits

4.1.1 Based on the results of the environmental sound survey and the typical requirement of the local authority, plant noise emission limits are proposed in Table 12. The proposed plant noise emission limits should be achieved at 1 m from the nearest noise sensitive receptor (excluding façade reflections) and are subject to confirmation by the Local Planning Authority.

Table 12. Plant Noise Emission Limits

Receptor	Receptor Type	Time Period	Proposed Plant Noise Emission Limit ($L_{Ar,Tr}$ dB)
NSR1	Residential	Daytime (07:00 – 23:00 hours)	49
		Night-time (23:00 – 07:00 hours)	36
NSR2	Residential	Daytime (07:00 – 23:00 hours)	38
		Night-time (23:00 – 07:00 hours)	33

5 Noise Impact Assessment – Vehicular Movements on Surrounding Road Network

5.1.1 Traffic data associated with vehicular movements on the surrounding road network has been provided by the traffic consultant for the with and without development scenarios. The traffic flows used within the assessment are presented in Appendix D

5.1.2 The assessment considers the change in traffic flows in the opening year (2029) with the existing development in place, and with the proposed development in place.

5.1.3 The Basic Noise Level (BNL) has been calculated along roads providing access to the proposed development. The results of the calculations are presented in Table 13.

Table 13. Change in Basic Noise Level – Vehicle Movements on Surrounding Road Network

Link	Change in Basic Noise Level dB $L_{A10,18hour}$
Simonsway (W)	+0.1
Threapwood Road	+3.1
Shadowmoss Road (S)	+0.3
Shadowmoss Road (N)	+0.6

5.1.4 The results indicate that there is a potentially moderate adverse effect at properties along Threapwood Road, due to the change in traffic composition and increase in HGVs. The change in BNL does not take into account noise associated with other roads or distance away from the roads, and therefore represents a worst-case assessment.

5.1.5 To understand the effects in more detail, 3D acoustic modelling has been undertaken within SoundPlan 9.1 using the calculation methodology within CRTN. The results of the modelling are presented as a change in BNL during the daytime ($L_{A10,18hour}$) within Appendix E

5.1.6 The results of the modelling indicate that the associated noise change is less than 3 dB at all receptors at properties along Badgers Walk, where they are anticipated to experience a noise change of up to +1.2 dB. As per Table 4 this relates to a minor impact and is not considered to be a significant adverse effect. The noise change on all other streets is less than 1 dB and therefore negligible.

5.1.7 As such, significant adverse effects are not anticipated to occur as a result of vehicle movements on the surrounding road network due to the proposed development. Impacts at the worst-affected properties are expected to be minor and marginally above the lowest observable effect level (LOAEL). Mitigation to reduce impacts could include the implementation of a Noise Management Plan (NMP) for the respective units on the site to ensure staff and drivers are aware of potential impacts on nearby noise sensitive receptors. The implementation of an NMP could be conditioned as part of the planning permission.

6 Vehicular Movements On-Site

6.1 Acoustic Modelling

6.1.1 To determine the levels of sound generated by vehicle movements on-site (including the use of the car parks), a 3D acoustic model of the site has been created.

6.1.2 The acoustic model calculates the propagation of sound from the proposed development in accordance with '*ISO 9613-2:2023 Acoustics – Attenuation of Sound During Propagation Outdoors – Part 2: General Method of Calculation*'.

6.1.3 The ground absorption of the proposed development has been modelled as being acoustically hard, with a ground factor of 0.2. The ground absorption of areas beyond the site boundary have been modelled as being acoustically soft, with a ground factor of 1. Due to the relatively short distances over which sound propagation has been calculated, the effect of ground absorption has little impact on the calculation results.

6.2 Acoustic Mitigation

6.2.1 The inclusion of two 2.5 m high acoustic barriers has been considered within the assessment. One of these barriers is located to the north of the service yard of Unit 1. The second of these barriers is located to the south of the plant area between Unit 1 and Unit 2. The acoustic barriers are assumed to be solid and imperforate, with a minimum mass per unit area of 10 kg/m^2 over the lifetime of the barrier.

6.3 Vehicle Movements

6.3.1 The assessment of vehicular movements on-site has been based on traffic data provided by Stantec's transport consultant.

6.3.2 The assessment has been split into daytime and night-time periods, to understand the potential impacts during different times throughout the day. The vehicle movements outlined in Table 14 have been assumed within the assessment, based on the traffic data provided. The full traffic data provided by the transport consultant is provided within Appendix D .

Table 14. Vehicle Movements Assumed During Day and Night, Per Hour

Time Period	Vehicle Movements Per Hour (Arrivals and Departures)							
	Unit 1		Unit 2		Unit 3		Total	
	Cars	HGVs	Cars	HGVs	Cars	HGVs	Cars	HGVs
Daytime 07:00 – 23:00	14	4	18	5	20	6	**52**	**15**
Night-time 23:00 – 07:00	3	2	3	2	3	2	**9**	**6**

*The number of vehicle movements per hour has been derived by rounding up the number of arrivals to the nearest integer, rounding up the number of departures to the nearest integer, and adding these together. The time period which generates the highest sound level has then been chosen for the assessment of the daytime and night-time periods.

6.3.3 The assessment considers sound levels over a one-hour interval during daytime hours and 15 minutes during night-time hours.

6.3.4 To calculate the number of vehicle movements in a given 15-minute period at night (rather than over an hour), the number of vehicles attributable to each unit has been divided by four and rounded up to the nearest integer.

6.4 Sound Source Data

6.4.1 The sound level data provided within Table 15 has been used within the assessment for car parks and the access road.

Table 15. Sound Level Data – Vehicle Movements On-Site

Area	Activity	Sound Exposure Level (SEL) dBA	Maximum Sound Level $L_{Amax,f}$ (dBA)
Car Park Areas	Car Passing (Arriving/Departing)	67 at 10 m	74 at 4 m
	Door Closing (Arriving/Departing)	64 at 10 m	
	Engine Starting and Pulling Away (Departing)	72 at 10 m	
Access Road	Car Passing	75 at 5 m	86 at 5 m
	HGV Passing	89 at 5 m	

6.4.2 The acoustic model has been calibrated using the sound level data provided within Table 15 and the traffic flows within Table 14. The car park areas have been modelled as an area source, while the access road has been modelled as a line source. Maximum sound levels have been modelled at a point source and has been modelled in the worst-case location for each receptor respectively.

6.5 Assessment Results

6.5.1 The results of the acoustic model are presented as sound level figures within Appendix F .

6.5.2 The calculated sound levels at individual receptors are presented in Table 16. Daytime sound levels are calculated at a height of 1.5 m above ground level, while night-time sound levels are calculated at a height of 4 m above ground level.

Table 16. On-Site Vehicular Movements – Results

Receptor	Parameter	Residual Sound Level (dB $L_{Aeq,T}$)	Calculated Car Park Sound Level (dB $L_{Aeq,1hour/15minutes}$)	Worst-Case Combined Ambient Sound Level dB $L_{Aeq,T}$	Change in Sound Level (dB) and Magnitude of Impact	Maximum Sound Level (dB $L_{Amax,f}$)
NSR1	Daytime 07:00 – 23:00	64	47	64	+0 Negligible	-
	Night-time 07:00 – 23:00	58	42	58	+0 Negligible	58
NSR2	Daytime 07:00 – 23:00	50	41	50	+0 Negligible	-
	Night-time	47	36	47	+0 Negligible	47

Receptor	Parameter	Residual Sound Level (dB $L_{Aeq,T}$)	Calculated Car Park Sound Level (dB $L_{Aeq,1hour/15minutes}$)	Worst-Case Combined Ambient Sound Level dB $L_{Aeq,T}$	Change in Sound Level (dB) and Magnitude of Impact	Maximum Sound Level (dB $L_{Amax,f}$)
	07:00 – 23:00					

6.5.3 The results of the assessment indicate that vehicular movements on-site are not expected to result in adverse noise effects, with results during the daytime and night-time showing no increase in the existing ambient sound level at either receptor.

6.5.4 It is also noted that the maximum sound level calculated at receptors at night is below MCC's guidance limit of 60 dB $L_{Amax,f}$.

7 On-Site Activities

7.1 Acoustic Modelling

7.1.1 The same modelling methodology to calculate specific sound levels from on-site activities has been used as described in Section 6.

7.2 Vehicle Movements

7.2.1 The assessment of noise from service yards is based on the same number of HGV movements as identified in Section 6.

7.3 Sound Source Data

Table 17. Sound Level Data – On-Site Activities

Activity	Sound Exposure Level (SEL) dBA	Measurement Distance (m)
Lorry Arriving (Arriving)	90	1
Reversing Alarm (Arriving)	94	1
Lorry Door Slam (Arriving/Departing)	83	1
Opening/Closing Lorry Shutter (Arriving/Departing)	76	1
Starting Lorry Engine (Departing)	89	3
Lorry Driving Away (Departing)	90	3
Typical maximum sound levels for activities in service yards are assumed to be 93 dB $L_{Amax,f}$ at 1 m.		

7.4 Specific Sound Levels

7.4.1 The calculated specific sound levels at the receptors are presented in Table 18. Daytime specific sound levels have been calculated at a height of 1.5 m above ground level. Night-time specific sound levels have been calculated at a height of 4 m above ground level.

7.4.2 The modelled daytime and night-time specific sound levels are presented within Figure G1 and G2 respectively within Appendix G .

Table 18. Specific Sound Level Results – On-Site Activities

Receptor	Specific Sound Level $L_{Aeq,T}$	
	Daytime (07:00 – 23:00 hours) Reference Interval, T = 1 hour	Night-time (23:00 – 07:00 hours) Reference Interval, T = 15 minutes
NSR1	32	34
NSR2	29	30

Rating Corrections

7.4.3 Certain acoustic features can increase the significance of impact over that expected from a basic comparison between the specific sound levels and the background sound level. The calculated specific sound level should therefore be modified in accordance with the following

guidance. Due to the type of assessment (i.e. predictive), the subjective method has been used to determine the type and level of acoustic feature corrections applied to each source.

7.4.4 Note 2 within Paragraph 9.2 of BS 4142:2014 + A1 2019 states:

> *"If characteristics likely to affect perception and response are present in the specific sound, within the same reference period, then the applicable corrections ought normally to be added arithmetically. However, if any single feature is dominant to the exclusion of the others then it might be appropriate to apply a reduced or even zero correction for the minor characteristics."*

7.4.5 BS 4142 offers the following guidance on the subjective assessment of acoustic feature corrections.

> *"Tonality*
>
> *For sound ranging from not tonal to predominantly tonal the Joint Nordic Method gives a correction of between 0 dB and + 6 dB for tonality. Subjectively, this can be converted to a penalty of 2 dB for a tone which is just perceptible at the noise receptor, 4 dB where it is clearly perceptible, and 6 dB where it is highly perceptible.*
>
> *Impulsivity*
>
> *A correction of up to + 9 dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3 dB for impulsivity which is just perceptible at the noise receptor, 6 dB where it is clearly perceptible and 9 dB where it is highly perceptible.*
>
> *Other Sound Characteristics*
>
> *Where the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment a penalty of 3 dB can be applied.*
>
> *Intermittency*
>
> *When the specific sound has identifiable on/off conditions, the specific sound level ought to be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time… If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied."*

7.4.6 During the day, the calculated specific sound level is 22 dB below the background sound level at NSR1 and 14 dB below the background sound level at night. On this basis, it is unlikely that characteristic features of sound would be notable at the receptors.

7.4.7 During the night, the calculated specific sound level is 7 dB below the background sound level at NSR1 and 8 dB below the background sound level at NSR2. On this basis, some short-term events may be audible at the receptors.

7.4.8 Due to this, a 3 dB feature correction has been applied due to tonality from reversing alarms as they may be audible. Furthermore, as delivery activities may be intermittent, a 3 dB correction has also been applied. Therefore, a total of 6 dB has been applied to derive the rating level at receptors. It is noted that this has been applied due to the likelihood of audibility of activities at night, and that during the day, applying this feature correction represents a worst-case assessment.

7.5 Preliminary Assessment Results

7.5.1 The calculated rating level, which represents the preliminary numerical assessment, at each receptor is identified in Table 19.

Table 19. Preliminary Assessment Results – On-Site Activities

Description	Rating Level $L_{Ar,Tr}$ dB			
	Daytime (T*r* = 1hr) 07:00 – 23:00		Night-time (T*r* = 15mins) 23:00 – 07:00	
	NSR1	NSR2	NSR1	NSR2
Combined Rating Level at Receptor (dB $L_{Ar,Tr}$)	38	35	40	36
Background Sound Level ($L_{A90,15}$ minutes)	54	41	43	38
Excess of Rating over Background Sound Level	-16	--6	-3	-2
Preliminary Assessment of Impact	Indication of having a low impact, depending on the context.	Indication of having a low impact, depending on the context.	Indication of having a low impact, depending on the context.	Indication of having a low impact, depending on the context.

7.5.2 The calculated rating level at all receptors is expected to be below the background sound level during the daytime and night-time. Based on guidance provided within BS 4142:2014+A1:2019, this results in the rating level being below the NOAEL proposed within this report.

NPPF and NPSE Considerations

7.5.3 The NPPF requires adverse noise impacts (i.e. impacts above the LOAEL) to be *'mitigated and reduced to a minimum'* and it requires significant adverse impacts (i.e. impacts above the SOAEL) to be "*avoided*".

7.5.4 Based on the resultant rating level being below the background sound levels (i.e. below the NOAEL and the LOAEL), and by incorporating effective mitigation within the scheme, adverse impacts have been mitigated and reduced to a minimum.

7.5.5 The proposed development is therefore compliant with the noise requirements of the NPPF.

7.6 MCC Technical Guidance Considerations

7.6.1 It is acknowledged that the NOEL as described by Manchester City Council's technical guidance would require the rating level to be at least 5 dB below the background sound level.

7.6.2 Therefore, using MCC's technical guidance, the rating level would fall between the NOEL (i.e. the rating level being 5 dB below the background sound level) and the NOAEL (i.e. the rating level being below the background sound level). This means there would be no adverse impact.

7.6.3 Where this is the outcome, MCC's technical guidance states:

"In the context of government policy, the Council require that developments aim for:

1. *A noise level between the No Observed Effect Level (this is the level of noise exposure below which no effect at all on health or quality of life can be detected) and the Lowest*

Observed Adverse Effect Level (this is the level of noise exposure above which adverse effects on health and quality of life can be detected). Conditions may be attached.

If point 1 cannot be achieved, then:

2. *If the assessment results in a level between the Lowest Observed Adverse Effect Level and the Significant Observed Adverse Effect Level (this is the level of noise exposure above which significant adverse effects on health and quality of life occur), mitigation will be necessary to reduce the level and thus conditions will be attached."*

7.6.4 Based on the above, the outcome is considered to be acceptable based on MCC's technical guidance, and that conditions may be attached to the planning permission. Based on mitigation being incorporated within the design, an example of a condition which could be applied could be as follows:

> *"Noise mitigation as outlined within the Noise Impact Assessment (Ref XXXX) is to be installed and maintained over the life of the development."*

Maximum Sound Levels

7.6.5 The anticipated maximum sound levels have also been calculated at the nearest noise sensitive receptors. The calculated maximum sound level at receptors is presented within Table 20. Maximum sound levels have been calculated at a height of 4 m above ground level to consider worst-case potential impacts at night.

Table 20. Maximum Sound Levels – On-Site Activities

Receptor	Calculated Car Park Maximum Level (dB, L_{AFmax}) Daytime and Night-Time
NSR1	55
NSR2	54

7.6.6 The results indicate that maximum sound levels are below MCC's stipulated 60 dB L_{Amax} at the façade of the nearest noise sensitive property.

7.7 Context and Mitigating Factors

7.7.1 Various factors influence the context of the assessment including the absolute level of sound, the character and level of the residual sound compared to the character and level of the specific sound and the sensitivity of the receptor.

Absolute Sound Level

7.7.2 The absolute level of sound in the assessment is noted to be relatively low, although not very low.

7.7.3 In relation to absolute sound levels, BS 4142 states the following:

> *"The absolute level of sound. For a given difference between the rating level and the background sound level, the magnitude of the overall impact might be greater for an acoustic environment where the residual sound level is high than for an acoustic environment where the residual sound level is low."*

7.7.4 It is considered that the absolute sound does not affect the context of the assessment.

7.7.5 In relation to resultant internal sound levels within the nearest dwellings, based on a level difference of 10 dB being provided by an open window facing the sound source, internal specific sound levels would be 27 dB $L_{Aeq,15minutes}$. This level is likely to be at least 10 dB lower with closed windows, i.e. < 20 dB $L_{Aeq,15minutes}$. For context, BS 8233:2014 advises that internal sound levels should ideally not exceed 30 dB $L_{Aeq,8hours}$ during night-time hours (although it is noted that this should not be applied to the assessment of industrial sound sources and this level is only referred to for contextual purposes).

Character of the Residual Sound and Specific Sound

7.7.6 The site is situated within the Concord Business Park, with the primary existing offering being offices. The existing sound climate is not expected to be composed of significant industrial activity. There are regular road and rail movements along Simonsway to the north and therefore transportation noise sources have a significant contribution to the existing sound climate.

7.7.7 The acoustic environment in the area is considered to have no impact on the context.

Sensitivity of Receptor

7.7.8 The noise sensitive receptors to the north and south of the proposed development are existing and will therefore be used to the existing sound climate. The sensitivity of receptors is not expected to affect the outcome of the assessment, as the rating level is below the background sound level.

7.8 Uncertainty

7.8.1 Care has been taken to reduce uncertainty as far as reasonably possible. However, it should be recognised that in any environmental sound survey and assessment process uncertainty exists.

Uncertainty in Measured Sound Levels

7.8.2 Uncertainty in measured background sound levels can occur due to variation in temporary/non-representative meteorological conditions affecting the survey result. Uncertainty has been reduced within our assessment by obtaining background sound levels at locations considered representative of the nearest noise-sensitive receptors.

7.8.3 Noise source measurement data used in our calculations were undertaken by Stantec under controlled conditions at positions close to the respective noise source. The amount of uncertainty arising from the use of these measurements is therefore low.

Uncertainty in the Operation or Sound Emission Characteristics of the Specific Sound

7.8.4 It should be noted that Table 14 represents a worst-case peak hour scenario and that impacts from delivery movements outside of this peak hour are likely to be lower than presented. Furthermore, the provided traffic flow data indicates that there would be very few deliveries at night. The assessment assumes that a delivery could occur at all units within the same 15-minute period at night, which is a worst-case scenario.

7.8.5 The assessment assumes that reversing alarms would be audibly tonal at the receptors. However, the use of white noise reversing alarms could be used on the site and implemented via a Noise and Vibration Management Plan. By using reversing alarms which use white noise, the rating correction would reduce from 6 dB to 3 dB, and the rating level would be 5 dB or more below the background sound level during the day and night at all receptors.

Uncertainty in the Calculation Method

7.8.6 The estimated accuracy of the ISO 9613-2 calculation procedure is presented in Section 9 of the standard. Where the mean height of the source and receiver is below 5 m, the accuracy of the calculation procedure for broadband noise is noted to be ±3 dB at distances up to 1000 m.

8 Conclusions

8.1.1 Stantec UK Ltd. has been commissioned by Karlin VMH Ltd. to undertake a noise impact assessment of a proposed logistics site on the Concord Business Park, Wythenshawe.

8.1.2 This report assesses the potential noise impact of the proposed development on local noise-sensitive receptors.

8.1.3 An unattended environmental sound survey was undertaken in October 2025 to determine the current sound climate at the site at locations representative of the nearest dwellings that are located to the north and south of the site.

8.1.4 Fixed plant and building services noise emission criteria have been proposed based on the results of the environmental sound surveys.

8.1.5 Good acoustic design of the proposed development has been considered, through the layout of the proposed development and the inclusion of a 2.5 m acoustic barrier at selected locations to minimise impacts.

8.1.6 Calculations indicate that the increase in vehicular movements on the surrounding road network as a result of the proposed development should not significantly increase the sound level at noise-sensitive receptors, with the worst-case increases being marginally above the LOAEL. Increases can be mitigated through the implementation of a Noise and Vibration Management Plan, which could be conditioned as part of the planning permission.

8.1.7 An assessment has been undertaken of the proposed on-site activities serving the proposed units. The numerical assessment indicates that the operation of the proposed service yards is unlikely to have an impact during daytime hours, as the rating level is expected to be at least 6 dB below the background sound level at all receptors. The result is that the rating level would be below the NOEL.

8.1.8 The numerical assessment indicates that the operation of the proposed service yards is unlikely to have adverse impacts during night-time hours, as the rating level is expected to be at least below the background sound level at all receptors. The result is that the rating level would be above the NOEL and below the NOAEL.

8.1.9 A Noise and Vibration Management Plan could require the use of white noise reversing alarms, which is calculated to result in the resultant rating level being below the NOEL. The implementation of a Noise and Vibration Management Plan could be conditioned as part of the planning permission.

8.1.10 Based on mitigation having been incorporated into the scheme, the scheme is compliant with the technical noise requirements of MCC.

Appendix A Acoustic Terminology

Parameter	Description
Acoustic Environment	Sound at the receiver from all sound sources as modified by the environment.
Ambient Sound	Totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far. Comprises of the residual sound and the specific sound when present.
Ambient Sound Level ($L_A = L_{Aeq,T}$)	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*.
A-Weighting	Octave band and 1/3 octave band filters that correlate to the response of the human hearing system to sound pressure levels at different frequencies.
Background Sound Level ($L_{A90,T}$)	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 a fast time-weighting and quoted to the nearest whole number of decibels.
Daytime	The hours between 07:00 and 23:00.
Decibel (dB)	A logarithmic unit used to describe the ratio between the measured level and a reference level of 0 dB. The ratio can be sound pressure, intensity or power. The reference value for sound pressure is 20 µPa and for sound power is 1 ρW.
Equivalent Continuous A-Weighted Sound Pressure Level ($L_{Aeq,T}$)	Value of the time-averaged A-weighted sound pressure level, in decibels (dB), of a continuous steady sound for the duration of the specified time interval, *T*.
Fast Time Weighted	The speed at which the instrument responds to changes in amplitude of the measured signal. The response time of a fats time-weighted instrument is 0.125 seconds.
Free-Field Level	The sound pressure level measured away from any reflective surfaces.
Frequency (f)	The number of cycles of pressure fluctuations within a given period of time. Measured in Hertz.
Hertz (Hz)	The unit of frequency or pitch of a sound. One hertz is equal to one cycle per second.
Night-time	The hours between 23:00 and 07:00.
Percentile Level ($L_{AN,T}$)	The A-Weighted Sound Pressure Level which is exceeded for N% of the specified time interval. E.g., the LA90,1hour is the A-weighted sound level exceeded for 90% of 1 hour.
Rating Level ($L_{Ar,Tr}$)	Specific sound level plus any adjustment for the characteristic features of the sound.
Reference Time Interval (*T*)	Specified interval over which the specific sound level is determined.
Residual Sound	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.
Residual Sound Level ($L_r = L_{Aeq,T}$)	Equivalent continuous A-weighted sound pressure level of the residual sound at the assessment location over a given time interval, *T*.
Sound Exposure Level (L_{AE})	The level of sound, equal to 1 second of duration, that has the same sound energy as the actual noise event considered. Is also referred to as the SEL, or the L_{AX}. Defined as: $$L_{AE} = L_{Aeq} + 10log_{10}(T)$$
Sound Power	The total sound energy radiated by a source, in all directions. Measured in watts (W).
Sound Power Level (L_w)	The logarithm of the ratio of the sound power (W) to the reference sound power level (W0). The reference value for sound power is 1 ρW. Defined as:

	$L_W = 10log\left(\frac{W}{W_0}\right)$
Sound Pressure	The difference between the pressure caused by a sound wave and the ambient pressure of the medium the sound wave is passing through. Measured in Pascals.
Sound Pressure Level (L_p)	The logarithm of the ratio of a given sound pressure (p) to the reference sound pressure (p0). The reference value for sound pressure is 20 µPa. Defined as: $L_p = 20log\left(\frac{p}{p_0}\right)$
Sound Sources	Sounds generated by nature or human activity.
Specific Sound Level ($L_s = L_{Aeq,T}$)	Equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, T_r.
Specific Sound Source	Sound source under assessment.

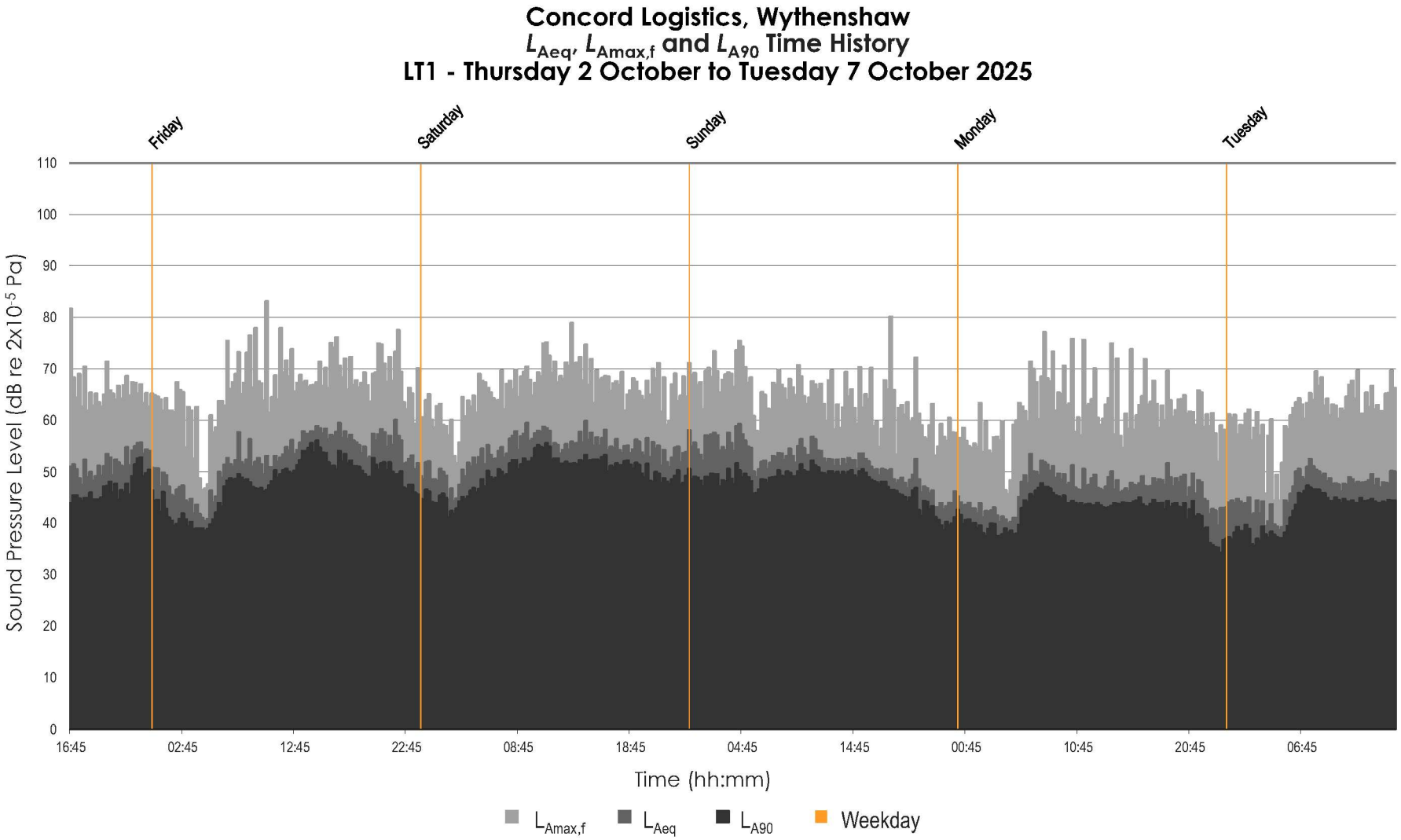
Appendix B Instrumentation

B.1.1 The instrumentation used in the survey is listed in Table 21.

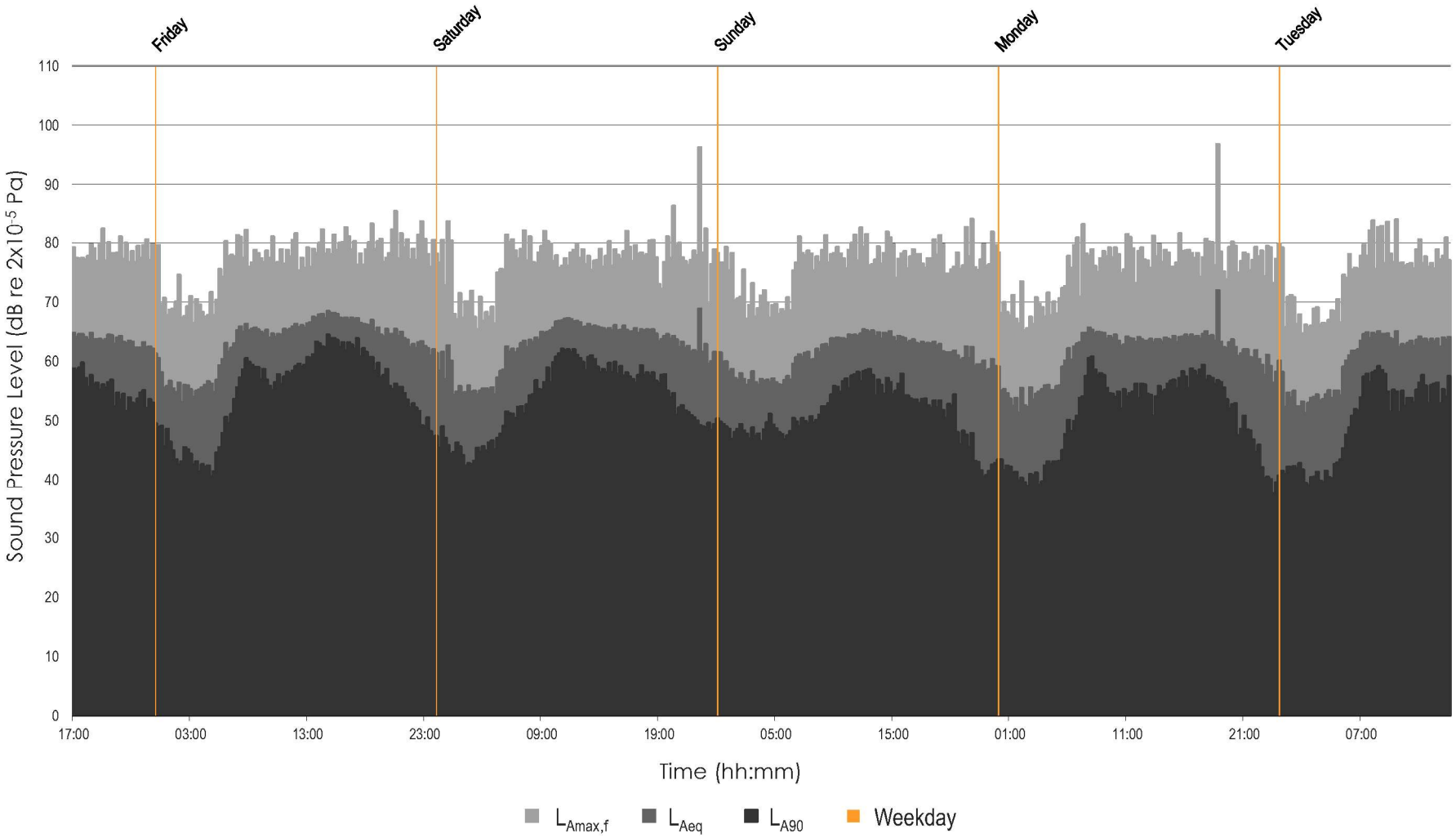
Table 21. Instrumentation

Description	Manufacturer	Type	Serial Number	Laboratory Calibration Date
Sound Level Meter	RION	NL-53	541057	09/09/2024
½" Pre-polarised microphone		UC-59	25588	09/09/2024
Pre-amplifier		NH-25	34010	09/09/2024
Sound Level Meter	RION	NL-52	510142	17/01/2024
½" Pre-polarised microphone		UC-59	31928	17/01/2024
Pre-amplifier		NH-25	2847	17/01/2024
Sound Calibrator	Brüel & Kjær	4231	2619375	07/01/2025

Appendix C Time History Graphs



Concord Logistics, Wythenshaw
L_{Aeq}, $L_{Amax,f}$ and L_{A90} Time History
LT2 - Thursday 2 October to Tuesday 7 October 2025



Appendix D Traffic Flows Used Within Assessment

Table 22.Traffic Flows on Surrounding Road Network Used Within Assessment

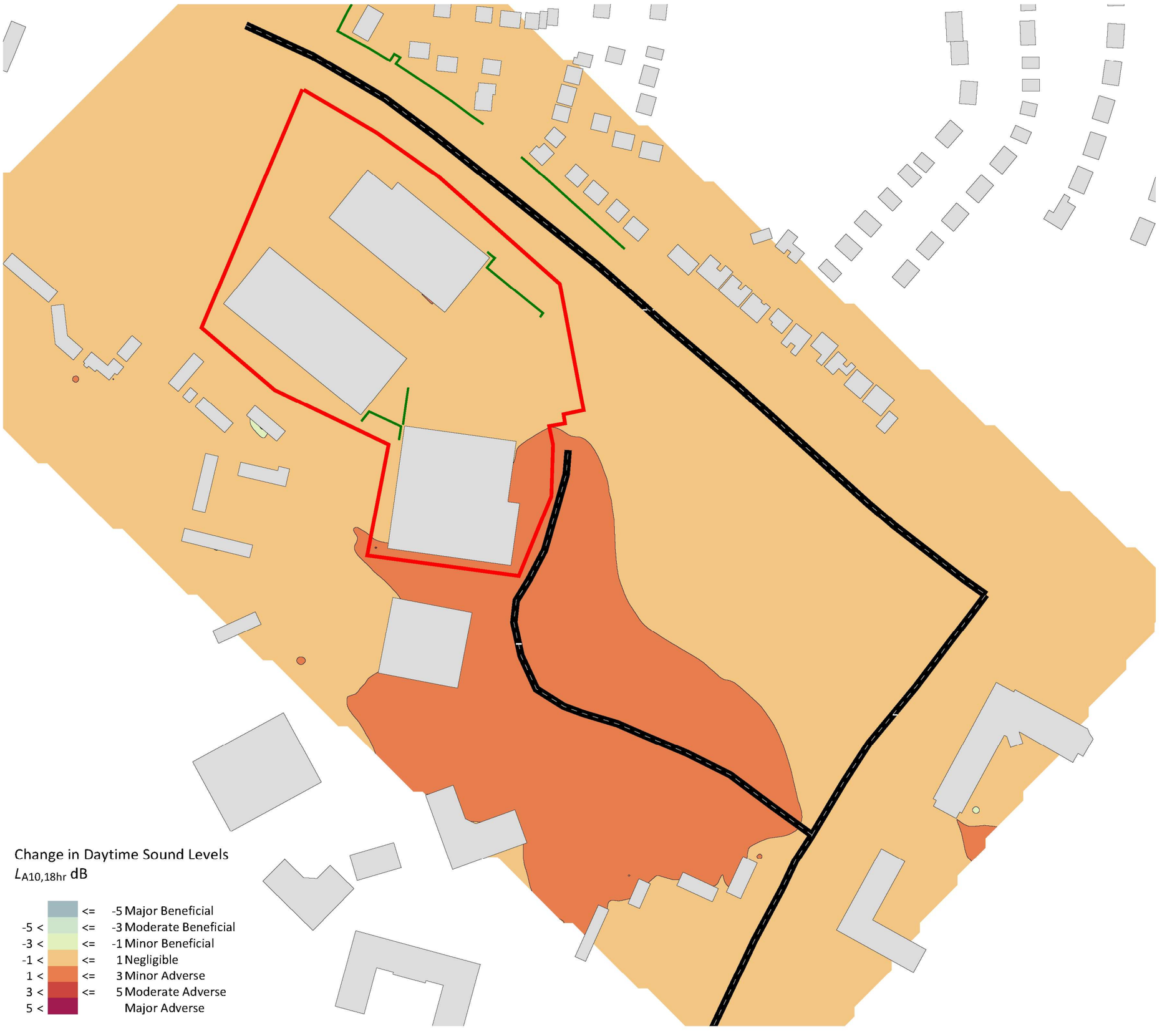
Link	Without Development		With Development	
	2029 AAWT 18 Hour Flows	HGV%	2029 AAWT 18 Hour Flows	HGV%
Simonsway (W)	16090	0.13%	16053	0.37%
Threapwood Road	1299	0.17%	1206	8.23%
Shadowmoss Road (S)	3801	0.09%	3782	0.61%
Shadowmoss Road (N)	5286	0.20%	5211	1.69%

Table 23.Development Traffic Flows (Unrounded Values)

Time Period	Unit 1 Total Vehicles		Unit 1 HGVs		Unit 2 Total Vehicles		Unit 2 HGVs		Unit 3 Total Vehicles		Unit 3 HGVs	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
00:00-01:00	1.1	0.6	0.1	0.0	1.4	0.7	0.1	0.0	1.6	0.8	0.1	0.0
01:00-02:00	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.3	0.1	0.0	0.0
02:00-03:00	0.4	0.4	0.0	0.0	0.5	0.5	0.0	0.0	0.6	0.5	0.0	0.0
03:00-04:00	0.7	0.8	0.1	0.0	0.8	1.0	0.1	0.1	0.9	1.2	0.1	0.1
04:00-05:00	0.5	0.4	0.0	0.0	0.6	0.5	0.0	0.0	0.7	0.5	0.1	0.0
05:00-06:00	1.4	0.0	0.0	0.0	1.7	0.0	0.0	0.0	2.0	0.0	0.0	0.0
06:00-07:00	1.4	0.5	0.0	0.0	1.7	0.7	0.0	0.0	2.0	0.8	0.0	0.0
07:00-08:00	8.8	2.9	0.7	1.0	11.0	3.7	0.9	1.2	12.6	4.2	1.0	1.4
08:00-09:00	12.5	5.2	0.9	0.8	15.7	6.5	1.1	1.0	18.0	7.5	1.2	1.1
09:00-10:00	10.3	8.6	1.8	0.9	12.9	10.7	2.2	1.1	14.8	12.3	2.5	1.2
10:00-11:00	9.0	9.9	2.4	0.8	11.3	12.4	3.0	1.0	13.0	14.3	3.4	1.1
11:00-12:00	8.5	8.0	1.8	1.6	10.6	10.0	2.3	2.0	12.2	11.5	2.6	2.2
12:00-13:00	8.2	8.3	1.3	0.9	10.3	10.4	1.7	1.1	11.9	12.0	1.9	1.2

Time Period	Unit 1 Total Vehicles		Unit 1 HGVs		Unit 2 Total Vehicles		Unit 2 HGVs		Unit 3 Total Vehicles		Unit 3 HGVs	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
13:00-14:00	9.3	9.2	0.8	2.0	11.7	11.5	1.0	2.5	13.4	13.2	1.1	2.9
14:00-15:00	8.9	9.5	1.3	1.6	11.2	11.9	1.7	2.0	12.8	13.7	1.9	2.2
15:00-16:00	6.8	10.2	0.8	1.2	8.6	12.8	1.0	1.5	9.9	14.7	1.1	1.8
16:00-17:00	9.7	11.8	0.6	0.5	12.1	14.8	0.7	0.7	13.9	17.0	0.9	0.8
17:00-18:00	7.2	12.5	0.5	0.6	9.0	15.7	0.7	0.7	10.3	18.0	0.8	0.9
18:00-19:00	2.5	5.2	0.6	0.4	3.1	6.5	0.8	0.5	3.6	7.5	0.9	0.6
19:00-20:00	0.3	0.8	0.2	0.2	0.4	1.0	0.2	0.3	0.4	1.1	0.3	0.3
20:00-21:00	0.0	0.2	0.1	0.1	0.0	0.2	0.1	0.2	0.0	0.2	0.1	0.2
21:00-22:00	1.0	1.4	0.1	0.1	1.3	1.8	0.1	0.1	1.5	2.0	0.1	0.1
22:00-23:00	0.7	0.8	0.1	0.0	0.9	1.0	0.1	0.1	1.0	1.2	0.1	0.1
23:00-24:00	0.7	0.7	0.1	0.0	0.8	0.9	0.1	0.0	0.9	1.0	0.1	0.1

Appendix E Noise Change Associated with Vehicular Movements on Surrounding Road Network



This figure has been prepared by Stantec UK Limited ('Stantec') on behalf of its client to whom this figure is addressed ('Client') in connection with the project described and takes into account the Client's particular instructions and requirements. This figure was prepared in accordance with the professional services appointment under which Stantec was appointed by its Client. This figure is not intended for and should not be relied on by any third party (i.e. parties other than the Client). Stantec accepts no duty or responsibility (including in negligence) to any party other than the Client and disclaims all liability of any nature whatsoever to any such party in respect of this figure.

Appendix E Figure E1
Noise Change $L_{A10,18hours}$

Client: Karlin VMH Limited
Project: Virgin Media House
Project Number: 332613153
Project Engineer: GW
Calculation at 1.5 m above ground
Created: 03/12/2025
SoundPLAN 9.1 Version 14/10/2025

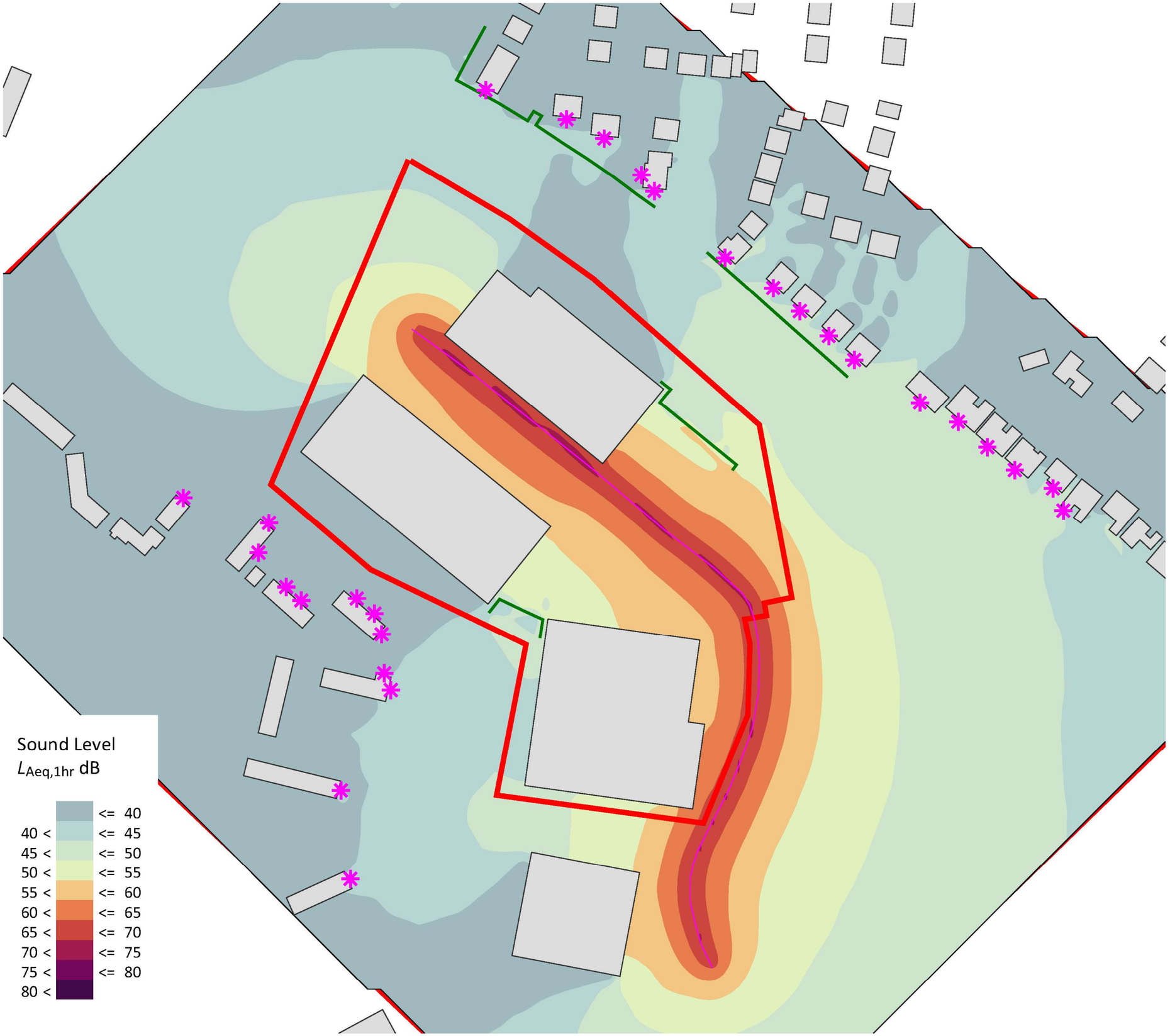
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Appendix F Modelled Sound Levels from Vehicular Movements On-Site



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Appendix F Figure F1
Vehicular Movements On-site Daytime

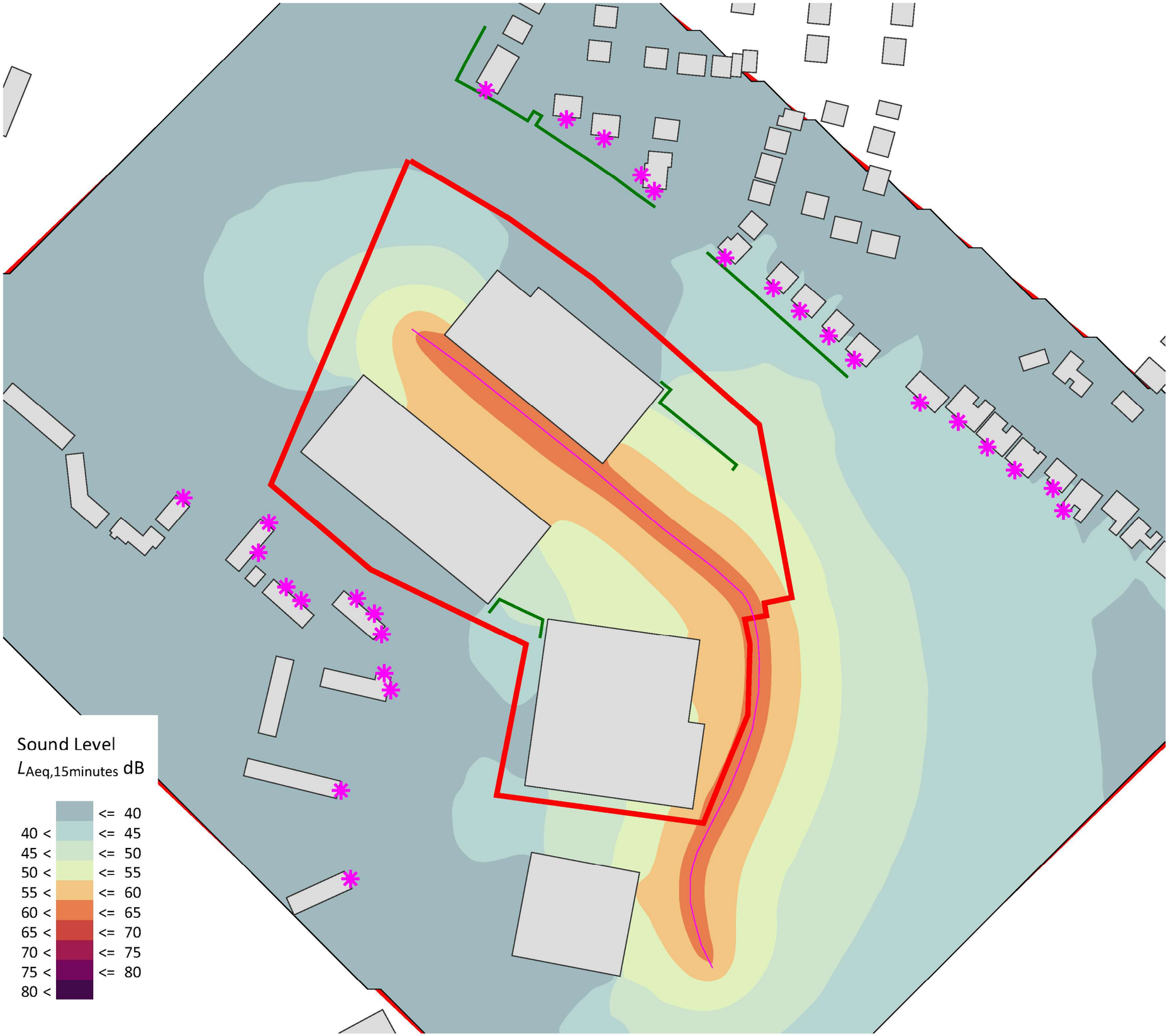
Client: Karlin VMH Limited
Project: Virgin Media House
Project Number: 332613153
Project Engineer: GW
Calculation at 1.5 m above ground
Created: 05/12/2025
SoundPLAN 9.1 Version 14/10/2025

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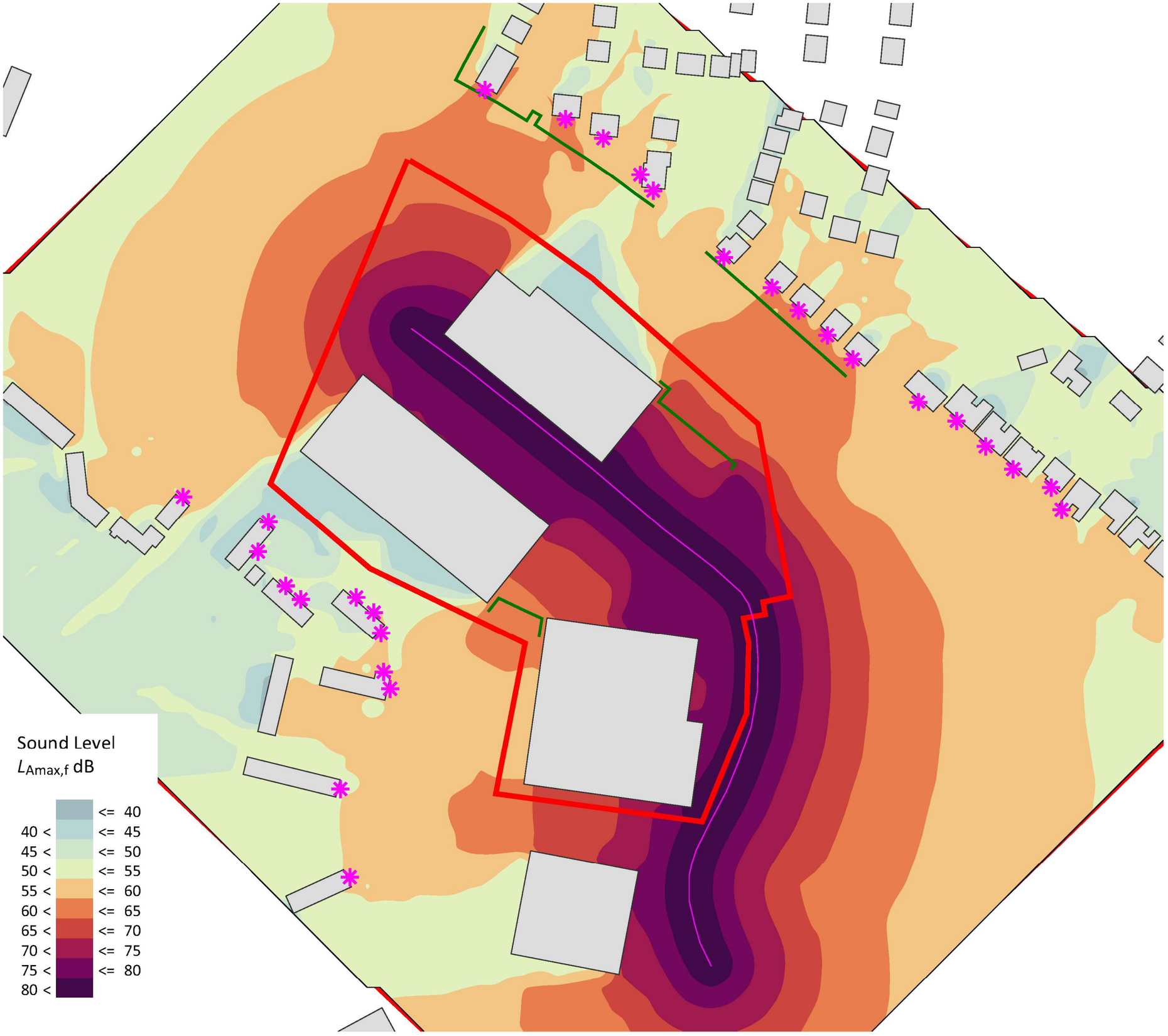
Appendix F Figure F2
Vehicular Movements On-site Night-time

Client: Karlin VMH Limited
Project: Virgin Media House
Project Number: 332613153
Project Engineer: GW
Calculation at 4 m above ground
Created: 03/12/2025
SoundPLAN 9.1 Version 14/10/2025

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Appendix F Figure F2
Vehicular Movements On-site Night-time

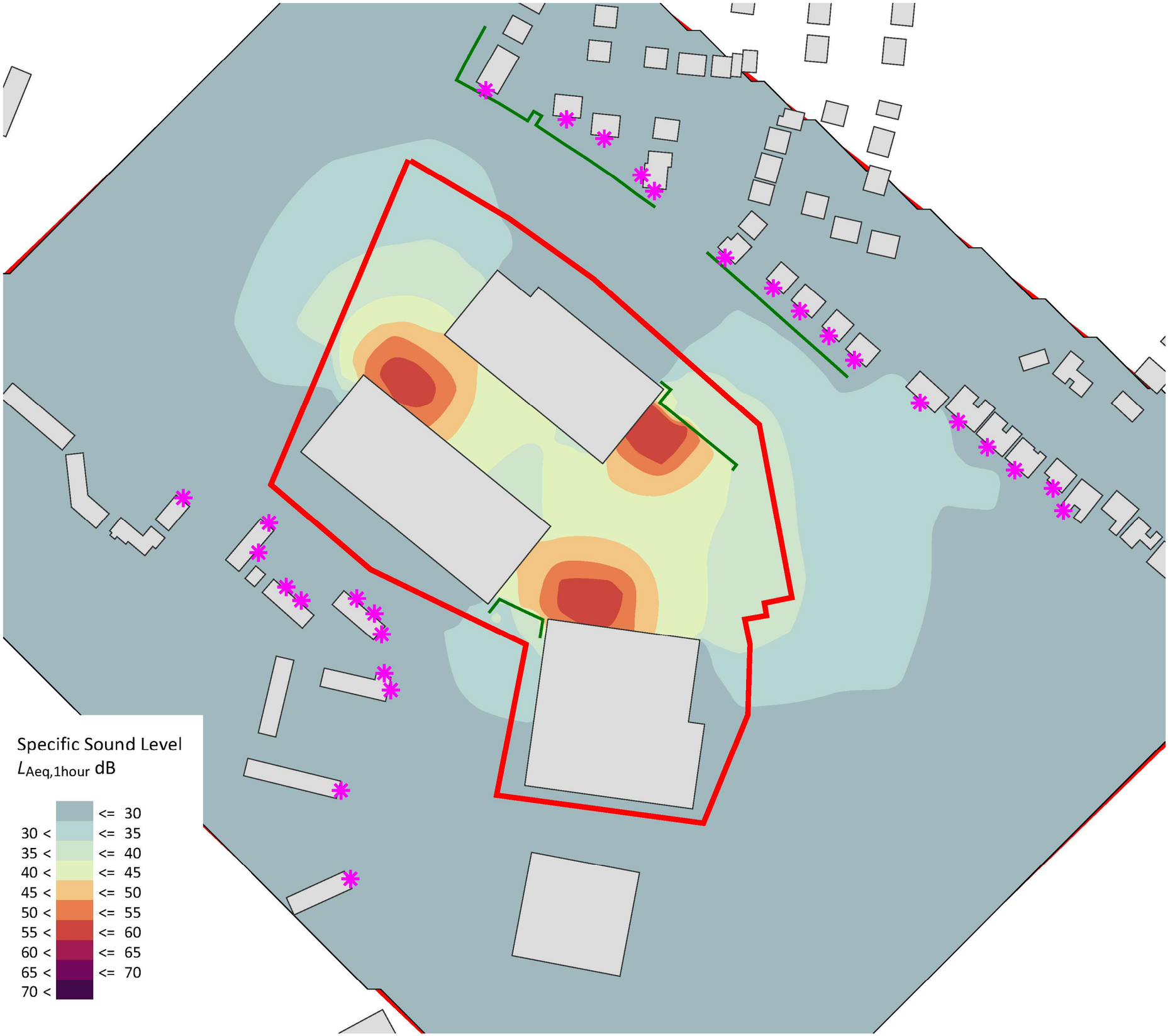
Client: Karlin VMH Limited
Project: Virgin Media House
Project Number: 332613153
Project Engineer: GW
Calculation at 4 m above ground
Created: 03/12/2025
SoundPLAN 9.1 Version 14/10/2025

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Appendix G Modelled Specific Sound Levels from On-Site Activities



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Appendix G Figure G1
Vehicular Movements On-site Daytime

Client: Karlin VMH Limited
Project: Virgin Media House
Project Number: 332613153
Project Engineer: GW
Calculation at 1.5 m above ground
Created: 05/12/2025
SoundPLAN 9.1 Version 14/10/2025

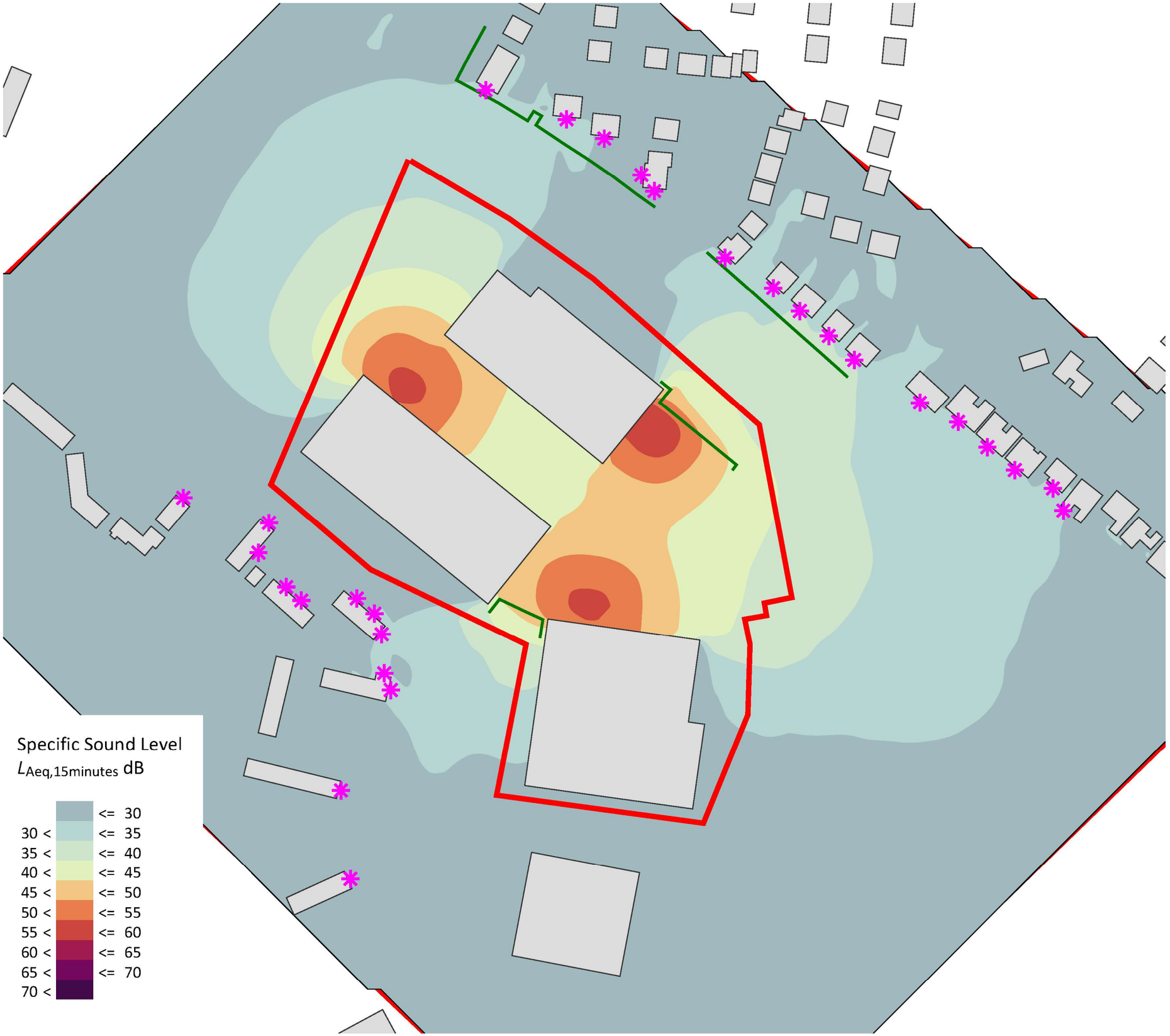
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Appendix G Figure G2
Vehicular Movements On-site Night-time

Client: Karlin VMH Limited
Project: Virgin Media House
Project Number: 332613153
Project Engineer: GW
Calculation at 4 m above ground
Created: 05/12/2025
SoundPLAN 9.1 Version 14/10/2025

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