

NOISE NOTE

Job Name: Rainbow Industrial Estate

Job No: 332410017

Note No: 1

Date: 10.01.22

Prepared By: PT

- 1.1.1 Stantec UK Limited are instructed by Troutbourne LLP ('The Applicant') to submit a planning application for revised proposals for development on land at the former Rainbow Industrial Estate, Trout Road, Yiewsley ('The Site').
- 1.1.2 The application is made for '*Retention of entrance gates and change of use for Use Class Sui Generis including container and skip storage; open and closed storage of building, scaffolding and lighting materials; storage of aggregate materials; vehicle storage and sales; and associated installation of portacabins, container stores, transportable silos and other structures for a period of 12 months (retrospective application).*'
- 1.1.3 The proposed use is sought for a temporary period of 12 months as a meanwhile use of the site whilst a mixed use, residential-led scheme for the Rainbow and Kirby Industrial sites is discussed with LBH during pre-application discussions and a formal planning application is submitted and determined.
- 1.1.4 The proposals follow the refusal of planning permission by LB Hillingdon (LBH) for a similar temporary use proposal on 19th August 2021 for '*Installation of two portacabins and retention of entrance gates and proposed change of use for Use Class Sui Generis including container storage; open and closed storage of building and scaffolding materials; storage of aggregate materials; vehicle storage and sales for a period of 36 months (part retrospective application)*' (LPA Ref: 38058/APP/2021/1327) and a subsequent Enforcement Notice issued by LBH on 3rd September 2021 (Ref: HS/ENF/019144).
- 1.1.5 The breach of planning control alleged on the Enforcement Notice was stated as, '*Without planning permission the installation of two mobile cabins and the use of land for container storage; open storage of building and scaffolding materials; and open storage of aggregate materials ("the breach").*' An appeal against the Enforcement Notice (PINS Ref: APP/R5510/C/21/3284869) was submitted on 14th October and is pending determination.
- 1.1.6 A Noise Impact Assessment dated October 2021 (shown at **Appendix A**) was prepared by Stantec as part of the Enforcement Notice appeal and is considered relevant to the proposals as similar uses and operational hours are proposed in the current application.
- 1.1.7 The NIA concluded:
- On-site activities indicates that the noise rating level associated with the site at nearby existing and noise sensitive receptors is below a level which is likely to result in significant adverse impact at all receptors and is no more than 10 dB above the typical background sound level.
 - The assessment is based on noise impact from noise generated at its current position on the site. To provide protection from noise impact of activities taking place in other areas on the site, two example planning conditions have been proposed. The inclusion of these or similar conditions should ensure that noise impacts are maintained below the SOAEL and reduced to below the LOAEL where possible.
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NOISE NOTE

- As significant adverse noise impacts are anticipated to be avoided and adverse noise impacts can be mitigated, planning permission should not be refused on the grounds of noise.
- Building services plant noise limits to be achieved at the nearest noise sensitive receptors have been set based on the existing background sound levels.

1.1.8 Further noise assessment will be undertaken during the course of the planning application to address additional uses and operations now on site including the operation of 3 x silos in the aggregates storage areas and relocation of uses within the site. For example, the aggregates store area is now shown on the northern part of the site next to existing commercial uses at the Kirby Industrial Site and away from the southern Grand Union Canal towpath and corridor.

NOISE NOTE

APPENDIX A - NOISE IMPACT ASSESSMENT (OCT 2021)



Land at Rainbow Industrial Estate, Trout Road, West Drayton

Noise Impact Assessment

On behalf of **Troutbourne LLP**

Project Ref: 332410017/4510 | Rev: 0 | Date: October 2021

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Revision	Date	Description	Prepared	Reviewed	Approved

This report has been prepared by Stantec UK Limited ('Stantec') on behalf of its client to whom this report is addressed ('Client') in connection with the project described in this report and takes into account the Client's particular instructions and requirements. This report was prepared in accordance with the professional services appointment under which Stantec was appointed by its Client. This report 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 report.

Contents

1	Introduction.....	1
1.1	Background	1
1.2	Site Location and Description.....	1
1.3	Scope of Assessment.....	3
1.4	Acoustics Terminology	3
2	Policy, Guidance and Criteria	4
2.1	Local Planning Policy	4
2.2	National Policy.....	5
2.3	Standards	7
2.4	Proposed Assessment Criteria.....	9
3	Environmental Sound Survey & Source Measurements	10
3.1	Procedure	10
3.2	Measurement Locations	10
3.3	Meteorological Conditions	11
3.4	Assumptions/Limitations.....	11
3.5	Environmental Sound Climate	12
3.6	Environmental Sound Survey Results.....	12
3.7	Site Activity Sound Measurement Results	12
3.8	Instrumentation.....	12
3.9	Proposed Plant Noise Emission Limits.....	13
4	Site Activity Noise Impact Assessment	14
4.1	Overview.....	14
4.2	Assessment Assumptions	14
4.3	Calculations Procedure	14
4.4	Noise Sensitive Receptors	15
4.5	Acoustic Feature Correction	15
4.6	Preliminary Assessment Results	16
4.7	Uncertainty	16
4.8	Assessment Summary	17
4.9	Flexible Use of the Site and Mitigation Measures	17
5	Conclusion	19

Figures

Figure 1.1: Site Location.....	3
Figure 3.1: Measurement Locations.....	10
Figure 4.1: Approximate Location of Noise Sensitive Receptors	15

Tables

Table 2.1: Proposed LOAEL and SOAEL for Industrial/Commercial Sources	9
Table 2.2: Proposed Plant Noise Emission Limits	9
Table 3.1: Description of Measurement Locations	11
Table 3.2: Meteorological Conditions	11
Table 3.3: Summary of Measured Environmental Sound Survey Results	12
Table 3.4: Summary of Measured Environmental Sound Survey Results	12
Table 3.5: Proposed Plant Noise Emission Limits	13
Table 4.1: Noise Sensitive Receptors	15
Table 4.2: Assessment Summary of On-site Activities	16
Table A.1 Acoustic Terminology.....	20
Table B.1: Measurement Instrumentation	22
Table E.1: Example Calculation of Specific Sound Level at Receptor (Receptor A)	27
Table E.2: Activity BS 4142 Corrections (Receptor A)	27

Appendices

Appendix A	Acoustic Terminology
Appendix B	Environmental Sound Survey Instrumentation
Appendix C	Environmental Sound Survey Time History Graphs
Appendix D	Proposed Development Site Layout
Appendix E	BS 4142:2014 On-site Activities Assessment Assumptions and Calculations

1 Introduction

1.1 Background

- 1.1.1 Stantec UK Ltd. has been commissioned by Troutbourne LLP to provide a noise impact assessment to support an appeal against an Enforcement Notice issued by LB Hillingdon (LBH) and refusal of the 2021 Application under application reference LPA Ref: 38058/APP/2021/1327 for 'Installation of two portacabins and retention of entrance gates and proposed change of use for Use Class Sui Generis including container storage; open and closed storage of building and scaffolding materials; storage of aggregate materials; vehicle storage and sales for a period of 36 months (part retrospective application)'.
- 1.1.2 Reason (a) for the Enforcement Notice states,
- a. The unauthorised use of the land would cause unacceptable adverse impacts arising from noise resulting in significant harm to the living conditions and well-being of neighbouring residents and user of the Canalside Moorings and Towpath. The development thereby conflicts with paragraph 185 of the NPPF (2021), policy D14 of the London Plan (2021), Policies BE1 and EM8 of the Hillingdon Local Plan: Part 1 – Strategic Policies (2012) and policy DMHB 11 of the Hillingdon Local Plan: Part 2- Development Management Policies (2020).*
- 1.1.3 Reason (a) replicates reason (1) for refusal of the 2021 Application.
- 1.1.4 An environmental sound survey has been undertaken by Stantec UK Ltd in October 2021. The results of the environmental sound survey have been used to assess the impact associated with the proposed site activities and unauthorised use.
- 1.1.5 This report presents the relevant results of the environmental sound surveys and noise impact assessment of the site proposals.
- 1.1.6 An explanation of the acoustic terminology used in this report is included in **Appendix A**.

1.2 Site Location and Description

Site Description

- 1.2.1 The site comprises 1.25 ha adjacent to Yiewsley town centre and falls within the wider Rainbow and Kirby Industrial Estates site which extend to 2.15ha.
- 1.2.2 To the immediate north, opposite the entrance to the site on Trout Road, is a 4/5 storey residential block along (Caxton House) with similar residential blocks opposite along Trout Road. To the east are small industrial units ranging from 1 to 2 storey which are accessed off Trout Road to the north-east. To the south are residential properties along St Stephen's Road which are two storey detached and semi-detached properties along with a religious centre located adjacent to the access point off St Stephen's Road. Immediately adjacent to the south-west is The Grand Union Canal, beyond which are further residential properties in Peplow Close.

Site History

- 1.2.3 The Site previously accommodated a range of single-storey and two-storey industrial and commercial buildings but is now cleared of buildings. The Site forms part of the wider Rainbow and Kirby Industrial Estate site is now allocated in the Local Plan Part 2 under SA39 for mixed

use, residential led development. General industrial and commercial uses remain on the Kirby Industrial Estate.

- 1.2.4 Outline planning permission was granted in 2014 on the wider Rainbow and Kirby Industrial Estate for, '*Demolition of existing premises and erection of 99 residential units (C3), 50-unit extra care/dementia sheltered housing scheme (C3), 1,529.4sqm light industrial floorspace comprising 17 business units (B1c) and 611.30sqm of restaurant/cafe (A3) floorspace, associated open space, car parking and landscaping (Outline Application)*' (LPA Ref: 38058/APP/2013/1756)' (The 2014 Outline Permission). This was followed by Reserved Matters in 2018 (LPA Ref. 38058/APP/2017/1340)' (The 2018 RM)
- 1.2.5 The redevelopment scheme of the wider site as approved under the 2014 Outline Permission and the 2018 Reserved Matters is unimplemented but remained extant until 1st May 2021. Whilst this scheme was awaiting implementation the site was used temporarily for airport parking between 2016 and 2020.
- 1.2.6 A new scheme for redevelopment of the site is in discussion with LBH. The proposals will be GLA referable due to proposed strategic scale and will require extensive pre app with LBH, the GLA, residents and stakeholders as well as EIA screening before submission of a planning application.
- 1.2.7 It is considered that the likely programme for the new redevelopment scheme from pre-app, submission, determination of the hybrid and Reserved Matters applications and start on site will be more than 36 months.
- 1.2.8

Site Proposals

- 1.2.9 The unauthorised use involves installation of two portacabins and retention of entrance gates; a change of use to a mix of uses (sui generis) to include closed storage comprising containers (maximum of 30), open storage of aggregates and building materials; and vehicle storage and sales for a period of 36 months.
- 1.2.10 The storage areas comprise two closed and two open storage areas. Of the closed storage areas, one area would be located at the south end of site adjacent to the canal (860 sqm) and one adjacent to the north-east boundary (1290 sqm). The containers are 2.6m in height. Of the open storage areas, one area would be located adjacent to the canal (2230 sqm) and one on the eastern part of the site behind St Stephen's Road properties (1630 sqm). For the open storage areas, the maximum height of the stored materials is stated as no more than the equivalent height of two containers. Hours of operation are stated as 7am - 7pm weekdays and 7am - 1pm Saturdays only.
- 1.2.11 The proposed vehicle storage and sales area comprises 1,300 sqm at the northern end of the site adjacent to the Trout Road access.
- 1.2.12 It is understood that the storage elements of the proposal are on site but that the car storage/sales has not yet commenced operation on site.
- 1.2.13 The site and its surrounding uses are presented in **Figure 1.1**.
- 1.2.14 Following the issue of the Enforcement Notice the Appellant has laid out an internal road to limit dust disturbance from vehicles within the site. The Appellant has also agreed to a condition requiring details of enclosure to the open aggregate storage on the site.

Figure 1.1: Site Location



Source: Ordnance Survey rights 2018

1.3 Scope of Assessment

1.3.1 The scope of this noise impact assessment is as follows:

- Undertake a 24-hour unattended environmental sound survey to measure sound levels at a position considered representative of existing noise sensitive receptors.
- Undertake an attended sound survey of existing operations on-site.
- Assess the potential noise impact from the use of the site.

1.4 Acoustics Terminology

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

2 Policy, Guidance and Criteria

2.1 Local Planning Policy

Hillingdon Local Plan Part 1 (2012)

2.1.1 Strategic objective SO10 of the Local Plan states:

“Improve and protect air and water quality, reduce adverse impacts from noise including the safeguarding of quiet areas and reduce the impacts of contaminated land.”

2.1.2 Policy EM8: Land, Water, Air and Noise advises in relation to noise and air quality matters relevant to the Enforcement Notice advises in relation to noise,

The Council will investigate Hillingdon's target areas identified in the Defra Noise Action Plans, promote the maximum possible reduction in noise levels and will minimise the number of people potentially affected.

The Council will seek to identify and protect Quiet Areas in accordance with Government Policy on sustainable development and other Local Plan policies.

The Council will seek to ensure that noise sensitive development and noise generating development are only permitted if noise impacts can be adequately controlled and mitigated.

Hillingdon Local Plan: Part 2- Development Management Policies (2020)

2.1.3 Policy DMHB 11: Design of New Development states that all development, including extensions, alterations and new buildings will be required to be designed to the highest standards and incorporate principles of good design. It also advises that proposals should not adversely impact on the amenity, daylight and sunlight of adjacent properties and open space.

The London Plan: The Spatial Development Strategy for Greater London (March 2021)

2.1.4 The London Plan, titled ‘The Spatial Development Strategy for Greater London’ was published by the Mayor of London in March 2021.

2.1.5 The London Plan is the overall strategic plan for London and sets out an integrated economic, environmental, transport and social framework for the development of London over the next 20-25 years.

2.1.6 Policy D13: Agent of Change states:

“The Agent of Change principle places the responsibility for mitigating impacts from existing noise and other nuisance-generating activities or uses on the proposed new noise-sensitive development. Boroughs should ensure that Development Plans and planning decisions reflect the Agent of Change principle and take account of existing noise and other nuisance-generating uses in a sensitive manner when new development is proposed nearby.

B Development should be designed to ensure that established noise and other nuisance-generating uses remain viable and can continue or grow without unreasonable restrictions being placed on them.

C New noise and other nuisance-generating development proposed close to residential and other noise-sensitive uses should put in place measures to mitigate and manage any noise impacts for neighbouring residents and businesses.

D Development proposals should manage noise and other potential nuisances by:

- 1) ensuring good design mitigates and minimises existing and potential nuisances generated by existing uses and activities located in the area*
- 2) exploring mitigation measures early in the design stage, with necessary and appropriate provisions including ongoing and future management of mitigation measures secured through planning obligations*
- 3) separating new noise-sensitive development where possible from existing noise-generating businesses and uses through distance, screening, internal layout, sound-proofing, insulation and other acoustic design measures.”*

2.1.7 Policy D14: Noise states:

“A. In order to reduce, manage and mitigate noise to improve health and quality of life, residential and other non-aviation development proposals should manage noise by:

- 1. Avoiding significant adverse impacts on health and quality of life.*
- 2. Reflecting the Agent of Change principle as set out in Policy D13 Agent of Change.*
- 3. Mitigating and minimising the existing and potential adverse impacts of noise on, from, within, as a result of, or in the vicinity of new development without placing unreasonable restrictions on existing noise-generating uses.*
- 4. Improving and enhancing the acoustic environmental and promoting appropriate soundscapes (including Quiet Areas and spaces of relative tranquillity);*
- 5. Separating new noise-sensitive development from major noise sources (such as road, rail, air transport and some types of industrial use) through the use of distance, screening, layout, orientation, uses and materials – in preference to sole reliance on sound insulation.*
- 6. Where it is not possible to achieve separation of noise-sensitive development and noise sources without undue impact on other sustainable development objectives, then any potential adverse effects should be controlled and mitigated through applying good acoustic design principles;*
- 7. Promoting new technologies and improved practices to reduce noise at source, and on the transmission path from source to receiver.*

B. Boroughs, and others with relevant responsibilities, should identify and nominate new Quiet Areas and protect existing Quiet Areas in line with the procedure in Defra’s Noise Action Plan for Agglomerations.”

2.2 National Policy

The National Planning Policy Framework (NPPF)

2.2.1 The revised National Planning Policy Framework (NPPF) was published in July 2021. With respect to noise, paragraph 174 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...”*

2.2.2 In relation to ground conditions and pollution, paragraph 185 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:

- 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;*
- Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason...”*

2.2.3 In relation to the integration of new development with existing premises and community facilities, paragraph 187 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.”

2.2.4 The NPPF indicates that the Noise Policy Statement for England (NPSE) should be used to define the “significant adverse impacts”.

Noise Policy Statement for England (NPSE)

2.2.5 The Noise Policy Statement for England (NPSE) 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”*.

2.2.6 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.

2.2.7 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.

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.”

- 2.2.8 It is necessary to define the LOAEL and SOAEL for the potential source of noise to relate the potential impact to the aims and requirements of the NPSE.

Planning Practice Guidance – Noise (2014)

- 2.2.9 The Planning Practice Guide (PPG) was launched in March 2014 (latest update – July 2019) and provides additional guidance and interpretation of the Government’s strategic policies outlined within the NPPF in a regularly updated, web-based resource.
- 2.2.10 The PPG provides guidance on the effects of noise exposure, relating these to peoples’ perception of noise, and linking them to the NOEL and, as exposure increases, the LOAEL and SOAEL.
- 2.2.11 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.
- 2.2.12 The LOAEL is described in PPG (Paragraph: 005 Reference ID: 30-005-20190722) as the level above which "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)."
- 2.2.13 PPG identifies the SOAEL (Paragraph: 005 Reference ID: 30-005-20190722) as the level above which "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."

2.3 Standards

BS4142:2014+A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound

- 2.3.1 BS 4142:2014 +A1:2019 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 When considering the appropriateness of the use of the background sound level to assess the rating sound level, Paragraph 8.1 of BS 4142 states:
- “Since the intention is to determine a background sound level in the absence of the specific sound that is under consideration it is necessary to understand that the background sound level can in some circumstances legitimately include industrial and/or commercial sounds that are present as separate to the specific sound.”
- 2.3.6 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:
- i. Typically, the greater this difference, the greater the magnitude of the impact;
 - ii. A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;
 - iii. A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context; and
 - iv. 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 is an indication of the specific sound source having a low impact, depending on the context.
- 2.3.7 In order to consider the context, BS 4142 advises that the following factors should be considered:
- i. The absolute level of sound;
 - ii. The character and level of the residual sound compared to the character and level of the specific sound; and
 - iii. 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.

- Acoustic screening.

2.4 Proposed Assessment Criteria

On-Site Activities

- 2.4.1 The impact of noise associated with site activities are assessed in accordance with BS 4142:2014+A1:2019.
- 2.4.2 Based on the guidance in BS 4142 and national policy, the proposed LOAEL and SOAEL values are provided in **Table 2.1**.

Table 2.1: Proposed LOAEL and SOAEL for Industrial/Commercial Sources

Rating Level ($L_{Ar,Tr}$ dB) at Noise Sensitive Residential Receptor
Greater than or equal to 10 dB above the typical background sound level, depending on context.
(SOAEL)
5-9.9 dB above the typical background sound level, depending on context.
(LOAEL)
0-4.9 dB above the typical background sound level, depending on context.
Less than the typical background sound level, depending on context.

- 2.4.3 With reference to the NPPF, potential adverse impacts should be mitigated and reduced to a minimum and significant adverse impact on health and quality of life should be avoided.

Plant Noise Emission Limits

- 2.4.4 **Table 2.** details the proposed plant noise emission limits in relation to the difference between the rating level of the proposed plant and the existing measured background sound levels, when determined at the façade of the nearest noise sensitive premises and in accordance with BS 4142:2014+A1:2019.

Table 2.2: Proposed Plant Noise Emission Limits

Location	Difference Between Rating Level ($L_{Ar,Tr}$) and Background Sound Level ($L_{A90,T}$), dB
At nearest dwelling	≤ 0

- 2.4.5 The above plant noise emission limits are subject to the approval of the Local Planning Authority.

3 Environmental Sound Survey & Source Measurements

3.1 Procedure

- 3.1.1 An unattended environmental sound survey was undertaken between approximately 10:30 hours on 7 October 2021 and approximately 10:30 hours on 8 October 2021 to determine the existing sound climate at locations considered representative of the nearest noise sensitive receptors.
- 3.1.2 Measurements were made over 15-minute periods of the L_{Aeq} , L_{A90} and L_{AFMax} sound levels.
- 3.1.3 The sound level meters were located in environmental cases. The microphones were connected to the meter via an extension cable and fitted with the manufacturer's windshield.
- 3.1.4 In addition, an attended environmental sound survey was undertaken between approximately 11:00 and 12:00 hours on 7 October 2021 to measure sound levels generated by activities carried out on-site. The sound level meter was located on a tripod. The microphone was fitted with the manufacturer's windshield.

3.2 Measurement Locations

- 3.2.1 The measurement positions are detailed in **Figure 3.1** and described in **Table 3.1**.

Figure 3.1: Measurement Locations



Source: Ordnance Survey rights 2018

Table 3.1: Description of Measurement Locations

Position	Description
LT1	The microphone was located in a free field position close to the north boundary of the site, situated approximately 1.5 m above a storage container, and was approximately 5 m above local ground level. The measurement position was selected to be representative of residential receptors on the northern boundary of the development site.
LT2	The microphone was located in a free-field position near to the south-east boundary of the site, situated approximately 1.5 m above the stone wall, and was approximately 5 m above local ground level. The measurement position was selected to be representative of residential receptors on the southern and eastern boundaries of the development site.
A	The microphone was located in a free-field position on a tripod approximately 5 m from the activity. The activity comprised a forklift removing marble from van. A pallet from the van was dragged on the floor. The activity included reverse beepers and break squeal on the forklift.

3.3 Meteorological Conditions

- 3.3.1 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 forecasts and observations at the beginning and end of the survey period, the weather conditions are detailed in **Table 3.2**.

Table 3.2: Meteorological Conditions

Description	7/10/2021	8/10/2021
Temperature (°C)	15	15
Precipitation (mm)	0	0.25
Cloud Cover (%)	100	100
Wind Speed (m/s)	< 5 m/s	< 5 m/s
Wind Direction	SW	SW

- 3.3.2 Based on data available from local weather stations, it is understood that rainfall occurred at approximately 05:00 hours on 8 October for approximately 30 minutes.
- 3.3.3 These conditions are considered suitable for obtaining representative sound level measurements.

3.4 Assumptions/Limitations

- 3.4.1 The engineer noticed nothing unusual in terms of the sound climate at the time of the 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 the 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 differing times.

3.5 Environmental Sound Climate

- 3.5.1 Due to the nature of the survey (i.e. predominantly unattended), it is not possible to accurately comment on the dominant noise sources or specific noise 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 affected by vehicular movements and activities on-site and the laying out of the internal road.

3.6 Environmental Sound Survey Results

- 3.6.1 The results of the survey are presented in the time history graphs in **Appendix C**. A summary of the survey results is detailed in **Table 3.3**.

Table 3.3: Summary of Measured Environmental Sound Survey Results

Location	Date	Period, T	Measured Sound Level (dB)	
			Average $L_{Aeq,T}$	Typical* $L_{A90,15}$ minutes
LT1	07/10/2021 – 08/10/2021	07:00 – 19:00	54	47
		07:00 – 23:00	54	46
		19:00 – 23:00	49	44
		23:00 – 07:00	45	36
LT2	07/10/2021 – 08/10/2021	07:00 – 19:00	68	46
		07:00 – 23:00	66	45
		19:00 – 23:00	47	44
		23:00 – 07:00	47	34

* Calculated based on the statistical distribution of background sound levels during the measurement period in general accordance with guidance in BS4142:2014+A1:2019

3.7 Site Activity Sound Measurement Results

- 3.7.1 A summary of the survey results is detailed in **Table 3.4**.

Table 3.4: Summary of Measured Environmental Sound Survey Results

Reference	Distance to Source (m)	Duration (minutes)	Measured Sound Level (dB) $L_{Aeq,T}$
A	5	2	64

3.8 Instrumentation

- 3.8.1 The instrumentation used in the survey (including calibration information) is listed in **Appendix B**.
- 3.8.2 Field calibrations were performed before and after the measurements with no significant fluctuations recorded (< 0.5 dB). Calibration certificates are available upon request.

3.9 Proposed Plant Noise Emission Limits

- 3.9.1 Based on the results of the environmental sound survey, the following plant noise emission limits are proposed. The proposed plant noise emission limits should be achieved at the nearest noise sensitive receptor. The proposed plant noise emission limits are subject to the approval of the Local Authority.

Table 3.5: Proposed Plant Noise Emission Limits

Location	Receptor Type	Time Period	Proposed Plant Noise Emission Limit (L _{Ar,Tr} dB)
LT1	Residential	Daytime (07:00 – 19:00 hours)	47
LT2			46

4 Site Activity Noise Impact Assessment

4.1 Overview

4.1.1 Resultant noise levels at receptor locations due to noise generated by activities on-site depend on:

- The type of activity being carried out.
- The duration of the activity.
- How often activity occurs.
- The distance between the activity and the receptor.
- The sound level generated by the activity.

4.1.2 The proposed use of the development site would allow different types of activities to take place, often for relatively short periods of time. As the nature of these activities is flexible, we have based the assessment on sound measurements made of a typical activity currently taking place on-site.

4.1.3 An assessment of noise from site activities has been undertaken in accordance with BS 4142:2014+A1:2019 to determine the likely noise impact from the development site on nearby noise sensitive residential receptors.

4.2 Assessment Assumptions

4.2.1 **Appendix D** shows the site layout of the proposed development and illustrates the anticipated positioning of on-site activities.

4.3 Calculations Procedure

4.3.1 The measured specific sound level of the activity has been used to determine the specific sound level at the receptor locations, taking into consideration relative distances, duration and number of occurrences of each activity. The specific level of each activity at the receptor location has then had acoustic feature corrections applied to derive the noise rating level for each activity. Each noise rating level has then been combined to determine an overall noise rating level at the receptor locations.

4.3.2 For the purpose of our assessment, we have assumed that the assessed activity occurs for 50% of the time during the proposed opening hours of the site.

4.4 Noise Sensitive Receptors

4.4.1 **Table 4.1** details the noise sensitive receptors considered within the assessment. **Figure 4.1** indicates the approximate locations of the noise sensitive receptors.

Table 4.1: Noise Sensitive Receptors

Receptor	Description
A	Caxton House – residential dwellings to the north of the site.
B	Quoin House – residential dwellings to the north of the site
C	Kiln Lodge - residential dwellings to the north of the site
D	Rowlock House - residential dwellings to the north of the site
E	Dwellings along St Stephen's Road
F	Canalside Moorings and Towpath

Figure 4.1: Approximate Location of Noise Sensitive Receptors



Source: Ordnance Survey rights 2018

4.5 Acoustic Feature Correction

4.5.1 The acoustic feature correction of the assessed noise source has been considered. A 6 dB correction for intermittency has been applied, due to the intermittent nature of the activity. A 3 dB correction for tonality has been applied due to the reversing beepers which was used when the vehicle was reversing.

4.5.2 A full example calculation is provided in **Appendix E**.

4.6 Preliminary Assessment Results

4.6.1 **Table 4.2** presents the results of the noise assessment from on-site activities.

Table 4.2: Assessment Summary of On-site Activities

Description	Receptor					
	A	B	C	D	E	F
Combined Rating Level at Receptor (dB L _{Ar,Tr})	54	49	45	52	44	48
Background Sound Level (L _{A90,15} minutes)	47	47	47	47	46	46
Excess of Rating Level over Background Sound Level	+7	+2	-2	+5	-2	+2
Assessment of Impact (subject to context)	Below a level which is likely to result in significant adverse impact	Below a level which is likely to result in adverse impact	Below a level which is likely to result in adverse impact	Below a level which is likely to result in significant adverse impact	Below a level which is likely to result in adverse impact	Below a level which is likely to result in adverse impact

4.6.2 The above assessment indicates that the noise rating level would be below a level which is likely to result in significant adverse impact at receptors A and D which are in residential use.

4.6.3 The noise rating level would be below a level which is likely to result in an adverse impact at receptors B, C, E and F.

4.7 Uncertainty

4.7.1 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.

4.7.2 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 a location considered representative of the nearest noise sensitive receptors.

4.7.3 Noise source measurement data used in our calculations were undertaken by Stantec UK 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.

- 4.7.4 The level of uncertainty introduced due to the propagation of sound is low, due to the separation distances between the noise source and receptor being relatively small (i.e. less than 100 m).

4.8 Assessment Summary

- 4.8.1 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.
- 4.8.2 With regards to this assessment the following contextual factors are considered to be appropriate when assessing the overall noise impact associated with the proposals:
- The site has historically been used for commercial activities, and therefore continued use with commercial activities is fitting with the historic use.
 - The temporary nature of the planning permission. It is considered likely that noise sensitive receptors would be less sensitive to noise impact over a temporary duration than over a long-term period.
- 4.8.3 In considering the contextual factors, the assessment indicates that noise levels from the assessed activity are above the LOAEL at receptors A and D, and therefore the level of impact should be reduced where possible.
- 4.8.4 The assessment indicates that the level of impact associated with site activity from the proposed development at proposed all assessed receptors is likely to be below a level that is likely to result in significant adverse impact (i.e. below the SOAEL), and should therefore not be refused planning permission on this basis.
- 4.8.5 The assessment indicates that noise levels from the assessed activity are below the LOAEL at receptors B, C, E and F and should therefore be acceptable.

4.9 Flexible Use of the Site and Mitigation Measures

- 4.9.1 The above assessment considers the impact of the measured activity at its current location. Given the flexible use of the site, similar activities may take a place at a number of different locations within the site boundary. It is also noted that the uses are intended as a meanwhile temporary use of the site pending wider redevelopment which would be supported by a NIA and mitigation measures as required.
- 4.9.2 A review of noise impact assessment presented in the preceding sections indicates that noise levels from other activities located in other parts of the site may result in a less than significant, but still adverse, noise impact – i.e., have a noise rating level between the LOAEL and the SOAEL at the nearest noise sensitive receptor).
- 4.9.3 Therefore, to provide additional protection to nearby noise sensitive receptors, we would recommend if the Enforcement Notice appeal is allowed or a revised application for temporary uses is submitted that a condition is imposed with the planning permission, requiring the noise rating level from the site to be no more than 10 dB above the typical background sound level.
- 4.9.4 Example wording of a condition which could be imposed is set out below:

“The noise rating level from the site shall not exceed the background sound level by more than 10 dB at noise sensitive receptors. The rating level shall be determined outside the window to any residential noise-sensitive room. Any assessment of compliance with this condition shall be made according to the methodology and procedures presented in BS4142:2014+A1:2019.”

- 4.9.5 To ensure compliance with this condition and due to the nature of the site being used by multiple tenants it is also important that each individual tenant is responsible for noise generated within their own area and that there is site-wide management of noise. A further condition for a noise management plan should be imposed as suggested below,

“In order to monitor and manage noise emissions from the site, a site-wide noise management plan should be submitted to and approved by the Local Planning Authority, and implemented thereafter.”

- 4.9.6 The inclusion of these or similar conditions should ensure that noise impacts are maintained below the SOAEL and reduced to below the LOAEL where possible.

5 Conclusion

- 5.1.1 Stantec UK Ltd. have been appointed by Troutbourne LLP to undertake a noise impact assessment to assess the potential impact of proposed use of land at the Rainbow Industrial Estate, West Drayton
- 5.1.2 The assessment of the on-site activities indicates that the noise rating level associated with the site at nearby existing and noise sensitive receptors is below a level which is likely to result in significant adverse impact at all receptors, and is no more than 10 dB above the typical background sound level.
- 5.1.3 The assessment is based on noise impact from noise generated at its current position on the site. To provide protection from noise impact of activities taking place in other areas on the site, two example planning conditions have been proposed. The inclusion of these or similar conditions should ensure that noise impacts are maintained below the SOAEL and reduced to below the LOAEL where possible.
- 5.1.4 As significant adverse noise impacts are anticipated to be avoided and adverse noise impacts can be mitigated, planning permission should not be refused on the grounds of noise.
- 5.1.5 Building services plant noise limits to be achieved at the nearest noise sensitive receptors have been set based on the existing background sound levels.

Appendix A Acoustic Terminology

Table A.1 Acoustic Terminology

Parameter	Description
Ambient Noise Level	The totally encompassing sound in a given situation at a given time, usually composed of a sound from many sources both distant and near ($L_{Aeq,T}$).
Daytime	The period 7 am - 11 pm.
Decibel (dB)	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds s_1 and s_2 is given by $20 \log_{10} (s_1/s_2)$. The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is $20 \mu\text{Pa}$. The threshold of normal hearing is in the region of 0 dB and 140 dB is the threshold of pain. A change of 1 dB is only perceptible under controlled conditions.
dB(A), L_{Ax}	Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people's assessment of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving or doubling the loudness of a sound. The background noise in a living room may be about 30 dB(A); normal conversation about 60 dB(A) at 1 metre; heavy road traffic about 80 dB(A) at 10 metres; the level near a pneumatic drill about 100 dB(A).
Fast Time Weighting	Setting on sound level meter, denoted by a subscript F that determines the speed at which the instrument responds to changes in the amplitude of any measured signal. The fast time weighting can lead to higher values than the slow time weighting when rapidly changing signals are measured. The average time constant for the fast response setting is 0.125 (1/8) seconds.
Free-field	Sound pressure level measured outside, far away from reflecting surfaces (except the ground), usually taken to mean at least 3.5 metres
Façade	Sound pressure level measured at a distance of 1 metre in front of a large sound reflecting object such as a building façade.
L_{AE} or SEL	A noise level which, if maintained for a period of 1 second, would cause the same A-weighted sound energy to be received as is actually received from a given noise event.
$L_{Aeq,T}$	A noise level index called the equivalent continuous noise level over the time period T. This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$L_{max,T}$	A noise level index defined as the maximum noise level recorded during a noise event with a period T. L_{max} is sometimes used for the assessment of occasional loud noises, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
$L_{90,T}$ or Background Noise Level	A noise level index. The noise level exceeded for 90 % of the time over the period T. L_{90} can be considered to be the "average minimum" noise level and is often used to describe the background noise.
LOAEL	Lowest Observed Adverse Effect Level. This is the noise level above which adverse effects on health and quality of life can be detected.
Night-time	The period 11 pm – 7 am.
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.
SOAEL	Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.
Sound Pressure	Sound, or sound pressure, is a fluctuation in air pressure over the static ambient pressure.

Parameter	Description
Sound Pressure Level, L_p	The sound pressure level, L_p is the sound pressure relative to a standard reference pressure of 20 μ Pa (20×10^{-6} Pascals) on a decibel scale.
Specific Noise Level	The noise source under investigation for assessing the indication of impact, measured as and $L_{Aeq,T}$
Rating Noise Level	The specific noise source plus any adjustment for the characteristic features of the noise, denoted by $L_{Ar,T}$.

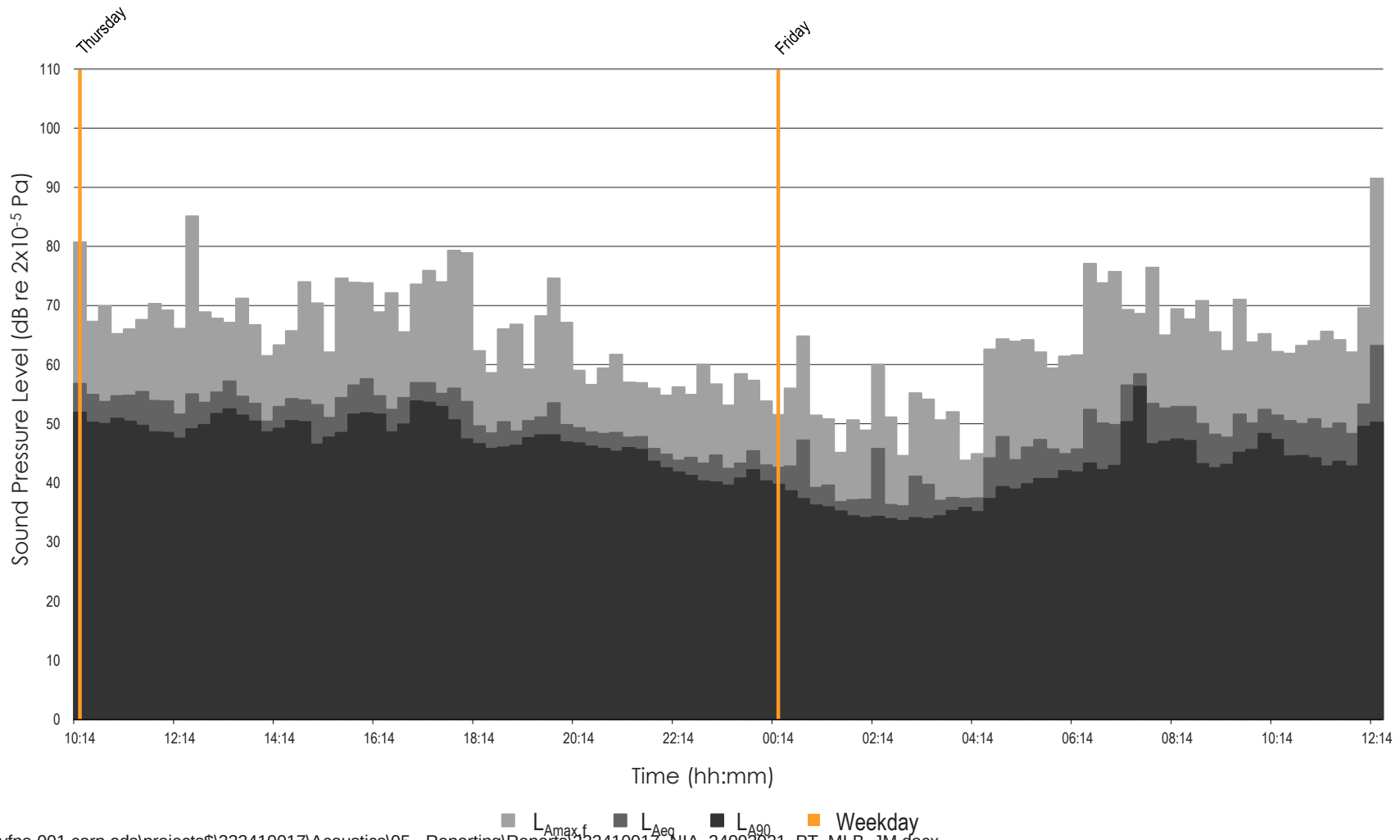
Appendix B Environmental Sound Survey Instrumentation

Table B.1: Measurement Instrumentation

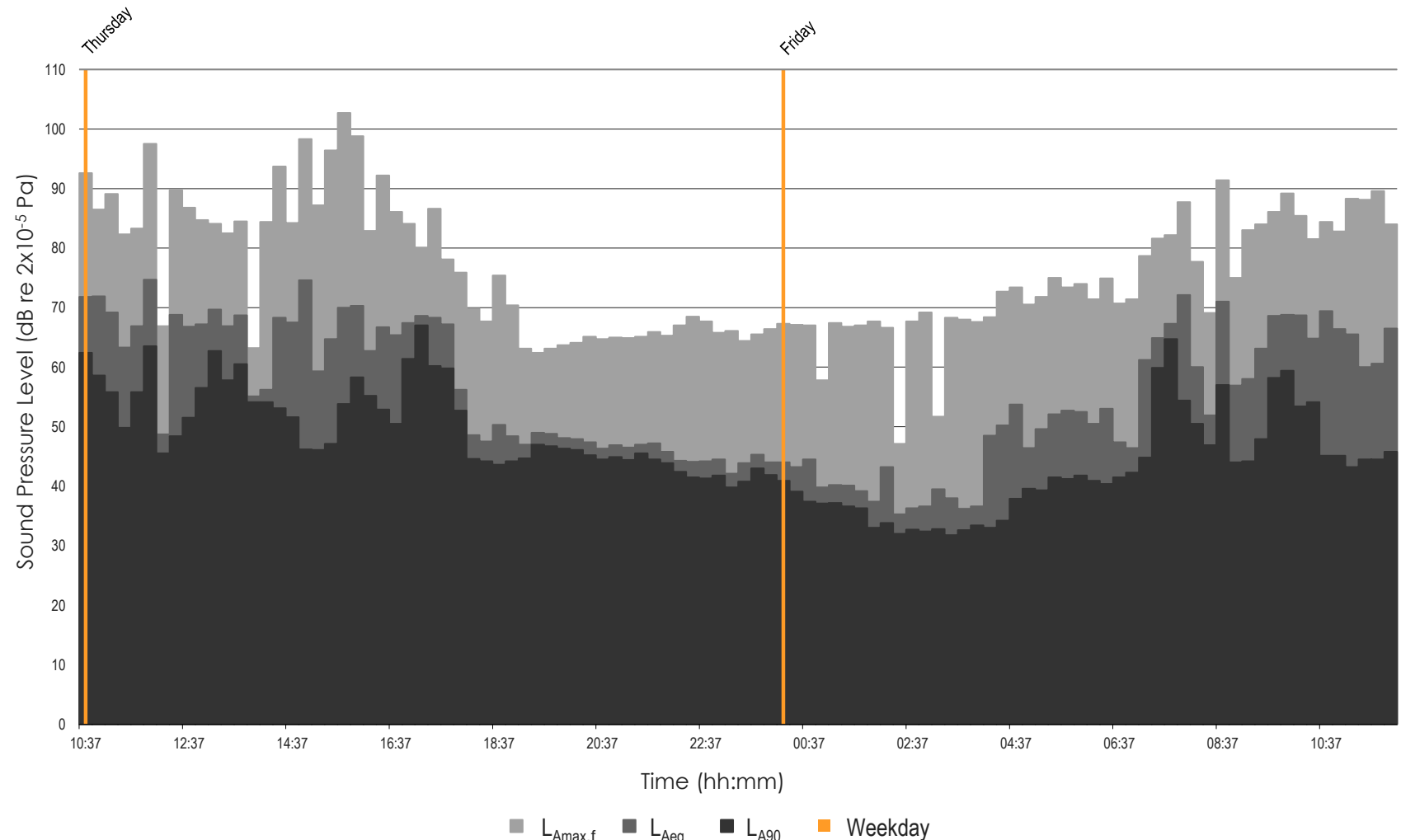
Description	Manufacturer	Type	Serial Number	Laboratory Calibration Date
Sound Level Meter	RION	NL-52	542903	06/02/2021
½" Pre-polarised microphone		UC-59	06480	06/02/2021
Pre-amplifier		NH-25	42931	06/02/2021
Sound Level Meter	RION	NL-52	1043456	13/02/2021
½" Pre-polarised microphone		UC-59	7231	13/02/2021
Pre-amplifier		NH-25	43485	13/02/2021
Sound Level Meter	Brüel & Kjær	2250	3012156	30/09/2020
½" Pre-polarised microphone		4189	3130464	30/09/2020
Pre-amplifier		ZC0032	27836	30/09/2020
Sound Calibrator	Brüel & Kjær	4231	2619375	13/01/2021

Appendix C Environmental Sound Survey Time History Graphs

Rainbow Industrial Estate
 L_{Aeq} , $L_{Amax,f}$ and L_{A90} Time History
LT1 - Thursday 7 October to Friday 8 October 2021



Rainbow Industrial Estate
 L_{Aeq} , $L_{Amax,f}$ and L_{A90} Time History
LT2 - Thursday 7 October to Friday 8 October 2021



Appendix D Proposed Development Site Layout

Proposed Site Plan - Storage Areas Land at Former Rainbow Industrial Estate



Appendix E BS 4142:2014 On-site Activities Assessment Assumptions and Calculations

Table E.1: Example Calculation of Specific Sound Level at Receptor (Receptor A)

Activity	Measured Specific Sound Level (dBA L_{Aeq} at 5 m)	Distance to Receptor (m)	Distance Correction (dB)	Reflections (dB)	Screening (dB)	On-time Correction (dB)	Specific Level at Receptor A ($L_{Aeq,T}$ dB)
Forklift unloading marble from van	64	25	-16	0	0	-3 (50% on-time)	45

Table E.2: Activity BS 4142 Corrections (Receptor A)

Activity	Tonality Correction (dB)	Impulsivity Correction (dB)	Intermittency Correction (dB)	Other Correction (dB)	Activity Rating Level at Receptor ($L_{A,r,Tr}$ dB)
Forklift unloading marble from van	3	0	6	0	54