sharps acoustics

Orbital Industrial Estate, West Drayton

Environmental noise impact assessment

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Appendices

1.0 Introduction

1.1 Sharps Acoustics LLP (SAL) have been instructed to undertake a noise assessment for a planning application for two new warehouses on Orbital Industrial Estate in West Drayton.

1.2 Details of the assessment methodology employed, together with the results of the baseline survey, assessment and conclusions are presented within this report.

1.3 SAL have previously prepared a Pre-Application Noise Note titled '*Orbital Industrial Estate, West Drayton, Pre-app Noise Note'*, dated 15th August 2024.

Site Description

1.4 Orbital Industrial Estate is located on Horton Road, West Drayton in the London Borough of Hillingdon. The site is identified as a Strategic Industrial Location (SIL) on the Borough's policies map.

1.5 Immediately to the east of the site are industrial and commercial premises. To the south is the Grand Union Canal and footpath with the West Cost Mainline and flats on the opposite side. To the north is Horton Road with flats on the opposite side. To the west are industrial and commercial premises with further houses on the opposite side.

1.6 The site and surrounding area including the closest noise-sensitive receptors are shown in Figure A1 in Appendix A.

2.0 Assessment Methodology and Criteria

National Planning Policy Framework (NPPF) (2025)

2.1 Government planning policy in relation to noise is contained in the National Planning Policy Framework (NPPF). The relevant paragraph from this (paragraph 198) states:

> *"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*
>
> *a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
>
> *b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason …"*

2.2 The requirement to avoid significant impacts and to mitigate and reduce other adverse effects to a minimum was originally recommended in the Noise Policy Statement for England (NPSE).

Noise Policy Statement for England (NPSE)

2.3 The 2010 DEFRA publication *'Noise Policy Statement for England'* (NPSE) sets out policy advice applicable to the assessment and management of noise, including environmental noise. The NPSE states three policy aims, which are:

- *"avoid significant adverse impacts on health and quality of life;*
- *mitigate and minimise adverse impacts on health and quality of life; and*
- *where possible, contribute to the improvement of health and quality of life."*

2.4 All three of these aims are to be considered in the context of Government policy on sustainable development.

2.5 The first two aims require that no significant adverse impact should occur and, where noise falls between the lowest observable adverse effect level (LOAEL) and the significant observed adverse effect level (SOAEL), then according to the NPSE:

> *"… all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur."*

2.6 The NPSE notes 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".

2.7 The NPSE describes the Government's "guiding principles of sustainable development", listing the following as underpinning their sustainable development strategy:

- ensuring a strong, healthy and just society;
- using sound science responsibly;
- living within environmental limits;
- achieving a sustainable economy; and
- promoting good governance.

2.8 Thus, noise should not be considered in isolation; the economic and social benefit of a proposed development should be considered alongside the potential adverse effects from noise.

Planning Practice Guidance on Noise (PPG: Noise)

2.9 The Government first published their Planning Practice Guidance on noise (PPG) in March 2014, with the most recent version issued in July 2019. The PPG provides guidance on the interpretation and implementation of planning policy, as contained in the NPPF and the NPSE.

2.10 The use of the lowest observed adverse effect level (LOAEL) and significant observed adverse effect level (SOAEL) for the assessment of noise impacts is reinforced in the PPG, which seeks to define human perception at these effect levels.

2.11 The PPG describes the LOAEL as the level at which *"noise can be heard and causes small changes in behaviour, attitude or other physiological response"* and it is *"present and intrusive"*. Below this level, the PPG describes the NOAEL, or No Observed Adverse Effect Level, which it notes *"can be heard but does not cause any change in behaviour, attitude or other physiological response"* as the noise is *"present but not intrusive"*. The NOAEL is not included in the NPSE and is introduced in the PPG. Below the NOAEL, the PPG describes the NOEL, or No Observed Effect Level, where noise is *"not present"* and has *"no effect"*.

2.12 The PPG describes the LOAEL as the:

> *"… boundary above which the noise starts to cause small changes in behaviour and 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)."*

2.13 Significant observable adverse effects, i.e. those occurring at or above the SOAEL, are described as *"present and disruptive"* and the PPG states that above the SOAEL:

> *"… the 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."*

Local Policy

London Borough of Hillingdon

2.14 The London Borough of Hillingdon Local Plan is split into two parts, Part one identifying Strategic Policies for the Borough and part two summarising development management policies and site allocations.

2.15 Part one of the Local Plan includes a number of strategic policies regarding noise which are as follows:

> *"SO10: 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.*

2.16 The plan also includes a policy for the Heathrow Opportunity Area, however, it is understood that this is area is yet to be defined.

2.17 In addition, The Secretary of State for Environment, Food and Rural Affairs formally adopted Noise Action Plans for 23 agglomerations (large urban areas), major roads, and major railways in England on 15 March 2010 (57) . The Plans identify several target areas in Hillingdon including 'First Priority Areas' through a series of noise maps for noise reduction measures.

2.18 Policy EM8 Land, Water, Air and Noise states with regard 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."*

2.19 Map 8.5 of the Local Plan highlights Hillingdon's target areas as those adjacent to the M4 for road noise, and areas adjacent to the rail line in Northwood for rail noise. The application site and the area immediately surrounding it does not fall within a target area.

2.20 Section 5.7 of the Local Plan states that

> *"To complement the Strategic Industrial Locations, this Hillingdon Local Plan: Part 1 Strategic Policies proposes designations for two types of employment land; Locally Significant Industrial Sites (LSIS) where industrial and warehousing activities can operate, and Locally Significant Employment Locations (LSEL) that have a light industrial, office and research role. The purpose of this is to ensure that new office development, which has a high trip generating capacity, is located where public transport accessibility is strongest, thereby reducing the need for car trip generation. It will also help ensure that the function of industrial areas are not compromised by 'sensitive' neighbouring uses. Locations of proposed LSIS and LSEL are shown on Map 5.1 with specific boundaries brought forward through the Hillingdon Local Plan: Part 2- Site Specific Allocations Local Development Document (LDD)."*

2.21 The London Borough of Hillingdon Policies Map confirms that the area is a Strategic Industrial Location.

2.22 Part two of the policy, which summarises the development management policies states the following site appropriate policies.

2.23 Policy DMT 1: Managing Transport Impacts states:

> *" ….In order for developments to be acceptable they are required to:*
>
> *…*
>
> *v) have no significant adverse transport or associated air quality and noise impacts on the local and wider environment, particularly on the strategic road network."*

2.24 Policy DMT 2: Highways Impacts states:

"Development proposals must ensure that:

…

ii) they do not contribute to the deterioration of … noise…."

2.25 Policy DMT 7: Freight states:

"A) Development proposals that generate a high number and/or intensity of transport and movements such as those relating to logistics and distribution or freight will be required to demonstrate that:

…

ii) there is no deleterious impact on residential areas…"

Derivation of suitable assessment methodology and criteria

2.26 It is possible to apply objective standards to the assessment of noise and the effect produced by the introduction of a certain noise source may be determined by several methods, as follows:

i) The effect may be determined by reference to guideline noise values. British Standard (BS) 8233:2014 and several other sources such as the World Health Organisation's (WHO) "*Guidelines for Community Noise"* contain such guidelines.

ii) Alternatively, the impact may be determined by considering the change in noise level that would result from the proposal, in an appropriate noise index for the characteristic of the noise in question. There are various criteria linking change in noise level to effect. This is the method that is suited to, for example, the assessment of noise from road traffic because it can predict impact to all properties adjacent to a road link irrespective of their distance from the road.

iii) Another method is described within British Standard BS 4142, the current version of which is BS 4142: 2014+A1: 2019, 'Methods for rating and assessing industrial and commercial sound', to determine the significance of sound impact from sources of industrial and/or commercial in nature. The sources that the standard is intended to assess are sounds from industrial and manufacturing processes, sound from fixed plant installations, sound from loading and unloading of goods at industrial and/or commercial premises and the sound from mobile plant and vehicles, such as forklift, train or ship movements.

2.27 In order to assess noise from servicing, the approach set out in BS4142 is most appropriate, as the noise sources present would be similar to those listed within the scope of that standard. Paragraphs 2.28 to 2.34 below explain the key features of this standard in more detail.

British Standard BS 4142: 2014 + A1:2019

2.28 British Standard (BS) 4142: 2014+A1: 2019 *'Methods for rating and assessing industrial and commercial sound'* (BS4142) describes a method for rating and assessing sound of an industrial or commercial nature, which includes, in Section 1.1 of the standard:

> *"sound from industrial and manufacturing processes;*
>
> *sound from fixed installations which comprise mechanical and electrical plant and equipment;*
>
> *sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and*
>
> *sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and/or commercial site."*

2.29 The industrial or commercial sound is assessed outside an existing or proposed dwelling or premises used for residential purposes. BS4142 does not consider internal spaces in terms of its numerical assessment.

2.30 The procedure contained in BS4142 begins by quantifying the "specific sound level", which is the measured or predicted level of sound from the source in question over a one-hour period for the daytime or a 15-minute period for the nighttime. Daytime and nighttime are not defined in BS4142, but the standard notes that they are typically taken to be 0700 to 2300 hours for daytime, and 2300 to 0700 hours for nighttime.

2.31 BS4142 sets out a number of methods of determining the specific sound level including, for situations where the specific sound source does not yet exist, the ability to estimate it, stating, at Section 7.3.6:

> *"Determine the specific sound level by calculation alone if measurement is not practicable, for example if the source is not yet in operation. In such cases, report the method of calculation in detail and give the reason for using it."*

2.32 The specific sound level is converted to a rating level by adding penalties on a sliding scale to account for potentially tonal, impulsive or intermittent elements. The standard sets out subjective and objective methods for determining the presence of tones or impulsive elements but notes that the objective methods should be used where the subjective method is not sufficient. For situations where the specific sound source does not yet exist, the objective methods cannot be used.

2.33 The assessment outcome results from a comparison of the rating level with the background sound level (which is determined by the assessment of typical background noise levels by survey). The standard states, in Section 11:

> *"a) Typically, the greater this difference, the greater the magnitude of the impact.*

b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.

c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.

d) 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.

NOTE 2 Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact."

2.34 Finally, BS4142 requires that the level difference is considered in the context in which it is found. Contextual considerations include:

- Absolute level of sound. If the existing level is particularly high or low, then this can affect the significance of a particular difference (assessed as described in 2.26 above).
- The character and level of the residual sound compared to the character and level of the specific sound.
- Sensitivity of 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:
    i. facade insulation treatment;
    ii. ventilation and/or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation; and
    iii. acoustic screening.

Pre-app Response Regarding Noise

2.35 Following issue of the pre-application documents, the following response and recommended condition was received by the project team:

"Noise:

Policy D13 of The London Plan places the responsibility for mitigating impacts from existing noise and other nuisance-generating activities or uses on the proposed new noise-sensitive development. 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.

Policy D14 of The London Plan states that 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 noise 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 environment 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 by 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. It is likely that noise from the service yard, potentially at unsocial hours, could disturb the nearby residents above. The planning application must outline the proposed hours and intensity of service yard use.

A Noise and Vibration Impact Assessment would be required at the submission stage to demonstrate that the noise levels would be within an acceptable range, considering noise generated by the development and any associated plant, ventilation, cooling units, etc.

The Council's Noise Officer has reviewed the pre-app noise note and indicated that they would recommend the following condition and informative if a full application were to be submitted:

Noise Condition-

'For the lifetime of the development hereby permitted the rating level (LAr) of noise caused by its operation shall not exceed:

40 dB LAr 15 min for any fifteen-minute period between 2300 and 0700, and 50 dB LAr 1 hour for any one-hour period between 0700 and 2300, determined one metre free field external to any window or door of any permanent residential, or equivalently noise sensitive premises, in accordance

with 'Methods for rating and assessing industrial and commercial sound' British Standards Institution BS4142 2014.

Reason

To ensure that occupants of dwellings would not be exposed to noise caused by the permitted development that would be likely to cause an adverse effect on their health and quality of life with windows open for the purposes of ventilation and cooling.'

Noise Informative-

'It is considered that a condition based on fixed noise levels is consistent with noise and planning policy by relating external noise levels to the point at which adverse effects on health and quality of life start to be observed. The limit values are intended to be consistent with the evidence base that is reflected in guidance: 'Guidance on Sound Insulation and Noise Reduction for Buildings' BS8233 2014. This is combined with the assessment principles and procedures detailed in guidance: 'Methods for rating and assessing industrial and commercial sound' British Standards Institution BS4142 2014.' This is used to set reference time periods for the assessment and adjust measured or calculated LAeq values for character as detailed in BS4142.' "

2.36 The aim of national noise policy is broadly to avoid significant adverse noise impacts and mitigate and minimise other, lesser noise impacts.

2.37 Local noise policy is set out in Policy EM8, where sites which are located outside of Hillingdon's target areas, such as the proposed development site, are only permitted if noise impacts can be adequately controlled and mitigated.

2.38 On this basis where the Noise informative section of the pre-app response states:

Noise Informative-

'It is considered that a condition based on fixed noise levels is consistent with noise and planning policy by relating external noise levels to the point at which adverse effects on health and quality of life start to be observed….."

2.39 SAL do not agree, and fixed noise limits of $L_{Ar,15mins}$ 40 dB for any fifteen-minute period between 23:00 and 07:00 hours, and $L_{Ar,1Hr}$ 50 dB for any one-hour period between 07:00 and 23:00 as suggested in the noise condition would not be in line with national or local noise policy with regard to noise from industrial and commercial sound, such as that emanating from the proposed premises. It would also not be in accordance with the British Standard referred to in the same recommended condition and would thus be internally inconsistent.

2.40 The assessment methodology set out in British Standard 4142 *'Methods for rating and assessing industrial and commercial sound'* has been specifically produced to assess noise from the proposed land use, that being industrial and commercial sound. Therefore, achieving a low impact when assessed in accordance with the Standard, which takes into account existing noise levels and contextual arguments,

would be in line with national noise policy, local policy EM8, Local Strategic Policy SO10 and The London Plan. For this reason, the proposed condition would be imprecise and unnecessary.

2.41 Furthermore, with the suggested night-time noise condition it would not be possible for a single van to access the site between 23:00 hours and 07:00 hours without exceeding $L_{Ar,15mins}$ 40 dB as suggested in the proposed condition. For this reason, the proposed condition would be unreasonable for this site as it is a SIL.

2.42 On this basis the noise assessment methodology is set out below.

Selected Noise Assessment Methodology

2.43 Noise levels associated with the proposed development have been predicted to the closest noise-sensitive receptors.

2.44 The predicted noise levels emanating from the development have been used to assess the potential impact at the closest noise-sensitive receptors during the daytime and night-time in accordance with the guidance contained in British Standard 4142:2014+A1:2019 'Method for rating and assessing industrial and commercial sound' (BS4142).

2.45 The assessment is based upon the results of a baseline noise survey undertaken at locations representative of the closest noise-sensitive receptors.

3.0 Noise Survey

3.1 An attended and unattended environmental noise survey has been undertaken to determine the existing noise levels in the area representative of the closest noise-sensitive receptors. The unattended measurements (MP1) were conducted between approximately 14:00 hours on Tuesday 11 June and 05:30 Tuesday 18th June 2024. The attended measurements (MP2) were conducted between approximately 12:00 hours and 16:00 hours and 19:00 hours and 22:30 hours on Thursday 11th July and approximately 23:30 hours on Thursday 11th July 2024 and 04:30 hours the following day.

3.2 Two monitoring locations were used for the survey and are detailed in Table 3.1, and shown in the aerial view in Figure A2 in Appendix A. At position MP1 the measurement microphone was projected on a pole approximately 2.5m above ground level. At position MP2, the measurement microphone was projected on a tripod approximately 1.5m above ground level for the measurements between 12:00 hours and 22:30 hours and on a pole approximately 2.5m above ground level for the measurements between 23:30 hours and 04:30 hours. All measurement were conducted in free field conditions.

Table 3.1: Noise Monitoring Locations

Location	Receptor	Approximate Distance from Site (m)	Reflecting Surfaces between Source and Receptor(1)	Topography of Intervening Ground	Justification for Choice of Measurement Location
MP1 (unattended)	NSR1	On site boundary	Buildings	No significant topographical change	Measurement location representative of noise levels at NSR1
MP2 (attended)	NSR2	95	Buildings	No significant topographical change other than rail line	Measurement location representative of noise levels at NSR2

Note (1) – Reflecting surfaces other than the ground

3.3 The noise monitoring equipment used during the survey is shown in Table 3.2, and was set to record a number of parameters, including the $L_{Aeq,T}$, L_{A90}, L_{A10} and L_{AFmax}.

Table 3.2: Survey Equipment

Location	Equipment Description	Serial Number	Calibration Date Prior to Survey	Calibrator Reference Level
MP1	Norsonic 140 sound level meter	1402899	22/06/2023	-
	Norsonic 1225 microphone	118549	22/06/2023	-
	Norsonic 1251 calibrator	29149	14/07/2023	114dB
MP2	Norsonic 140 sound level meter	1403706	14/07/2023	-
	Norsonic 1225 microphone	91754	14/07/2023	-
	Norsonic 1251 calibrator	32476	31/07/2023	114dB

3.4 Measurements were taken over continuous 15-minute periods throughout each survey period.

3.5 The sound level meters were field checked for calibration before and after the measurements. No significant drift occurred. All sound level meters and calibrators are factory calibrated bi-annually and annually, respectively.

Weather

3.6 The weather conditions during the survey are presented in Figure B1 in Appendix B. Analysis of the measured data shows that the periods of breezy weather during the unattended monitoring have not adversely affected the measured levels.

Survey Results

3.7 The average daytime and night-time L_{Aeq}, L_{A90} and L_{AFmax} results from the survey are summarised in Table 3.3. The noise levels from position MP1 are provided in graphically in Figure C1 and tabulated in Table C1 in Appendix C from position MP2.

Table 3.3: Summary of noise survey results

Measurement Position	Period	Sound Pressure Level dB		
		$L_{Aeq,T}$	L_{AFmax}	Typical $L_{A90,15min}$
MP1	Daytime (07:00 to 23:00 hours)	68	102	49
	Night-time (23:00 to 07:00 hours)	62	96	44
MP2	Daytime (12:00 to 16:00 hours)	64	97	42
	Daytime (19:00 to 22:30 hours)	63	83	46
	Night-time (23:30 to 04:45 hours)	59	85	43

3.8 For information purposes it can be noted:

- Measurements of sound level were all made with the A-weighting, which is a filter applied to the sound level meter to simulate the frequency response of the human ear, which is more sensitive to high frequency sound than low.
- L_{Aeq} is the equivalent continuous noise level which is a method of averaging the varying noise level over the measurement period into a single figure value. The L_{Aeq} has the same sound energy as the fluctuating level over that period. The L_{Aeq} is also known as the "ambient level" and in BS4142 the L_{Aeq} in the absence of the proposed development sound is known as the "residual level".
- L_{Amax} is the highest level within the measurement period.
- L_{A90} is the noise level exceeded for 90% of the time and is referred to as the background noise level.

Description of Noise Climate

3.9 During the set-up of the equipment the noise climate was predominantly controlled by traffic noise, with occasional impulsive and intermittent sounds of deliveries taking place. Reference to Figure C1 in Appendix C shows that during the unattended periods the noise levels follow a typical traffic-controlled noise climate with the highest levels measured during the day, with a reduction in levels during the evening and the lowest levels measured at night.

3.10 At survey position MP2 the noise climate during the day was predominantly controlled by rail traffic noise, with road traffic and general community noise also affecting the measured levels. During the late evening fewer trains were noted and continuous industrial noise was audible emanating from the north-east, which remained continuous throughout the measured night-time period. Between approximately 02:00

and 04:00 hours very few trains were noted. From around 04:30 hours rail traffic noise once again became the dominant noise source.

4.0 Assessment

4.1 This section of the report outlines the prediction and assessment of noise emanating from the proposed development site. The proposal is for unrestricted servicing hours. The proposed site layout is presented in Figure D1 in Appendix D.

4.2 The proposed development also includes a 3m tall noise barrier along the southern site boundary at the location shown on Figure D1 in Appendix D.

Servicing Procedure

4.3 Predicted OGV and LGV vehicle servicing numbers for the site have been provided by the project traffic consultant. The data summarises an hourly breakdown of OGV and LGV vehicle movements over any 24-hour period split between Units 1 and Unit 2 by 35% and 65%, respectively and is provided in Table E1 in Appendix E. A summary of the modelled typical daytime and night-time periods are presented in Table 4.1 below.

Table 4.1: Summary of Modelled Traffic Data

Period	LGV		OGV	
	Unit 1	Unit 2	Unit 1	Unit 2
Night	0	1	0	0
Day	2	3	1	1

4.4 The BS4142 assessment procedure considers a typical 1-hour period during the daytime hours (07:00 to 23:00 hours) and 15-minute period during the night-time hours (23:00 to 07:00 hours) based on the traffic data presented in Table 4.1 above.

Noise Emissions

4.5 Noise emissions associated with the proposed development are based on the levels presented in Table 4.2 and are taken from noise levels from SAL library data from similar developments. Noise maps are presented in Figures F1 and F2 in Appendix F for the daytime and night-time periods, respectively.

Table 4.2: Modelled Source Emissions

Description	Parameter	Noise level dB(A)
OGV manoeuvre – forward movement	$L_{w/m}$	59
OGV manoeuvre – reverse broadband alarm	$L_{w/m}$	61
LGV manoeuvre – forward movement	$L_{w/m}$	57
LGV manoeuvre – reverse broadband alarm	$L_{w/m}$	61
OGV rear unloading	L_w	94
LGV rear unloading	L_w	83

Noise Prediction

4.6 Noise emanating from the proposed development site has been calculated to the closest noise-sensitive receptors using proprietary noise modelling software SoundPlan Version 9.1 using the calculation methodology ISO9613.

4.7 The noise model was constructed using Google Earth geo-referenced 1:1 scaled aerial photography, the traffic data summarised in Table 4.1 and the noise source data detailed in Table 4.2.

Specific Sound Level

4.8 The cumulative daytime and night-time noise levels generated by the development has been predicted to the closest noise sensitive receptors identified in Figure A1 in Appendix A. The closest noise-sensitive receptors are both flats, therefore the noise levels have been predicted to all levels, with the highest noise level used in the assessment. The results are presented in Table 4.3 below.

Table 4.3: Specific sound levels

Location	Period	Specific Sound Level $L_{Aeq,T}$ dB
NSR1 – Horton Road	Daytime	46
	Night-time	44
NSR2 – Admiralty Close	Daytime	41
	Night-time	37

Sound Rating Level

4.9 In accordance with the guidance contained in BS4142 the specific sound level has been corrected for tonal, impulsive, intermittent or other acoustic characteristics, which may be present at the receptor, to determine the sound rating level.

4.10 As stated in Section 3.9 and 3.10, the existing noise climate at position MP1 is predominantly controlled by traffic noise and affected by noise from deliveries taking place.

4.11 The noise levels at NSR1 would be predominantly controlled by the forward movement of the HGV as it enters and leaves the site, which would be similar in character to the existing noise climate. Furthermore, during the attended aspects of the survey impulsive and intermittent sounds were audible from deliveries taking place. On this basis, any impulsive or intermittent sounds associated with the servicing procedure would be indistinguishable against the residual noise climate.

4.12 Regarding NSR2, the noise climate was affected by traffic noise, which would be similar in character to the forward movement of the HGV. In addition, noise emanating from the rail line would be impulsive and intermittent, therefore any impulsive or intermittent sounds emanating from the servicing procedure would be similar in character to the existing noise climate.

4.13 The closest receptors are located in a mixed industrial/ commercial and residential setting. Furthermore, the proposed development does not comprise a change to the planning use of the site. On this basis, acoustically distinguishing characteristics emanating from the proposed premises would unlikely attract attention. Therefore, no penalties for impulsivity, intermittency or tonality have been applied at the closest noise-sensitive receptors.

4.14 Noise levels emanating from the proposed development site should not contain any other sound characteristics, therefore no further penalties have been applied.

4.15 The daytime and night-time sound rating levels of noise emanating from the proposed development site are therefore presented in Table 4.4 below.

Table 4.4: Rating sound levels

Location	Period	Rating Level L_{Ar} dB
NSR1 – Horton Road	Daytime	46
	Night-time	44
NSR2 – Admiralty Close	Daytime	41
	Night-time	37

BS4142 Background Level

4.16 The BS4142 background sound levels are presented in Table 4.5.

Table 4.5: Background Sound Levels

Location	BS4142 background sound Level $L_{A90,T}$ dB	
	Daytime	Night-time
NSR1 – Horton Road	49	44
NSR2 – Admiralty Close	42	42

4.17 Analysis of the attended measurements representative of NSR2 show an increase in the background L_{A90} levels between 19:00 and 04:45 hours with a particular increase at 500Hz. Comparison of this with the weather in Figure B1 shows a change in the wind direction over this period to north-easterly. This increase is believed to be due to the continuous mechanical plant noise level discussed in Section 3.10 which was emanating from the north-east being increasing due to a change to a north-easterly wind direction over this period.

4.18 On this basis, the background level during the daytime at NSR2 has been used in the assessment as a worst-case assessment which errs on the side of caution for the daytime and night-time periods.

BS4142 Initial Estimate of Impact

4.19 The predicted typical daytime and night-time sound rating levels at the closest noise-sensitive receptors have been compared to the BS4142 background levels and are presented in Table 4.6 below.

Table 4.6: Initial Estimate of Impact

Location	Period	Sound Rating Level ($L_{Ar,T}$)	BS4142 Background Level ($L_{A90,T}$)	Level Exceeding Background (dB)
NSR1 – Horton Road	Daytime	46	49	-3
	Night-time	44	44	0
NSR2 – Admiralty Close	Daytime	41	42	-1
	Night-time	37	42	-5

4.20 Table 4.6 shows that at the closest noise-sensitive receptors the cumulative sound rating level of typical noise emanating from the premises is predicted to be between -5dB below and equal to the BS4142 background sound levels during the daytime and night-time periods.

4.21 The Standard states:

"a) Typically, the greater this difference, the greater the magnitude of the impact.

b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.

c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.

d) 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.

4.22 On the basis of the above, the initial assessment of impact suggests that during the daytime and night-time periods, typical noise emanating from the site would have a low impact at both noise-sensitive receptors, dependant on context.

4.23 BS4142 states that:

> *"An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/ will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context"*

Context

4.24 BS4142 states that where the initial estimate of impact needs to be modified due to the context, all pertinent factors should be taken into consideration, including the following.

The Absolute Level of Sound

4.25 The rating sound levels during the assessment are predicted to be well below the existing average ambient noise levels at the noise-sensitive receptors.

The Character and Level of the Residual Sound

4.26 The assessment has shown that the proposed development is located in a Strategic Industrial Location (SIL) on the Borough's policies map. In addition, the closest receptors are located in a mixed industrial/ commercial and residential setting and the proposed development does not comprise a change to the planning use of the site. On this basis, the character of sound emanating from the premises would be similar in character to the existing noise climate. Also, typical noise levels emanating from the proposed development site would be equal to or below the typical background sound levels during the daytime and night-time.

4.27 Furthermore, the results of the computer model show that at NSR1 (Horton Road) the noise levels emanating from the premises would be predominantly controlled by the movement of the HGV vehicles as they enter and leave the site, which would be similar in character to the existing road traffic noise which controls the existing noise climate.

The Sensitivity of the Receptor

4.28 The proposed development has been designed with an acoustically optimised site layout with all servicing bays located on the south façade of the premises facing away from the noise-sensitive premises to the north. In addition, the development includes a 3m tall noise barrier along the southern boundary of the site to reduce noise levels emanating to the noise-sensitive receptors to the south.

Summary of the Context

4.29 On the basis of the above, when accounting for context, typical noise levels emanating from the proposed development would have a low impact when assessed in accordance with BS4142:2014 during the day and night.

4.30 Considering the above, the site layout has been designed such that noise emanating from the premises is reduced and any adverse impacts are mitigated, as per Local Plan policies EM8, SO10 and SO23. Therefore, noise emanating from the premises would be in line with national and local noise policy and The London Plan.

Further Assessment

4.31 The above assessment is based on typical noise levels emanating from the premises based on the average vehicle movements provided by the traffic consultant during the day and night. Table 4.7 below presents the worst-case 1-hour traffic data during the night-time period.

Table 4.7: Worst-case 1-hour night-time traffic data

Period	LGV		OGV	
	Unit 1	Unit 2	Unit 1	Unit 2
Night (06:00 to 07:00 hours)	1	2	1	1

4.32 To assess the worst-case scenario for a robust assessment, it can be assumed that all of the OGV and LGV vehicle movements predicted over the 06:00 to 07:00 hours period arrive in the same 15-minute period, which is unlikely. Under this extreme case, the predicted noise levels emanating from the site remain well below the existing average ambient noise levels at the noise-sensitive receptors over the same period, and when accounting for context noise emanating from the premises would remain a low impact.

Traffic Levels

4.33 The existing and proposed overall LGV and OGV traffic levels over a 24-hour period are 164 and 115 vehicles, respectively. On this basis the proposed development would result in an overall reduction in vehicle movements.

4.34 Therefore, noise emanating from LGV and OGV vehicle movement associated with the development would be in line with Local Plan policies DMT1, DMT2 and DMT7.

5.0 Plant Noise Limits

5.1 As the development is in its early stages, specific mechanical plant has not been selected, therefore at this stage of the application mechanical plant noise limits have been set in line with the guidance of BS4142:2014.

Plant Noise Limits

5.2 As stated in Section 4, BS4142 states:

"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 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".

5.3 On this basis, should the cumulative rating level of any fixed plant associated with the proposed development be equal to or lower than the existing background noise level, noise from the mechanical plant should have a low impact at the closest noise-sensitive receptors, depending on context. On this basis, the mechanical plant noise limits are presented in Table 5.1

Table 5.1: BS4142:2014 Mechanical Plant Noise Limits

Location	BS4142 Mechanical Plant Noise Limits $L_{Ar,T}$ dB	
	Day (07:00 to 23:00 hours)	Night (23:00 to 07:00 hours)
NSR1 – Horton Road	49	44
NSR2 – Admiralty Close	42	42

5.4 Based on the above, the suggested condition wording is therefore as follows:

"The rating level of noise emitted by all fixed plant on the site shall not exceed 49dB between 07:00 and 23:00 and 44dB between 23:00 and 07:00 hours at the noise sensitive premises on Horton Road and 42dB between 07:00 and 23:00 hours and 23:00 and 07:00 hours at the noise sensitive premises on Admiralty Close. The measurement and assessment shall be made according to BS 4142:2014+A1:2019."

6.0 Conclusions

6.1 SAL have been instructed to undertake a noise assessment for a planning application for two new warehouses on Orbital Industrial Estate in West Drayton.

6.2 Details of the assessment methodology employed, together with the results of the baseline survey, assessment and conclusions are presented within this report.

6.3 The BS4142 assessment has shown that when accounting for context, noise emanating from the proposed development site would have a low impact when assessed in accordance with BS4142:2014 during both the daytime and night-time periods.

6.4 Furthermore, the site layout has been designed such that noise emanating from the premises is reduced and any adverse impacts are mitigated, as per Local Plan policies EM8, SO10 and SO23. Therefore, noise emanating from the premises would be in line with national and local noise policy and The London Plan.

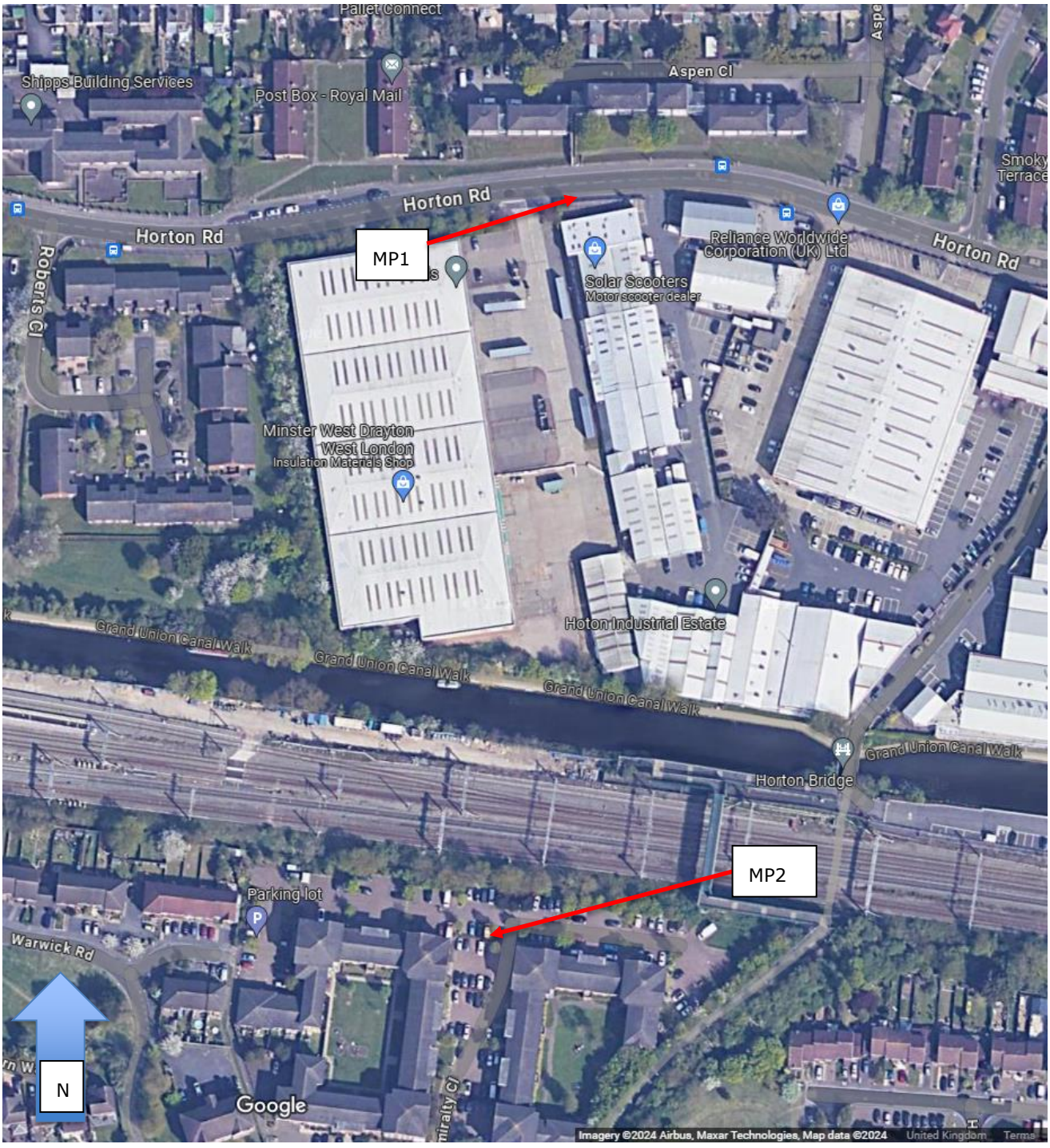
6.5 Also, the proposed development would result in an overall reduction in LGV and OGV vehicle movements when compared to the existing occupied site and noise emanating from LGV and OGV vehicle movements associated with the development would be in line with Local Plan policies DMT1, DMT2 and DMT7.

6.6 Mechanical plant noise limits have also been set in line with BS4142:2014.

Appendix A: Figures showing proposed layout and location

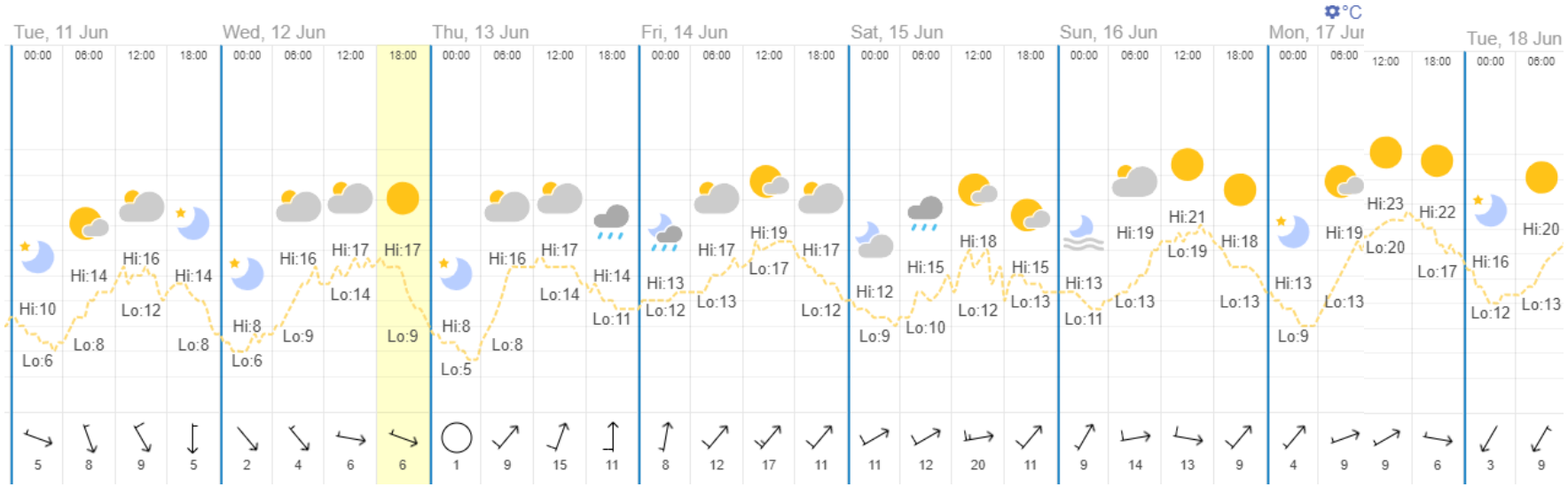
Figure A1: Site, surrounding area and closest-noise sensitive receptors

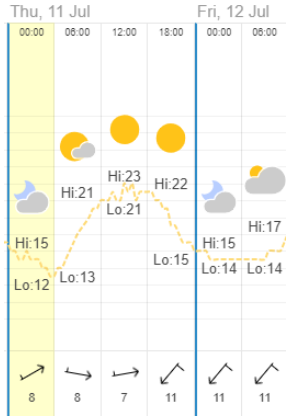
Figure A2: Aerial view of site showing noise survey location



Appendix B: Weather

Figure B1: Weather





Appendix C: Noise survey results

Figure C1: MP1 Measured Levels

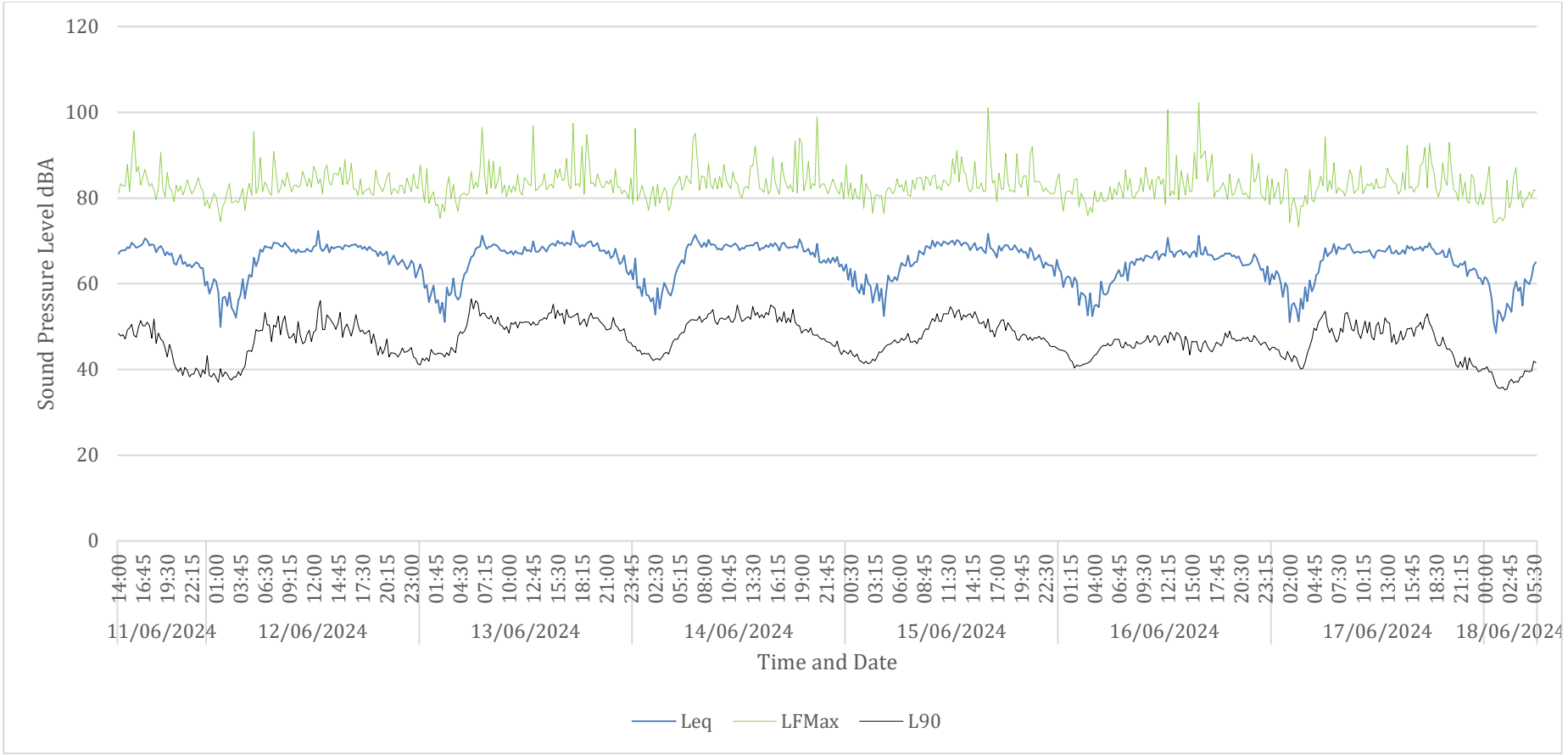
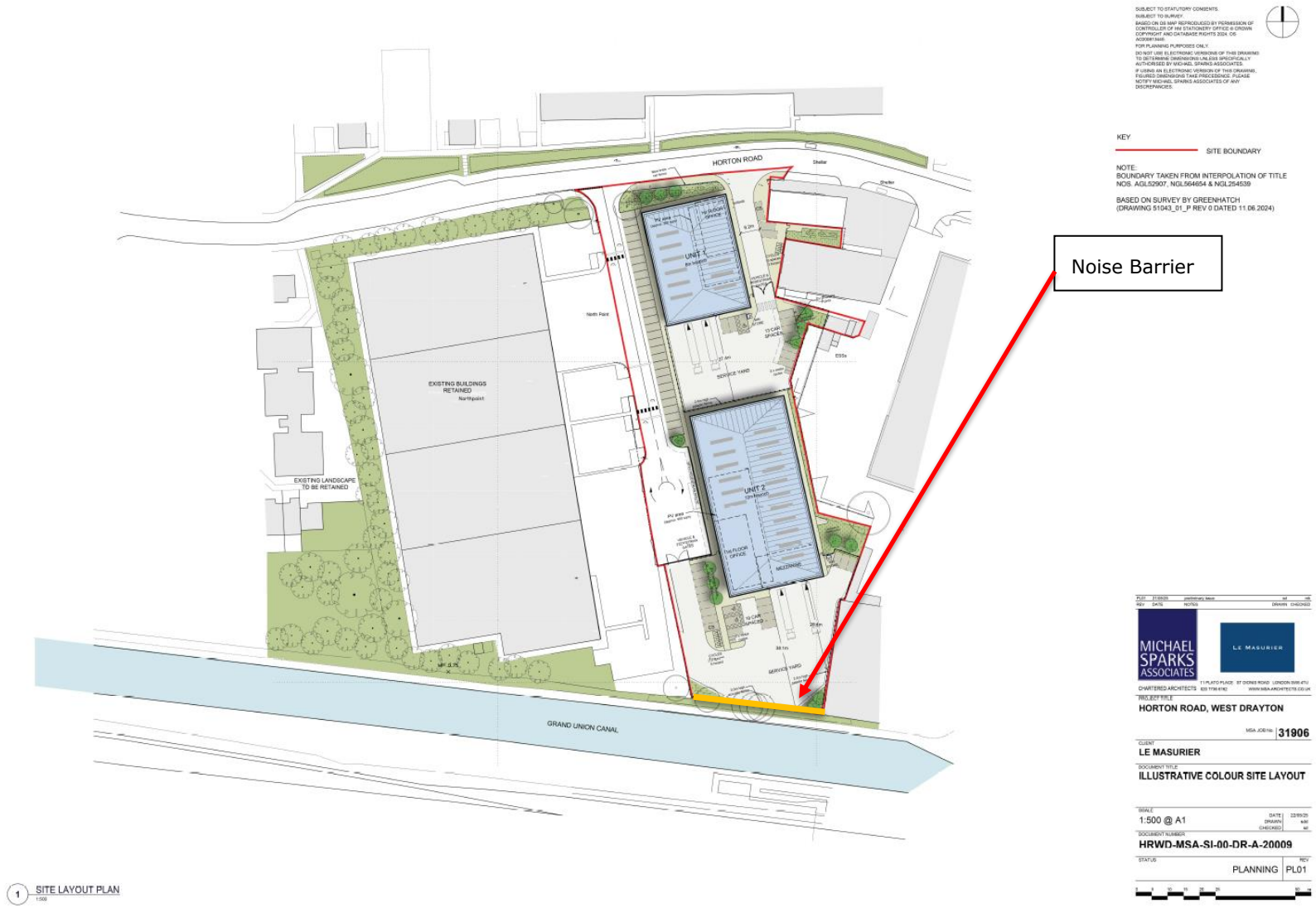


Table C1: MP2 Measured Levels

Start Time and Date	Sound Pressure Level dB		
	$L_{Aeq,T}$	L_{AFmax}	Typical $L_{A90,15min}$
(2024/07/11 12:00:01.00)	63	82	42
(2024/07/11 12:15:01.00)	61	81	43
(2024/07/11 12:30:01.00)	70	97	42
(2024/07/11 12:45:01.00)	59	79	42
(2024/07/11 13:00:01.00)	62	81	42
(2024/07/11 13:15:02.00)	63	81	42
(2024/07/11 13:30:01.00)	59	81	41
(2024/07/11 13:45:02.00)	60	80	41
(2024/07/11 14:00:01.00)	65	81	41
(2024/07/11 14:15:01.00)	62	82	42
(2024/07/11 14:30:01.00)	62	82	42
(2024/07/11 14:45:01.00)	62	82	42
(2024/07/11 15:00:01.00)	64	85	42
(2024/07/11 15:15:01.00)	62	80	42
(2024/07/11 15:30:01.00)	64	82	42
(2024/07/11 15:45:01.00)	61	81	41
(2024/07/11 18:49:00.00)	60	81	42
(2024/07/11 19:00:01.00)	64	83	42
(2024/07/11 19:15:01.00)	61	82	41
(2024/07/11 19:30:01.00)	65	82	42
(2024/07/11 19:45:01.00)	62	82	44
(2024/07/11 20:00:02.00)	64	83	45
(2024/07/11 20:15:02.00)	62	80	46
(2024/07/11 20:30:01.00)	63	82	46
(2024/07/11 20:45:01.00)	62	81	47
(2024/07/11 21:00:01.00)	63	83	46
(2024/07/11 21:15:01.00)	62	82	46
(2024/07/11 21:30:02.00)	62	82	46
(2024/07/11 21:45:01.00)	63	81	46
(2024/07/11 22:00:02.00)	63	83	45
(2024/07/11 22:15:02.00)	62	82	45
(2024/07/11 22:30:02.00)	62	83	45
(2024/07/11 23:30:01.00)	55	74	44
(2024/07/11 23:45:02.00)	60	75	44
(2024/07/12 00:00:02.00)	56	78	44
(2024/07/12 00:15:01.00)	62	82	43
(2024/07/12 00:30:02.00)	61	80	43
(2024/07/12 00:45:01.00)	66	85	43
(2024/07/12 01:00:01.00)	62	81	44
(2024/07/12 01:15:01.00)	57	77	44
(2024/07/12 01:30:02.00)	49	71	44
(2024/07/12 01:45:01.00)	57	77	43
(2024/07/12 02:00:01.00)	58	77	43
(2024/07/12 02:15:01.00)	57	81	43
(2024/07/12 02:30:01.00)	44	54	43
(2024/07/12 02:45:02.00)	48	70	44
(2024/07/12 03:00:01.00)	45	50	43
(2024/07/12 03:15:02.00)	45	50	43
(2024/07/12 03:30:02.00)	60	79	43
(2024/07/12 03:45:01.00)	46	61	44
(2024/07/12 04:00:01.00)	59	80	42
(2024/07/12 04:15:01.00)	49	71	43
(2024/07/12 04:30:02.00)	62	79	43

Appendix D: Proposed Site Layout

Figure D1: Proposed Site Layout



Appendix E: Traffic Data

Table E1: HGV and LGV Traffic Data

Hr Start	Proposed Site	
	LGV	OGV
0000	0	0
0100	0	0
0200	0	0
0300	0	0
0400	0	0
0500	1	1
0600	3	2
0700	8	3
0800	9	2
0900	3	3
1000	4	3
1100	6	2
1200	6	3
1300	6	3
1400	4	2
1500	5	3
1600	4	2
1700	4	2
1800	5	1
1900	3	2
2000	1	2
2100	2	0
2200	1	0
2300	1	0

Appendix F: Noise Maps

Figure F1: Daytime

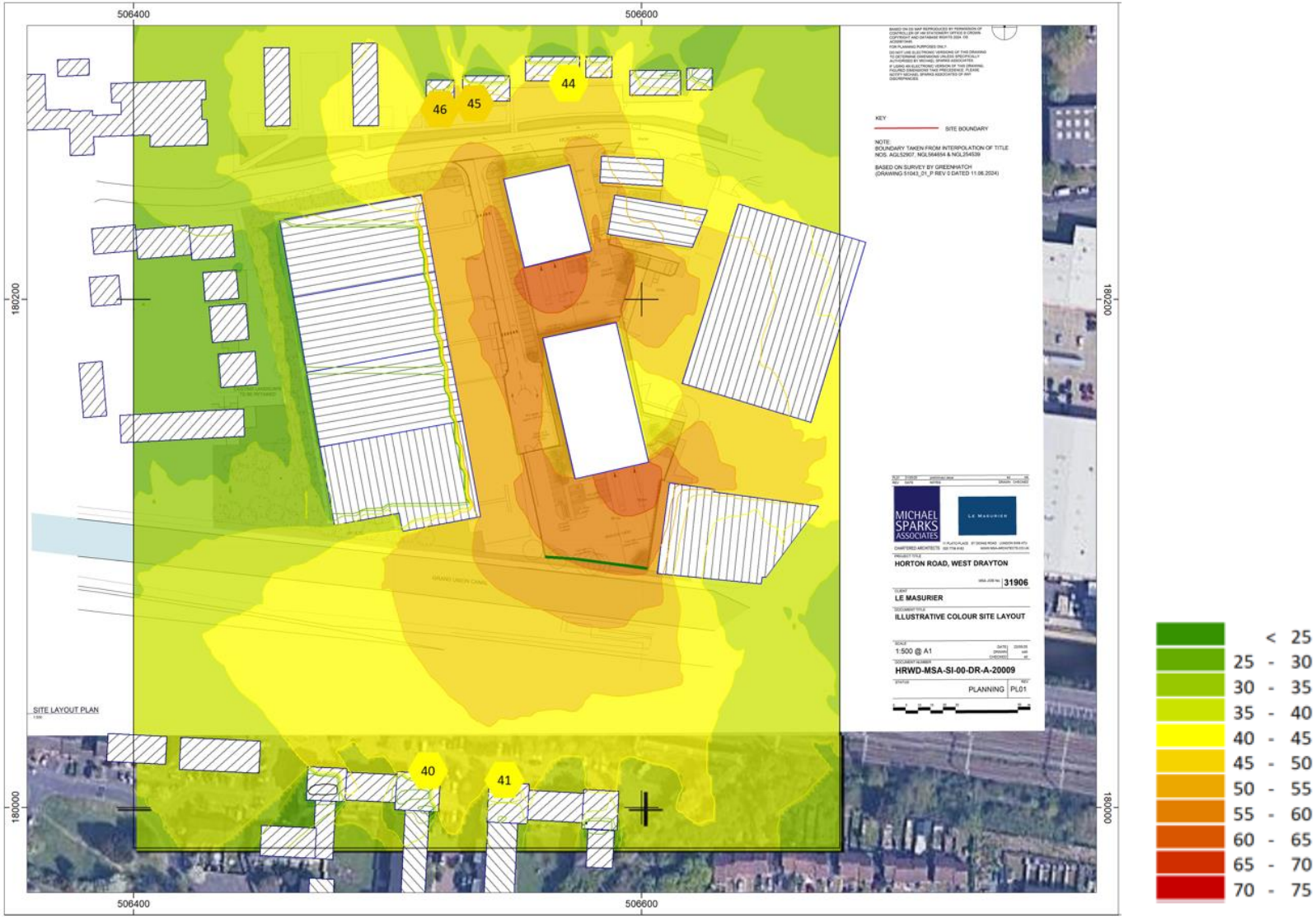
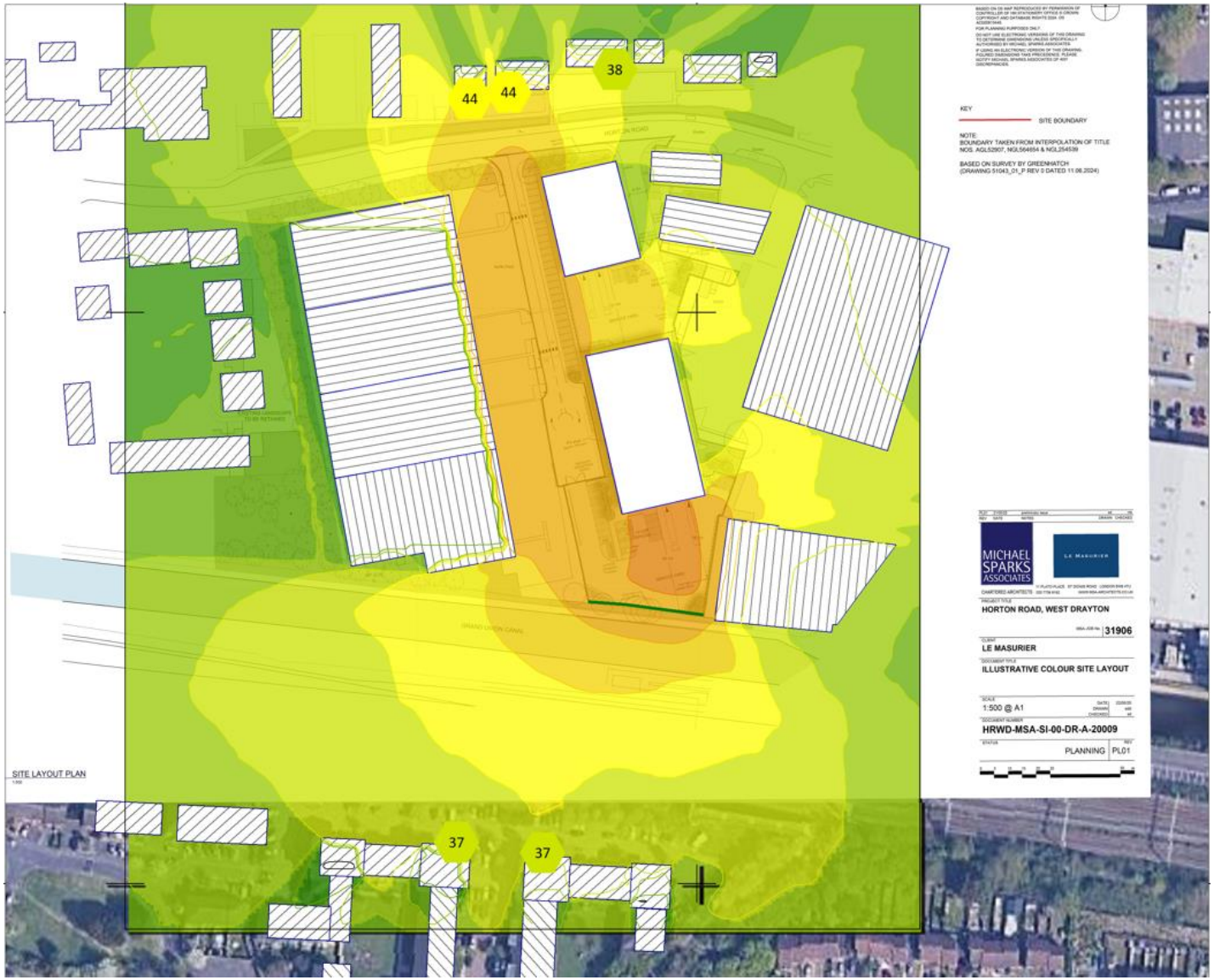
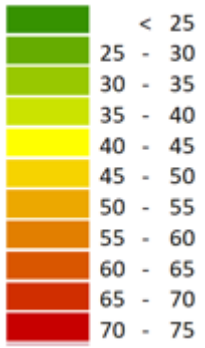


Figure F2: Night-time





Appendix G: Uncertainty

Table G1: BS4142 statement of uncertainty

Uncertainty	Reasoning
The complexity of the sound source and the level of variability in sound emission from the source	A small number of sources which reduces the complexity. Sound data used taken from similar sites
The complexity and level of variability of the residual acoustic environment	Residual acoustic environment detailed in report and affected by a limited number of sources
The level of residual sound in the presence of the specific sound at the measurement location	Sound sources in isolation of residual sounds
The location(s) selected for taking measurements	The location(s) selected representative of the closest noise-sensitive receptor(s)
The distance between sources of sound and the measurement location and intervening ground conditions	The location(s) selected considered representative of the closest noise-sensitive receptor(s) therefore the distance between the sources of sound and the measurement location and intervening ground conditions should not adversely impact the uncertainty
The number of measurements taken	Unattended and attended measurements conducted over consecutive hours
The measurement time intervals	Measurements taken over 15-minute periods and in line with the Standard
The range of times when the measurements have been taken	Unattended measurements taken over a number of days. Attended measurements taken over the typically most sensitive period
The range of suitable weather condition during which measurements have been taken	Weather conditions considered suitable for noise measurements.
The measurement method and variability between different practitioners in the way the method is applied	Measurement and assessment conducted in line with BS4142:2014
The level of rounding of each measurement recorded	Measurements rounded to 1dB
The instrumentation used	All instrumentation used Class 1