ENVIRONMENT

Hayes Park Central
London
UB4 8FE

NOISE IMPACT ASSESSMENT

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EXECUTIVE SUMMARY

Enviropass was instructed by the client to undertake a noise assessment for the redevelopment and subsequent expected external prevailing ambient sound level emanating from the area surrounding the Hayes Park Central building. The internal sound levels have been calculated using the prevailing ambient sound level referred to as noise break-in. The Site is situated on a substantial plot with large areas of open grassland, and close to the Heathrow Airport flightpath.

The London Borough of Hillingdon will require a Noise Impact Assessment regarding the client's pre-planning application for Hayes Park Central. Further details of The London Borough of Hillingdon's guidance can be found in Section 2 of this technical report.

An unattended sound level monitor was installed on 1st September 2025 for the Hayes Park Central building on the northern façade directly overlooking the grounds and new build building to the north east. The monitor remained in situ throughout the daytime and night-time periods from the 1st of September and removed at 08:00 on the 8th of September 2025.

The results of the noise survey, and subsequent assessment work, have been undertaken in accordance with current standards and guidance, following the London Borough Hillingdon requirements for noise assessment and control.

The $L_{Aeq,T}$ dB levels have been assessed as per BS4142:2014+A1:2019 have been identified to determine any impact arising from the prevailing ambient sound levels. Both day and night periods throughout weekday and weekend periods have been evaluated.

The predicted internal noise levels at the proposed Noise Sensitive Receptors (NSRs) have been assessed in accordance with BS 4142:2014+A1:2019, BS8233, and World Health Organisation (WHO) guidelines.

The pre-existing baseline sound levels were measured in accordance with BS4142 2014+A1:2019, to provide the L_{Aeq}, dB metrics for daytime 07:00-23:00, and night-time 23:00–07:00 periods for both weekday and weekends.

Based on the results above, it is considered that the resultant impact of noise associated with the prevailing ambient sound level within Hayes Park, is unlikely to be detrimental to the proposed residents, forming the Hayes Park Central redevelopment. The prevailing sound level during the daytime, and into the night-time periods when the Heathrow flightpath is operational, was not considered to be detrimental to the proposed Hayes Park Central residents.

The glazing specifications are satisfactory to achieve the WHO and BS8233 internal ambient sound levels, when open and closed. Purge ventilation is acceptable, with no requirement for mechanical ventilation or air conditioning.

With respect to external amenity space such as gardens, balconies and patios, it is stated that it is desirable that the noise level does not exceed 50 dB LAeq,T, with an upper guideline value of 55 dB LAeq,T. It is highly unlikely that the sound emanating from the prevailing ambient sound level would exceed the BS8233 guideline criteria, as the calculated Lar,T dB level for each receptor is the same or lower than the lower BS8233 guideline criteria of 50 dB LAeq,T, for the proposed private amenity balcony's that form part of the Hayes Park Central redevelopment.

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1. INTRODUCTION

Appointment & Background

1.1 Enviropass was instructed by the client to undertake a noise assessment for the redevelopment and subsequent expected external prevailing ambient sound level emanating from the area surrounding the Hayes Park Central building. The internal sound levels have been calculated using the prevailing ambient sound level referred to as noise break-in. The Site is situated on a substantial plot with large areas of open grassland.

1.2 The London Borough of Hillingdon will require a Noise Impact Assessment regarding the client's pre-planning application for Hayes Park Central. Further details of The London Borough of Hillingdon's guidance can be found in **Section 2** of this technical report.

The full guidance requirements regarding the Noise Impact Assessment, are also detailed in **Section 2**:

1.3 This report is necessarily technical in nature, so to assist the reader, a glossary of acoustic terminology can be found in **Appendix A**.

Site Setting

1.4 The application site comprises the redevelopment and change of use from an office building to a 2-storey residential building located within Hayes Park. The existing building is not statutory or locally listed nor is it located within a conservation area. The proposed redevelopment has 16 self-contained units on the ground floor, 19 units on the 1st floor, and 18 units on the 2nd floor.

1.5 The site is accessed off Park Lane via Hayes Site Road.

1.6 There were construction works 62 metres across from the northern façade of the central building during the daytime hours which increased the measured $L^{Aeq,T}$ dB levels marginally, therefore, the measured $L^{Aeq,}$dB levels are considered a worst-case scenario, and appropriate for the expected residential car movements after the Hayes Park Central redevelopment is completed.

1.7 The existing building comprises of a concrete frame/blocks with aluminium window frames and standard glazing. The surface area of the glazing is substantial for each floor.

1.8 The prevailing existing baseline sound level has been measured in accordance with BS4142:2014+A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound.

1.9 The outside amenity spaces have been assessed to ensure compliance with guidelines set out in BS8233, applicable to the private amenity balcony's located on each of the façades on the 1st and 2nd floors detailed in the proposed plans (drawing reference

Level 01 & 02 Hayes Park Central), and patio areas for the ground floor units (drawing reference *Level 00 Hayes Park Central*).

1.10 **Figure 1.1** shows the Site location.

Figure 1.1: Site Location

Figure 1.2: Existing Façade build – (Glazing & Frames)

Figure 1.3: Existing Site – (Looking North towards Newbuild Residential Development on Hayes Park Land)

Figure 1.4: Unattended Monitoring Position – Looking South towards Main Entrance of Hayes Park Central Road 2nd Floor Height (NMP1)

2. POLICY, STANDARDS AND GUIDANCE

National Planning Policy Framework (NPPF)

2.1 Published in December 2024, this document sets out the Government's planning policies for England and supersedes the previous NPPF published in 2021. It makes the following reference to noise in the section entitled Conserving and enhancing the natural environment:

2.2 The following references to noise in the Section entitled Ground conditions and pollution. Although the guidance is for new developments, it carries relevance in mitigating potential adverse impact from noise to protect amenity value:

"198. 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[69];

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.

[72] See Explanatory Note to the Noise Policy Statement for England (Department for Environment, Food & Rural Affairs, 2010)."

Noise Policy Statement for England (NPSE)

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."

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

2.3 The BS 4142 Standard describes methods for rating and assessing the following:

- 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 movements on or around an industrial and/or commercial site.

2.4 The methods 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. The Standard advises the purpose of the methodology includes the assessment of sound from any plant and activities associated with existing industrial and/or commercial uses at proposed residential dwellings.

2.5 If appropriate, the specific sound level of the source ($L_{Aeq,T}$) is corrected, by the application of one or more corrections for acoustic features such as tonal qualities and/or distinct impulses, to give a 'rating' level ($L_{Ar,Tr}$). The Standard effectively compares and rates the difference between the rating level of the specific sound and the typical background sound level ($L_{A90,T}$) in the absence of the specific sound.

2.6 The Standard advises that the time interval ('T') of the background sound measurement should be sufficient to obtain a representative or typical value of the background sound level at the time(s) the source in question operates or is proposed to operate in the future.

2.7 Comparing the rating level with the background sound level, BS 4142 states:

> *"Typically, the greater this difference, the greater the magnitude of impact.*
>
> *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
>
> *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.*
>
> *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."*

London Borough of Hillingdon – Planning and Building Control Policies

It is understood that the London Borough of Hillingdon adopts the residential internal ambient noise level criteria, set out in BS8233 below and the World Health Organisation (WHO) 1999: Guidelines for Community Noise.

Acoustics Ventilation and Overheating – Residential Design Guide (January 2020) Version 1.1

'This Acoustics, Ventilation and Overheating Guide ('AVO Guide') is intended to be used by acoustics practitioners as well as all those involved in the planning, development, design and commissioning of new dwellings. It recommends an approach to acoustic assessments for new residential development that take due regard of the interdependence of provisions for acoustics, ventilation, and overheating. Application of the AVO Guide is intended to demonstrate good acoustic design as described in the ProPG: Planning & Noise, May 2017 [1]('ProPG'), when considering internal noise level guidelines.'

1.7 The AVO Guide aims to assist designers to adopt an integrated approach to the acoustic design within the context of the ventilation and thermal comfort requirements.

1.8 A requirement to assess and provide mitigation against outdoor sound for a residential development may be invoked through the planning system; thus the local planning authority may be responsible for assessing and enforcing the proposed mitigation. The need for, and provision of adequate ventilation is outlined in building regulations and therefore managed through the building control system. Although an overheating assessment to inform the design of dwellings is not currently mandatory under The Building Regulations, an assessment may be undertaken to meet planning and/or the developer's requirements. Hence, as well as being undertaken by different designers, the adequacy of the provisions for each aspect of IEQ may be assessed by different bodies and potentially based on different assumptions regarding use of the building.

1.9 The evolution of energy performance requirements under The Building Regulations has led to increased airtightness and enhanced thermal insulation. However, these changes can have unintended consequences. Internal air quality can be poor unless ventilation systems are effective, whereas the efficacy of ventilation systems in leakier buildings was of less consequence. When there is an increased capacity to retain heat, dissipation of excessive heat gains can become more problematic, with the consequential increase in overheating risk. Other factors currently contributing to overheating risk include global heating (climate change) and the urban heat island effect.

Overview of Document – 1.12 The AVO Guide Includes:

• an explanation of ventilation requirements under The Building Regulations as described in 'Approved Document F – Means of Ventilation, 2010 Edition' [3] ('ADF') along with typical ventilation strategies and associated noise considerations;

• an explanation of the overheating assessment methodology described in CIBSE 'Design methodology for the assessment of overheating risk in homes' [4] ('TM59');

• potential acoustic scale and guidance relating to different ventilation and overheating conditions, for both environmental noise ingress and building services noise; and

• a worked example of the application of the AVO Guide including indicative design constraints for different ventilation and overheating mitigation strategies.

In the case of environmental noise ingress, a two-level assessment procedure is described for the overheating condition. The first level is a site risk assessment based on external noise levels and the assumption that opening windows are the primary means of mitigating overheating. The second level assessment considers the potential for adverse effect on occupants based on internal ambient noise level.

BS 8233:2014: Guidance on Sound Insulation and Noise Reduction for Buildings

2.8 This standard provides guidance for the control of noise in and around buildings. The guidance provided within the document is applicable to the design of new buildings, or refurbished buildings undergoing a change of use, but does not provide guidance on assessing the effects of changes in the external noise levels to occupants of an existing building.

2.9 The guidance provided includes appropriate internal and external noise level criteria which are applicable to dwellings for steady external noise sources. It is stated that it is desirable that the internal ambient noise level does not exceed the following criteria set out in **Table 2.1** below:

Table 2.1: Summary of Internal Ambient Noise Levels to be achieved in Habitable Rooms when Assessed in Accordance with BS 8233

Activity	Location	Period	
		07:00 to 23:00 Hours, i.e. Daytime	23:00 to 07:00 Hours, i.e. Night-time
Resting	Living Room	35 dB $L_{Aeq,\ 16\ Hour}$	-
Dining	Dining Room/area	40 dB $L_{Aeq,\ 16\ Hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,\ 16\ Hour}$	30 dB $L_{Aeq,\ 8\ Hour}$

2.10 Whilst BS 8233:2014 recognises that a guideline value may be set in terms of SEL or L_{AFmax} for the assessment of regular individual noise events that can cause sleep disturbance during the night-time, a specific criterion is not stipulated. Accordingly, reference has been made in this assessment to the World Health Organisation (WHO) 1999: *Guidelines for Community Noise* below.

2.11 With respect to external amenity space such as gardens and patios it is stated that it is desirable that the noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. It is then confirmed that higher external noise criteria may be appropriate under certain circumstances such as within city centres urban areas, and locations adjoining the strategic transportation network, where it may be necessary to compromise between elevated noise levels and other factors such as convenience of living, and efficient use of land resource.

World Health Organisation (WHO) 1999: Guidelines for Community Noise

2.12 The World Health Organisation (WHO) guidance: 1999: *Guidelines for community noise*. This document draws upon guidance from Vallet and Vernay, which states:

"For good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB L_{AFmax} more than 10-15 times per night"

3. UNATTENDED & ATTENDED NOISE MONITORING SURVEY

2025 Noise Survey

3.1 An unattended sound level monitor was installed on 1st September 2025 for the Hayes Park Central building on the northern façade directly overlooking the grounds and new build building to the north east. The monitor remained in situ throughout the daytime and night-time periods from the 1st of September and removed at 08:00 on the 8th of September 2025.

3.2 Weather conditions were stable throughout the monitoring period and have been included in the assessment for both daytime and night-time periods. Light rain showers were noted during the unattended monitoring survey period, however these did not affect the measured dB levels.

3.3 **Figure 1.4** above shows the location of the unattended noise monitoring position (NMP1), mounted on the northern (front) facade, which is considered to represent the prevailing $L_{A90,T}$ and $L_{Aeq,T}$ dB levels for the area surrounding the Hayes Park Central Site.

3.4 The monitoring position was chosen, as a clear line of sight to the surrounding grounds and prevailing ambient sound level, representing a true indication of what the expected $L_{Aeq,T}$ output on the proposed residential receptors within Hayes Park Central proposed redeveloped building.

3.5 Further details for the unattended survey can be found in the 'Survey Methodology' section below.

Figure 3.1: Proposed Technical Design Drawings – Correct at time of writing September 2025 – Ground Floor

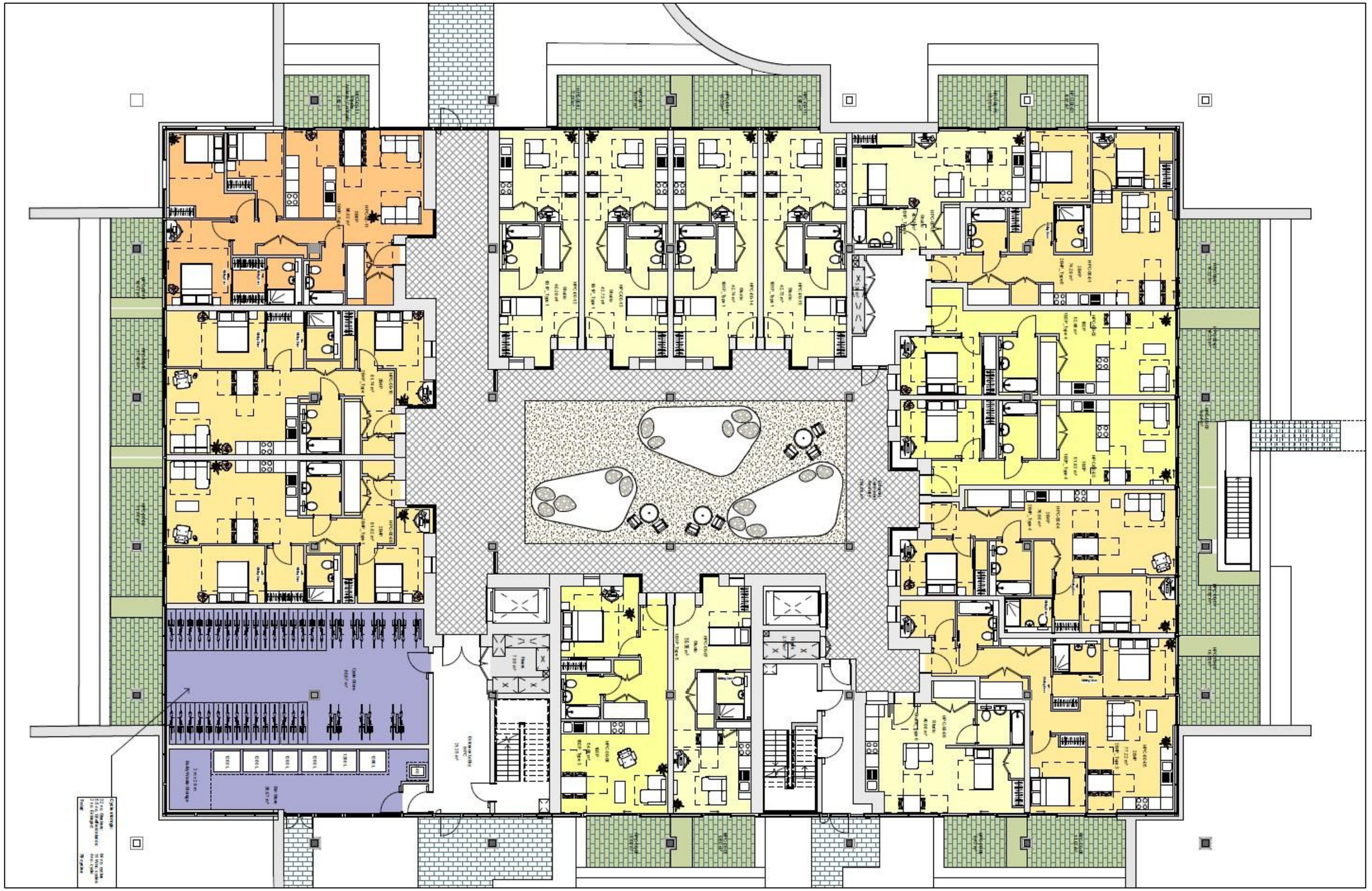


Figure 3.2: Proposed Technical Design Drawings – Correct at time of writing September 2025 – 1st Floor

Figure 3.3: Proposed Technical Design Drawings – Correct at time of writing September 2025 – 2nd Floor

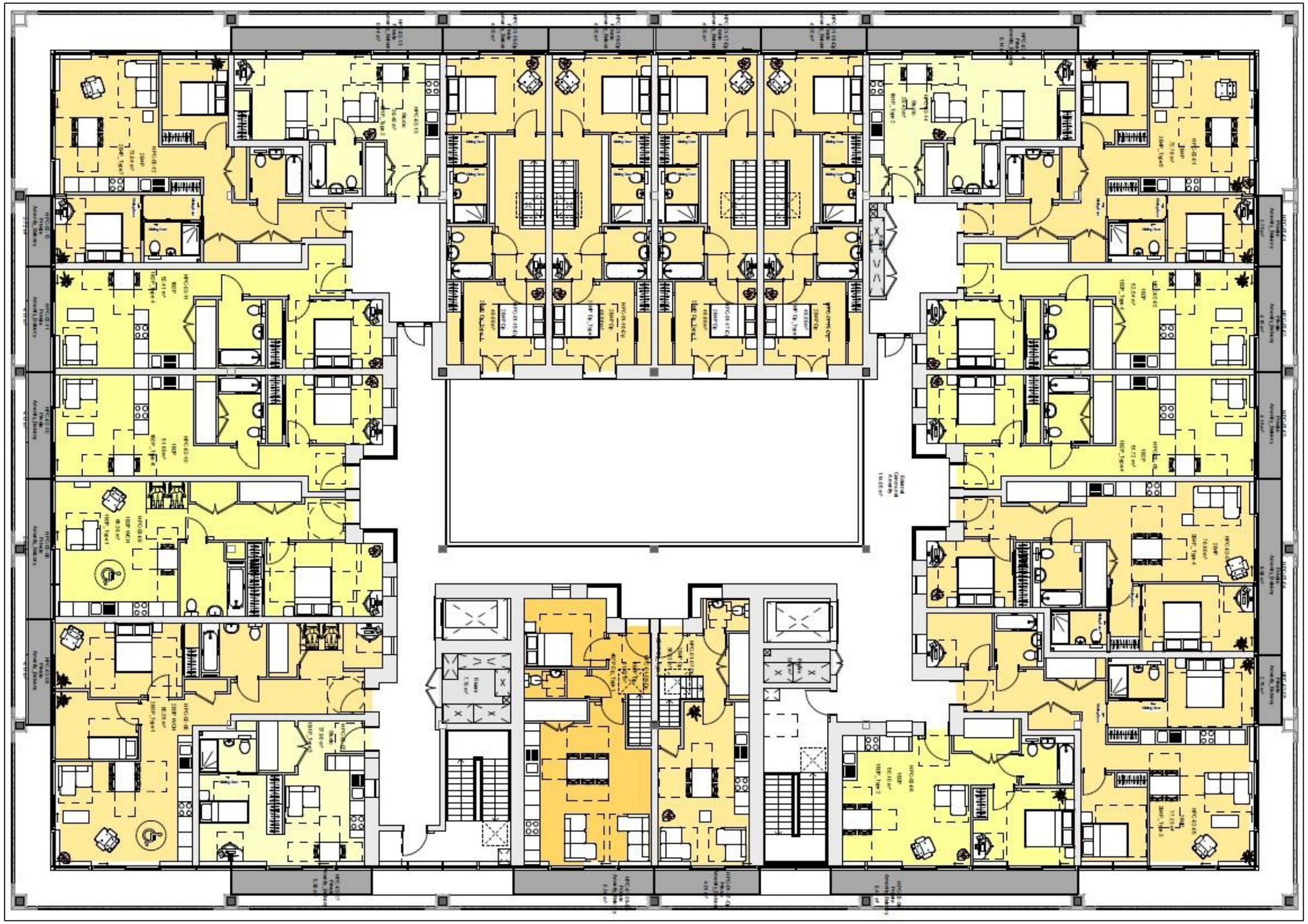
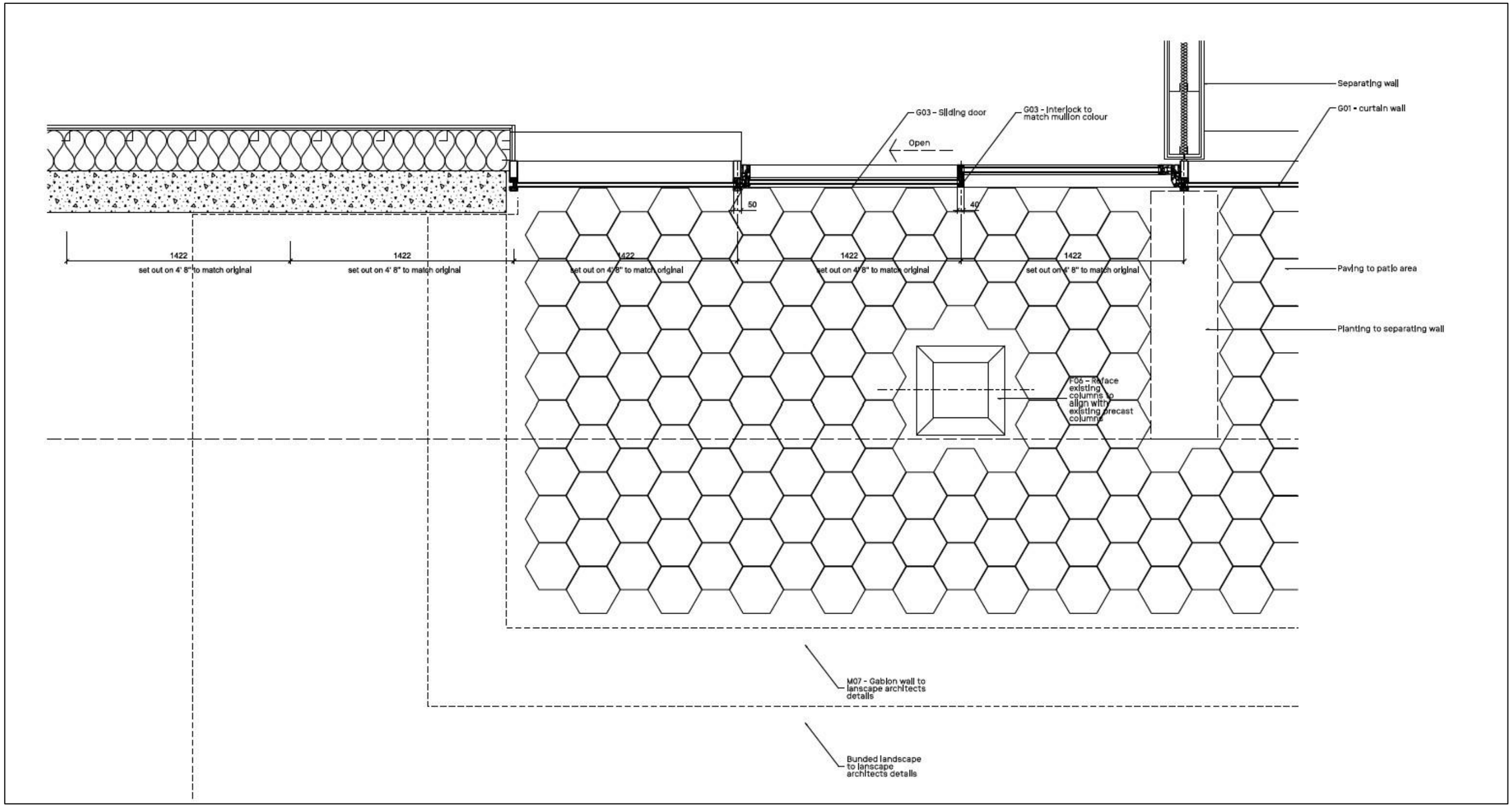


Figure 3.4: Proposed Technical Design Drawings – Correct at time of writing September 2025 – Example Façade Detail



Survey Methodology

Unattended NMP1 Position

3.6 A fixed Measurement Location (NMP1) adopted during the survey was selected to determine noise levels where the prevailing existing ambient level was taken from the northern boundary of the Hayes Park Central building.

3.7 The monitor captured the prevailing sound over an extended period and has been used in the assessment to provide details of the prevailing $L_{Aeq,T}$ dB level of the surrounding area.

3.8 NMP1 was selected to provide a direct line of sight to the surrounding open grounds of Hayes Park, and the prevailing sound sources, such as aeroplanes flying nearby into and out of Heathrow. Therefore, a representative $L_{Aeq,T}$ and $L_{A90,T}$ dB level has been obtained, and analysed against the expected façade and glazing performance of Hayes Park Central Road. NMP1 is shown in **Figure 1.3 & 1.4**.

3.9 The noise environment at NMP1 consisted of distance road traffic just audible from the A4020 High Street to South and Southwest. Police sirens were just audible during the survey, on a regular basis, as expected in Urban Cities such as London. The dominant source of sound at the front of Hayes Park Central Road was the construction of a new building 62 metres distance. It was noted that the construction works were operational during the daytime hours between 08:00-18:00 weekdays, with shorter duration works on the Saturday. The measured $L_{Aeq,T}$ daytime levels are considered an absolute worst-case scenario as a result.

3.10 The noise surveys were undertaken using the Class 1 specification noise measurement equipment detailed in **Table 3.1**. Equipment was calibrated using a portable calibrator immediately before and after the measurements with no significant drift in calibration observed. The sound level meters pre-amplifiers and microphones were calibrated to traceable standards at an accredited laboratory within the 24 months prior to the measurements. The portable calibrators were calibrated within the 12 months preceding the date of the survey.

Table 3.1: Noise Measurement Equipment – Unattended and Attended Monitoring

NMP	Item	Make & Model	Serial Number
1 (Unattended)	Sound Level Meter	Svan 307A	119086
	Pre-amplifier	Svan	1.22.5
	Microphone	Svan	125160
Field Calibrator	Calibrator	Rion NC-75	34713323

Meteorological Conditions

3.11 From observations during visits to site and publicly available weather logging records, weather conditions remained dry with negligible winds (< 5m/s), with only light rain showers recorded for a short duration on Tuesday 2nd September at 12:00, and

Wednesday and 00:00.. Temperatures ranged between 10 degrees Celsius during the night and 25 degrees Celsius during the day.

3.12 The weather throughout the survey is therefore considered to have remained conducive to environmental noise measurement for the unattended and attended monitoring survey.

Measurement Results

3.13 A summary of the measured levels from the unattended survey are provided below in **Table 3.2** below.

Table 3.2: Summary of measured Unattended sound pressure levels at NMP1 (free-field measurement)

Day	Start Time	Period	Duration	dB $L_{Aeq,T}$[1]	dB $L_{A90,T}$[2]
Monday Daytime	12:00 01/09/2025	Daytime (07:00 – 23:00) [3]	10-hours	48.6	83.1
Monday Night	23:00 01/09/2025	Night-time (23:00 – 07:00)	8-hours	41.1	63.2
Tuesday Daytime	07:00 02/09/2025	Daytime (07:00 – 23:00)	16-hours	49.0	78.5
Tuesday Night	23:00 02/09/2025	Night-time (23:00 – 07:00)	8-hours	45.8	79.8
Wednesday Daytime	07:00 03/09/2025	Daytime (07:00 – 23:00)	16-hours	52.2	87.1
Wednesday Night	23:00 03/09/2025	Night-time (23:00 – 07:00)	8-hours	44.2	71.2
Thursday Daytime	07:00 04/09/2025	Daytime (07:00 – 23:00)	16-hours	51.7	80.4
Thursday Night	23:00 04/09/2025	Night-time (23:00 – 07:00)	8-hours	46.4	69.2
Friday Daytime	07:00 05/09/2025	Daytime (07:00 – 23:00)	16-hours	53.1	81.0
Friday Night	23:00 05/09/2025	Night-time (23:00 – 07:00)	8-hours	43.3	82.0
Saturday Daytime	07:00 06/09/2025	Daytime (07:00 – 23:00)	16-hours	53.5	44.0
Saturday Night	23:00 06/09/2025	Night-time (23:00 – 07:00)	8-hours	41.1	68.2
Sunday Daytime	07:00 07/09/2025	Daytime (07:00 – 23:00)	16-hours	46.2	74.5
Sunday Night	23:00 07/09/2025	Night-time (23:00 – 07:00) [4]	8-hours	39.4	68.0
Overall Daytime Summary			16-hour	50	43
Overall Night-time Summary			8-hour	43	38[5]
Lowest LA90, T Daytime			16-hour	-	**41**

Day	Start Time	Period	Duration	dB $L_{Aeq,T}$[1]	dB $L_{A90,T}$[2]
Lowest LA90, T Nighttime			8-hour	-	**35**

1 Logarithmic average sound pressure levels during measurement period – Façade measurement. – 3dB correction applied in noise break-in analysis representative of free-field monitoring position (BS4142 Section 6.2 Note).

2 Representative LA90, 1h and LA90, 15m value to be used following statistical analysis of LA90, 15mins during the night=time and LA90, 1h during the daytime, including minimum, maximum, mode, medium and mean. Summary Weekday and Weekend LA90 levels are shown in Tables 4.1 - 4.4 unattended monitoring survey data.

3 Unattended measurement - first whole 1hr daytime period started at 12:00 on the 01/09/2025.

4 Unattended measurement - last whole 1 hr period finished at 08:00 on the 08/09/2025.

5 Arithmetic average background noise level ($L_{A90,\ 15\ mins}$) during measurement period.

Table 3.3: Summary of measured Unattended sound pressure levels Façade Measurement – Worst-Case Day & Night

Activity	63	125	250	500	1k	2k	4k	8k
Baseline Octave Band dB measured Level (Façade measure ment)	60	55	52	50	52	48	48	44

4. ASSESSMENT

BS4142 Plant Noise Assessment

4.1 To predict the noise levels and provide mitigation advice from the proposed redevelopment of Hayes Park Central Road at the receptors, a detailed acoustic model of the site has been generated applying the following prediction methodology:

- The model was generated using the PC based Soundplan® noise modelling package;
- For plant noise sources, the noise model was set to apply the noise prediction methodology set out in ISO 9613-2: Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation;
- Mapping of the Site and the surrounding area was calibrated into the noise model based on known Ordinance Survey grid reference points;
- Indicative ground topography was approximated using Lidar data at 1m. The final floor heights have been sited on the existing topography;
- Buildings which would provide screening to the Site have been incorporated as reflective façades including boundary fencing;
- To reflect the local ground cover with the proposed development in place, ground absorption was set to G = 0.5 (50% acoustically absorptive ground, a mixture of concrete / tarmac and garden grassy areas);
- The model was set to include second order reflected noise from solid structures; and,
- Receptor heights have been modelled at ground, 1st and 2nd floor to represent a worst-case scenario, with a direct line of sight chosen as these receptors are likely to experience higher sound levels due to the aeroplanes flying overhead, and closest to the existing prevailing sound sources.

4.2 The daytime noise levels are based on a 1-hour assessment period and the night-time noise levels are based on a 15m assessment period, in accordance with BS4142. This is reflected in the on-time for each operation and the resultant $L_{Aeq,T}$ dB noise level.

4.3 Based on the above information, the predicted daytime and night-time internal noise levels have been calculated for the habitable rooms within the worst-affected proposed residential receptors. The results are shown in **Table 5.2 & 5.3**.

4.4 The predicted noise levels at the Residential Receptors have been assessed in accordance with BS 4142:2014+A1:2019.

Acoustics Ventilation and Overheating – Residential Design Guide January 2020

To achieve a comfortable living and sleeping environment for the proposed Hayes Park Central building residents, the following ventilation and overheating strategies could be implemented, to ensure excellent air flow whilst adhering to the sound break-in criteria shown in **Table 2.1** above.

Purge Ventilation – Definition in ADF:

'Purge ventilation is manually controlled ventilation of rooms or spaces at a relatively high rate to rapidly dilute pollutants and / or water vapour. Purge ventilation may be provided by natural means (e.g. an openable window) or by mechanical means (e.g. a fan).'

Location/reason for ventilation:

'Throughout the building to aid removal of high concentrations of pollutants and water vapour released from occasional activities such as painting and decorating or accidental releases such as smoke from burnt food or spillage of water.'

Required – Occasionally

Table 2-2 ADF template systems – Systems below are not required

Ventilation system	Provision with ADF system / purpose		
	Whole dwelling ventilation	**Extract ventilation**	**Purge ventilation**
System 1: Background ventilators and intermittent extract fans	Background ventilators (trickle vents)	Intermittent extract fans	Typically provided by opening windows
System 2: Passive stack ("natural")	Background ventilators (trickle vents) and passive stack ventilation	Continuous via passive stack	Typically provided by opening windows
System 3: Continuous mechanical extract (MEV)	Continuous mechanical extract – minimum low rate Trickle vents provide inlet air	Continuous mechanical extract – minimum high rate Trickle vents provide inlet air	Typically provided by opening windows
System 4: Continuously mechanical supply and extract with heat recovery (MVHR)	Continuous mechanical supply and extract – minimum low rate	Continuous mechanical supply and extract – minimum high rate	Typically provided by opening windows

*The options above are not considered necessary for the Hayes Park Central building, as standard purge ventilation via openable windows is sufficient to provide air flow, whilst maintaining an acceptable internal sound level.

5. PREDICTED RESIDENTIAL INTERNAL NOISE LEVELS

Internal Noise Levels

5.1 The area of glazing and method of ventilation in any particular room, along with the room size and room acoustic conditions, affect the degree of reduction in noise transmission from outside to inside. An assessment using previous project data has been carried out.

5.2 The following assumptions have been used for the assessment of the sound insulation requirements of the building envelope:

5.3 Predictions made using the general method set out in BS EN 12354-3:2000.

5.4 Sound insulation data has been based on both library data and specific manufacturers' data. It has been assumed that the on-site performance will be comparable with manufacturer's claimed performance.

5.5 The predictions assume good quality workmanship, for example that windows, doors and opening lights are well sealed. Poor workmanship or low-quality seals may result in predicted internal noise levels being exceeded.

5.6 External walls have been modelled as shown in the design in **Figure 3.4** and the associated proposed design drawing details provided by the client.

5.7 The buildings have been assumed to be square in design.

5.8 Exact room layouts have been measured from the building sizes and supplied technical design drawings for each flat, consequently calculations have been based on the habitable bedrooms and living areas of each receptor. Worst-case scenario internal sound levels have been selected and presented in **Table 5.2 and 5.3.**

5.9 Unit floor areas ranged from 39m^2 to 97 m^2.

5.10 Daytime ambient noise levels in living rooms not to exceed 35 dB LAeq,16hr.

5.11 Ambient noise levels in the bedrooms at night not to exceed 30 dB LAeq,8hr.

5.12 The sound insulation requirements of the glazing are applicable to the window system, including frames, mullions and panels. They are based on BS EN ISO 140-3: 1995 "Laboratory measurement of airborne sound insulation of building elements and rated in accordance with BS EN ISO 717-1:2013 Acoustics – Rating of sound insulation in buildings and of building elements Part 1. Airborne sound insulation".

5.13 A partially opened window typically provides approximately 12dB of attenuation from external free-field levels to internal levels, as confirmed by the comparison between the unattended data and the proposed façade construction. Therefore, it is considered that the internal criterion is likely to be achieved assuming a partially opened window.

5.14 The results in **Table 5.2** are based on the closed windows.

5.15 The results in **Table 5.3** are based on a partially opened window.

Table 5.2: Predicted Internal Noise Levels, dB for proposed rooms Windows Closed – Day and Night time

Receptor	Parameter Night-Time	Rating Level $L_{ar,T}$	Standard Closed Window dB Reduction	Criterion	Level vs Criterion dB
Hayes Park Central Road All Floors (Day)	$L_{Aeq,16h}$	47	-25dB	35dB	-13dB
Hayes Park Central Road All Floors (Night)	$L_{Aeq,8h}$	40	-25dB	30dB	-15dB

Table 5.3: Predicted Internal Noise Levels, dB for proposed rooms Windows Partially Open – Day and Night time

Receptor	Parameter Night-Time	Rating Level $L_{ar,T}$	Standard Partially Opened Window dB Reduction	Criterion	Level vs Criterion dB
Hayes Park Central Road 1st Floor (Day)	$L_{Aeq,16h}$	47	-12dB	35dB	+/-0dB
Hayes Park Central Road 1st Floor (Night)	$L_{Aeq,8h}$	40	-12dB	30dB	-2dB

5.16 Based on the results above, it is considered that the resultant impact of noise associated with the prevailing ambient sound level within Hayes Park, is unlikely to be detrimental to the proposed residents, forming the Hayes Park Central redevelopment. The prevailing sound level during the daytime, and into the night-time periods when the Heathrow flightpath is operational, was not considered to be detrimental to the proposed Hayes Park Central residents.

5.17 The glazing specifications are satisfactory to achieve the WHO and BS8233 internal ambient sound levels, when open and closed. Purge ventilation is acceptable, with no requirement for mechanical ventilation or air conditioning.

5.18 With respect to external amenity space such as gardens, balconies and patios, it is stated that it is desirable that the noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$. It is highly unlikely that the sound emanating from the prevailing ambient sound level would exceed the BS8233 guideline criteria, as the calculated $L_{ar,T}$ dB level for each receptor is the same or lower than the lower BS8233 guideline criteria of 50 dB $L_{Aeq,T}$, for the proposed private amenity balcony's that form part of the Hayes Park Central redevelopment.

6. SUMMARY

6.1 Enviropass was instructed by the client to undertake a noise assessment for the redevelopment and subsequent expected external prevailing ambient sound level emanating from the area surrounding the Hayes Park Central building. The internal sound levels have been calculated using the prevailing ambient sound level referred to as noise break-in. The Site is situated on a substantial plot with large areas of open grassland, and close to the Heathrow Airport flightpath.

6.2 The London Borough of Hillingdon will require a Noise Impact Assessment regarding the client's pre-planning application for Hayes Park Central. Further details of The London Borough of Hillingdon's guidance can be found in Section 2 of this technical report.

6.3 An unattended sound level monitor was installed on 1st September 2025 for the Hayes Park Central building on the northern façade directly overlooking the grounds and new build building to the north east. The monitor remained in situ throughout the daytime and night-time periods from the 1st of September and removed at 08:00 on the 8th of September 2025.

6.4 The results of the noise survey, and subsequent assessment work, have been undertaken in accordance with current standards and guidance, following the London Borough Hillingdon requirements for noise assessment and control.

6.5 The LAeq,T dB levels have been assessed as per BS4142:2014+A1:2019 have been identified to determine any impact arising from the prevailing ambient sound levels. Both day and night periods throughout weekday and weekend periods have been evaluated.

6.6 The predicted internal noise levels at the proposed Noise Sensitive Receptors (NSRs) have been assessed in accordance with BS 4142:2014+A1:2019, BS8233, and World Health Organisation (WHO) guidelines.

6.7 The pre-existing baseline sound levels were measured in accordance with BS4142 2014+A1:2019, to provide the LAeq, dB metrics for daytime 07:00-23:00, and night-time 23:00–07:00 periods for both weekday and weekends.

6.8 Based on the results above, it is considered that the resultant impact of noise associated with the prevailing ambient sound level within Hayes Park, is unlikely to be detrimental to the proposed residents, forming the Hayes Park Central redevelopment. The prevailing sound level during the daytime, and into the night-time periods when the Heathrow flightpath is operational, was not considered to be detrimental to the proposed Hayes Park Central residents.

6.9 The glazing specifications are satisfactory to achieve the WHO and BS8233 internal ambient sound levels, when open and closed. Purge ventilation is acceptable, with no requirement for mechanical ventilation or air conditioning.

6.10 With respect to external amenity space such as gardens, balconies and patios, it is stated that it is desirable that the noise level does not exceed 50 dB LAeq,T, with an upper guideline value of 55 dB LAeq,T. It is highly unlikely that the sound emanating from

the prevailing ambient sound level would exceed the BS8233 guideline criteria, as the calculated Lar,T dB level for each receptor is the same or lower than the lower BS8233 guideline criteria of 50 dB LAeq,T, for the proposed private amenity balcony's that form part of the Hayes Park Central redevelopment.

APPENDICES

APPENDIX A: Glossary of Terms

Noise

Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source.

The most widely used weighting mechanism that best corresponds to the response of the human ear is the 'A'-weighting scale. This is widely used for environmental noise measurement, and the levels are denoted as dB(A) or L_{Aeq}, L_{A90} etc., according to the parameter being measured.

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective, but as a general guide a 10 dB(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions.

Table A.1: Acoustic Terminology

Term	Description
dB (decibel)	The scale on which sound pressure level is expressed. Sound pressure level is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2x10-5Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' - weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
$L_{Aeq,T}$	L_{Aeq} is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A - weighted fluctuating sound measured over that period.
L_{Amax}	L_{Amax} is the maximum A - weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, 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_{10} and L_{90}	If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The L_n indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L_{10} is the level exceeded for 10% of the time, and the L_{90} is the level exceeded for 90% of the time.
Free-field Level	A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally, as measured outside and away from buildings.
Façade Level	A sound field determined at a distance of 1m in front of a large sound reflecting object such as a building façade.

Figure A.1: Time History Graph of Sound Monitoring Data (Including Octave Band dB Data)