Noise Impact Assessment

Telehouse West 2 – Environmental Permit Variation

Telehouse International Corporation of Europe Ltd

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Basis of Report

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1.0 Introduction

SLR Consulting Limited (SLR) has been instructed by Telehouse International Corporation of Europe Limited (TIE) to undertake a noise impact assessment (NIA), to support an Environmental Permit (EP) variation application for the TIE owned Docklands Data Centre Campus (the Campus) (EP reference EPR/EP3507SL V0002).

The Campus includes Telehouse North (TN) located on Coriander Avenue, London E14 2AA, and Telehouse South (TS) located on Blackwall Way, Poplar, London, E14 2EH. TIE intends to develop a Telehouse West 2 (TW2), a new data centre which will extend the existing TN campus.

1.1 Standby Generators

Electricity for operation of the Campus is provided from connections to the local electricity transmission network; however, given the nature of data centres and their requirement to have an available energy supply at all times, the Campus also incorporates a number of emergency standby generators (SBGs).

The SBGs will provide power to the data centre in the event of an emergency situation such as a brown-out or black-out of the local electricity transmission network where there are fluctuations or loss of the electrical power provided by the network. During such an event, there is the potential for a delay between fault detection and initial operation of the SBGs; on-site battery arrays will provide a temporary uninterruptible power supply in order to cover such delays and the potential for a loss/reduction in the power supply to on-site equipment.

The SBGs, in accordance with the manufacturer requirements, will be subject to planned maintenance and testing. There are currently no agreements in place for the elective generation of electricity for commercial export to the electricity grid and the SBGs do not operate in Triad avoidance.

1.2 Permit Variation

TW2 will incorporate 13 new SBGs (which will be installed in phases). The EP will therefore be varied to incorporate a total of 44 SBGs at the Campus, as summarised below:

- **TN:**
  - Existing (comprising East, West, North and North2 data centre units), 27 SBGs with a total thermal rated input of 145 MWth; and
  - Proposed (TW2): 13 SBGs with a total thermal rated input of 97.6 MWth.
- **TS:** Existing, 4 SBGs with a total thermal rated input of 35 MWth.

The total thermal rated input of the Campus, with the inclusion of TW2 will increase from 180 MWth to 277.6 MWth.

1.3 Noise Assessment

As part of the permit variation, this NIA considers the **cumulative noise impact** associated with the variation and the combined operation of the TN and TS sites. The assessment has been undertaken in accordance with the relevant EA technical guidance and considers the potential impact at noise sensitive receptors (NSRs).

This includes Noise and vibration: environmental permit application guidance (Dec 2025), which notes that the EA regulate the emissions of back up energy generators and associated infrastructure only, rather than the data centre itself.

Whilst reasonable effort has been made to ensure that this report is easy to understand, it is technical in nature; to assist the reader, a glossary of terminology is included in **Appendix A**.

2.0 Methodology

This section summarises the assessment standard used in the Noise Impact Assessment (NIA) which follows the methods set out in the relevant Environment Agency (EA) guidance documents, alongside the technical methodologies set out in recognised BS and ISO acoustic standards.

The following documents inform the assessment approach:

- Noise and Vibration Management (NVM).
- BS 4142:2014+A1:2019 – Methods for rating and assessing industrial and commercial sound (BS 4142)
- Noise and Vibration: Environmental Permit Application Guidance.
- Method Implementation Document (MID) for BS 4142.
- ISO 9613-2:2024 – Attenuation of sound during propagation outdoors.

2.1 Noise and Vibration Management (NVM)

The EA published *Noise and vibration management: environmental permits (NVM) guidance* in January 2022 to help holders and potential holders of permits apply for, vary, and comply with their permits.

The NVM details when a noise assessment is required, the competency required to undertake an assessment and how to carry out a noise impact assessment, and references BS 4142 as the appropriate assessment methodology.

The NVM outlines how context should be taken into account in the assessment and notes that *"Whilst context allows you to interpret impact thresholds (to a degree), there are practical limits to the extent of the interpretation. It is unlikely you could adjust the assessment outcome beyond the next band (for example, modifying a BS 4142 outcome of more than 10dB to be less than an 'adverse impact')."*

Different elements of the context of a situation may sway the assessment outcome in different directions, so all elements should be considered together. Context should consider:

- weekdays rather than weekends.
- what the sound 'means' – meaningful sound is one that conveys an unpleasant meaning beyond its mere acoustic content, for example noise from an abattoir.
- time of day.
- the absolute sound level.
- where the sound occurs.
- new industry or new residences.
- intrinsic links between the source and receptor, for example the source is the resident's place of work.
- local attitudes.
- the residual acoustic environment.
- the land use at the receptor (for example, gardens rather than yards).
- the exceedance (traditional BS 4142).
- whatever else might be particular to that individual situation.

Based on the results of the BS 4142 assessment the NVM has three distinct requirements as detailed in Table 2-1.

Table 2-1: NVM Assessment

NVM Result	BS4142 Descriptor	Next Stage
Unacceptable level of audible or detectable noise	The closest corresponding BS 4142 descriptor is 'significant adverse impact'	You must take further action or you may have to reduce or stop operations. The environment agencies will not issue a permit if you are likely to be operating at this level.
Audible or detectable noise	The closest corresponding BS 4142 descriptor is 'adverse impact'	Your duty is to use appropriate measures to prevent or, where that is not practicable, minimise noise. You are not in breach if you are using appropriate measures. But you will need to rigorously demonstrate that you are using appropriate measures.
No noise, or barely audible or detectable noise	The closest corresponding BS 4142 descriptor is 'low impact or no impact'	Low impact does not mean there is no pollution. However, if you have correctly assessed it as low impact under BS 4142, the environment agencies may decide that taking action to minimise noise is a low priority.

2.2 BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound (BS 4142)

The assessment of impact contained in British Standard BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound (BS 4142), is undertaken by comparing the sound rating level, i.e. the specific level of the source plus any acoustic feature corrections, to the measured representative background sound level outside the sensitive receptor location.

In accordance with BS 4142, the significance of an industrial or commercial sound source depends on both the margin by which the rating level exceeds the background sound level and the context in which the sound occurs.

BS 4142 (Section 3) provides the following definitions:

- **Ambient Sound:** Totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far. *NOTE: The ambient sound comprises the residual sound and the specific sound when present*.
- **Ambient Sound Level, $L_{Aeq,T}$:** Equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at a given time, usually from many sources near and far, at the assessment location over a given time interval, T. *NOTE: The ambient sound level is a measure of the residual sound and the specific sound when present*.
- **Background Sound Level, $L_{A90,T}$:** A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given interval, T, measured using time weighting F and quoted to the nearest whole number of decibels (dB).

- **Rating Level, $L_{AR,Tr}$:** Specific sound level plus any adjustment for the characteristic features of the sound.
- **Residual Sound:** Ambient sound remaining at the assessment location when the specific sound source is supressed to such a degree that it does not contribute to the ambient sound.
- **Residual Sound Level, $L_r = L_{Aeq,T}$:** Equivalent continuous A-weighted sound pressure level of the residual sound at the assessment location over a given time interval, T.
- **Specific Sound Level, $L_s = L_{Aeq,T}$:** Equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, T.
- **Specific Sound Source:** Sound source being assessed.
- **Sound and Noise:** Careful distinction is made in BS 4142 between the terms “sound” and “noise”. Sound refers to a physical phenomenon that can be quantified using a sound level meter or other measurement system. In contrast, noise implies a human response—typically referring to sound that is perceived as intrusive, undesirable, or disruptive.

To account for the acoustic character of sound sources, BS 4142 states that character corrections should be applied with respect to “*the subjective prominence of the character of the specific sound at the noise-sensitive locations and the extent to which such acoustically distinguishing characteristics will attract attention”.*

In this respect, the acoustic ‘character’ of a specific sound can be described using the following definitions from BS 4142:

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

The specific noise level along with any applicable correction is referred to as the ‘rating level’. The greater the increase between the rating level over the background noise level, the greater the magnitude of the impact. The assessment criteria given by BS4142 are as follows:

- 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.

Response to sound can be subjective and is affected by many factors, both acoustic and non-acoustic. The significance of its impact, for example, can depend on such factors as the margin by which a sound exceeds the background sound level, its absolute level, time of day and change in the acoustic environment, as well as local attitudes to the source of the sound and the character of the neighbourhood.

It is therefore essential to place the sound in context, as an “effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs”.

2.3 Method Implementation Document (MID) BS 4142

In addition to NVM, the EA has also published a Method Implementation Document (MID) for BS4142. It notes that national standards sometimes need supporting ‘Method implementation documents’ (MIDs) to make sure they are followed consistently, and the MID explains how to use the standard for regulatory monitoring when applying for a permit.

With regard to BS 4142 it provides extra guidance on how it must be followed for environmental permit applications and variations.

2.4 Noise and vibration: environmental permit application guidance

In addition to NVM and MID, the EA published Noise and vibration: environmental permit application guidance in December 2025. This document sets out the information that applicants must provide when applying for, varying, or complying with an environmental permit where noise and vibration emissions are relevant.

Additionally, the guidance clarifies the scope of EA regulatory control in relation to data centres. Specifically, it states that the EA regulate emissions arising from backup energy generators and associated infrastructure only, rather than from the normal operation of the data centre itself.

This distinction has been used when defining the extent of the assessment, ensuring that it addresses only those sources that fall within the scope of EA regulation.

2.5 ISO 9613-2:2024

The levels of sound generated by the operation of the plant has been predicted using the modelling software CadnaA, undertaken in accordance with the prediction framework within ISO 9613-2:2024 Acoustics – Attenuation of Sound during Propagation Outdoors– Part 2: General Method of Calculation.

This method of calculation takes into account the distance between the sound sources and the closest receptors, and the amount of attenuation due to atmospheric absorption. The methodology also assumes downwind propagation, i.e. a wind direction that assists the propagation of sound from the source to the receiver.

2.5.1 Assumptions

For the purpose of this noise model and assessment, the following assumptions have been used:

- All sources associated with standby generators operating at 100%, using the sound power levels detailed.
- Daytime hours are considered to be between 0700 and 2300 hours, and night-time hours are between 2300 and 0700 hours.
- The NSRs comprise of multi-storey apartment buildings (with up to 32 floors), therefore receptor points have been modelled 3 m from the façade of each floor level, with the highest predicted sound level adopted as the representative specific sound level for assessment, providing a worst-case assessment.
- The majority of NSRs comprise single floor apartments (rather than 2 storey dwellings), and the specific sound level will be the same during the daytime and night-time period.
- The Site and local area is flat and uniform, and local terrain data has not been included. However, building heights for surrounding NSRs have been sourced and included in the model, to account for any screening and reflection effects.
- Exhaust flues include directivity in accordance with ISO 9613-2 (chimney option), with the flue radius and exhaust temperature included.
- A ground absorption factor of 0.1 (hard ground).
- A reflection factor of 3.
- Uncertainties and limitations related to the input data, including sound power levels, operational conditions, receptor positions, and reflection assumptions, are acknowledged and have been considered in interpreting the modelled results.

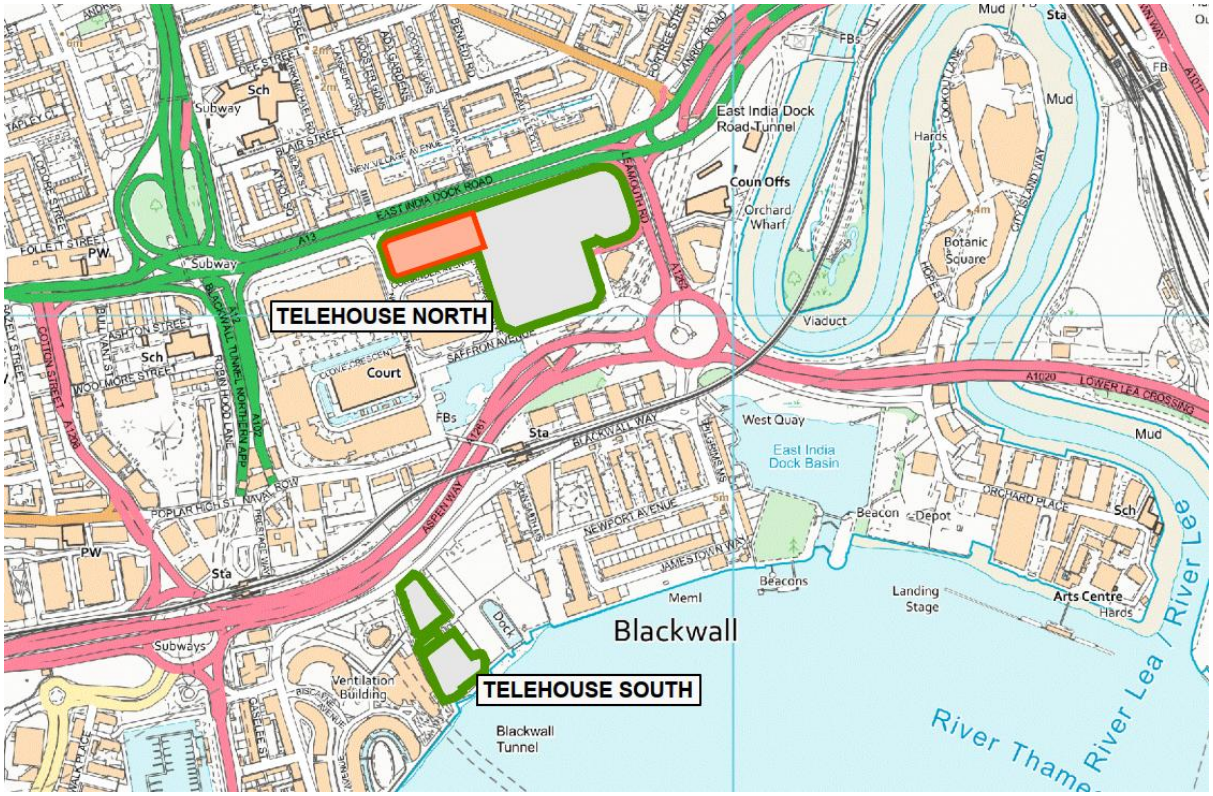
3.0 Site Description

The Campus comprises of two separate Sites, known as Telehouse North and Telehouse South. The two Sites are located approximately 350m apart, with the A1261 Aspen Way, the Dockland Lights Railway, residential, and commercial uses located on the intervening land.

A full description of the areas, and operating techniques that are implemented at each Site are detailed within the Best Available Techniques and Operating Techniques (BATOT) report, submitted to support the application for a variation of the EP.

A summary of the two Sites is detailed within this section, and Figure 3-1 shows the permit boundaries of the sites (green line), and the location of TW2 (red line).

Figure 3-1: Site Location Plan



3.1 Telehouse North

The TN Site is located off Coriander Avenue, London, E14 2AA, and comprises of four existing data centre buildings, along with the new TW2 data centre.

TN (including TW2) is predominantly surrounded by commercial and residential properties. There are high rise residential apartment complexes approximately 40m to the north and 55m to the east. There are further residential complexes within 100m and 180m to the south, 230m to the west and 360m to the east. The closest commercial properties to the site are a Travelodge hotel, located directly adjacent to the east of the TN Site, and a data centre (Global Switch) 20m to the west.

3.1.1 TW2

The TN Site will be expanded to include the TW2 data centre, as shown on Figure 3-1 and Figure 3-2. In relation to this variation, TW2 will involve the installation of the following plant:

- **SBGs** (13 units) will be located on the ground level inside the data centre building, within 7 dedicated generator rooms (two SBGs per room, plus one SBG in its own room):

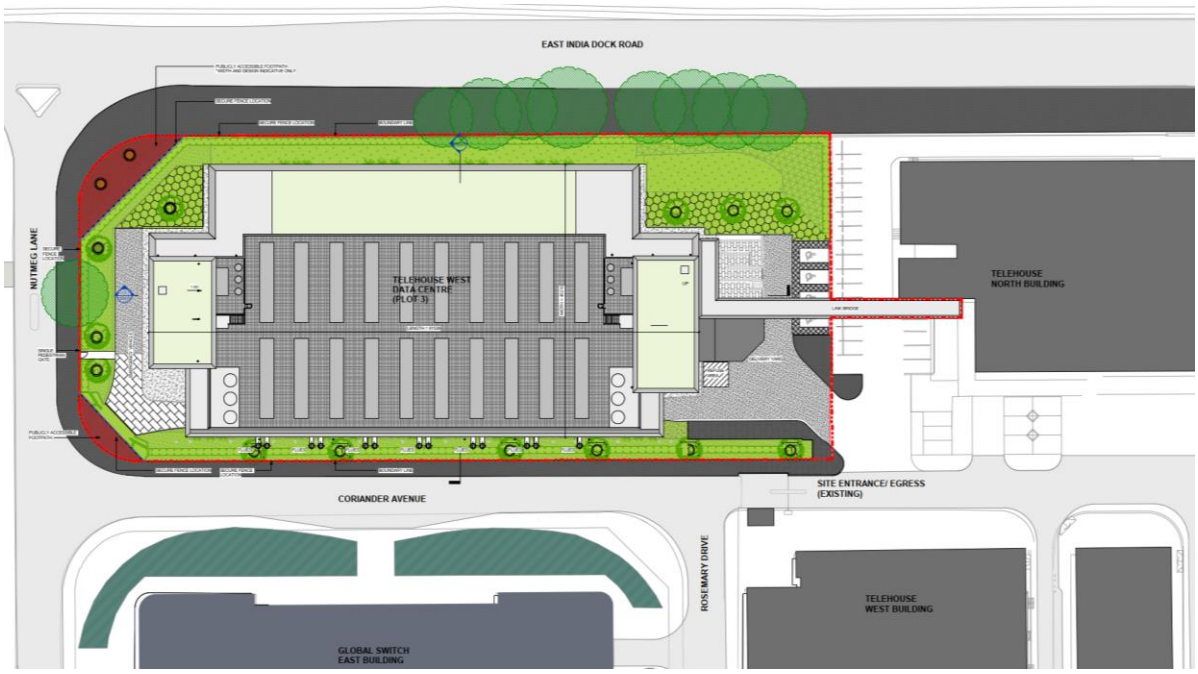
- **Associated plant** for the SBGs includes air intake and discharge louvres at ground level, and exhaust flues at roof level.

During the design stage, noise emission limits for the operation of TW2 were set in order to comply with the London Borough of Tower Hamlets (LBTH) requirements at planning (ref: PA/22/01140). These were as follows:

- Normal operations: designed to achieve noise level of at least 10 dB $L_{Aeq,T}$ below background level.
- Emergency operations and routine testing of SBGs: designed to achieve noise level of no more than 5 dB $L_{Aeq,T}$ above background level (with testing restricted to normal working hours of 09.00-16.00 Monday to Sunday).

In line with the EA permit requirements, the assessment of noise is limited to the impact of the SBGs, and associated plant only. This includes the simultaneous operation of all SBGs during an emergency, along with routine testing. Further information regarding the noise sources at TW2 is detailed within **Section 5.1**.

Figure 3-2: TW2 Location Plan



3.2 Telehouse South

The TS Site is located at on Blackwall Way, Poplar, London, E14 2EH, and comprises of a single data centre building, along with the associated South Support Building.

The Site is located on the banks of the River Thames and is bordered to the north by the A1261 Aspen Way. The Radisson Blue hotel, and the Blackwall Tunnel Ventilation Towers are located to the west of the site. To the east, the Site is immediately bordered by the approved Blackwell Yard development, which is yet to start construction.

3.3 Receptors

The noise sensitive receptors (NSRs) which have been considered as part of the assessments for both TN and TS, and which are considered most likely to be affected by operations are detailed in Table 3-1, and shown in Figure 3-3.

Table 3-1: Noise Sensitive Receptors

Receptor	Location	Co-ordinates		No. of Floors
		x	y	
Telehouse North				
NSR1	Franklin House, Aberfeldy Village	538521	181132	4
NSR2	Coppers House, Aberfeldy Village	538587	181154	10
NSR3	Julius House, Aberfeldy Village	538648	181173	5
NSR4	Glass Blowers House, Aberfeldy Village	538716	181192	5
NSR5	Watermans House, Aberfeldy Village	538780	181211	10
NSR6	Merchants House, Aberfeldy Village	538842	181233	10
NSR7	Elektron Tower, Blackwall Way	538773	180878	23
NSR8	Proton Tower, Blackwall Way	538814	180889	23
NSR9	Neutron Tower, Blackwall Way	538856	180902	23
NSR10	Switch House, Blackwall Way	538903	180916	23
NSR11	Travelodge, Oregano Drive (Hotel)	538862	181067	18
NSR12	Russet House, Mercury Walk	538941	181092	19
Telehouse South				
NSR13	Radisson Blue (Hotel)	538625	180530	7
NSR14	Ontario Tower (Residential)	538579	180539	32
NSR15	Blackwall Yard South (Future Residential)	538697	180601	n/a
NSR16	Blackwall Yard North (Future Residential)	538674	180686	n/a
NSR17	Wingfield Court, Newport Avenue	538741	180714	11

Figure 3-3: NSR Location Plan

4.0 Noise Survey

A range of noise assessment reports have previously been undertaken for TN and TS, as part of the historical planning and permit applications. The previous reports have therefore been reviewed, and a summary of the baseline sound levels used at receptors locations is detailed within this section.

It should be noted that some of the surveys were undertaken while the Site was operational. However, sound from the Sites was not audible at any of the monitoring locations. Therefore, the results are considered robust with the survey data unaffected by operations the Sites.

4.1 Telehouse North

The results of two separate noise survey are presented for use in this assessment:

- **2023 Survey**, undertaken by Cundall to support the TW2 planning application.
- **2018 Survey**, undertaken by SLR to support the earlier Telehouse North permit application.

Although undertaken at different times, both surveys detail the background sound levels at locations representative of the NSRs around TN. The results are therefore presented separately, and a comparison is provided to determine whether baseline conditions have materially changed.

4.1.1 2023 Survey

As part of the planning application for TW2, a noise survey was undertaken by Cundall and presented in an Environmental Noise Survey report (the 'Cundal Report'), dated November 2023 (ref TW2001-CDL-TW2-XX-RP-AS-45200), a copy of which is included within **Appendix B**.

The survey comprised unattended noise monitoring at the TW2 Site, between 1st February 2023 and 2nd February 2023.The survey was undertaken on the rooftop of the former Travelodge building (prior to demolition), as it is considered representative of the existing noise environment at the nearest NSRs (i.e., residential properties along East India Dock Road), which may be affected by noise from TW2.

Measurements were carried out following guidance from BS 4142 and BS 7445-1:2003 "Description and measurement of environmental noise Part 1: Guide to quantities and procedures". The Cundall report also provides relevant details of the equipment used during the survey, which conforms to BS EN 61672-1:2013 Class 1 accuracy and was field calibrated before and after use, with no significant drift in measurements observed between calibrations.

Weather conditions over the survey period were conducive to noise measurements and within the recommended limits in BS 4142 (i.e., wind speeds less than 5 m/s and no precipitation).

Observations made at the start and end of the survey, indicate that the main contributor to the acoustic environment, was observed to be road traffic on East India Dock Road and surrounding road network.

4.1.2 2018 Survey

The original permit application for TN (previously known as Docklands), was supported by a noise assessment which was prepared by SLR in June 2018. This included an unattended noise survey, undertaken at two locations between Thursday 17th May 2018 and Sunday 20th May 2018, and followed the methodology found within BS4142, which includes suitable weather conditions, and was subsequently approved by the EA.

Although the survey was undertaken several years ago, the 2018 results are still considered suitable for reference in this assessment, as the surrounding acoustic environment and the nature of operations at the TN site have remained broadly consistent since that time. Notwithstanding this, the results of both surveys have been considered below.

4.1.3 Results

A summary of the measured sound levels from the 2023 and 2018 surveys, undertaken at monitoring locations (ML) which are considered representative of the NSRs, is shown in Table 4-1 below. A monitoring location plan is presented in **Appendix C**, together with the survey data.

Table 4-1: Telehouse North - Monitoring Results

Monitoring Location	Receptor	Date	Period	$L_{Aeq,T}$	$L_{A90,T}$ (mode)
ML1 Northern part of TN Site	NSR1 to NSR6	17/05/2018 to 20/05/2018	Daytime	64	63
			Night-Time	64	63
ML2 Southern part of TS Site	NSR7 to NSR12	17/05/2018 to 18/05/2018	Daytime	64	61
			Night-Time	61	59
ML3 Roof of former hotel at TW2	NSR1 to NSR6	01/02/2023 to 02/02/2023	Daytime	71	66
			Night-Time	69	57

From the measurements obtained at TN, it can be seen that in the northern part of the Site, the ambient sound levels ($L_{Aeq,T}$) recorded in 2023 at ML3, are marginally higher than those measured at ML1 in 2018. However, ML1 was located further back from the road and was partially screened by intervening buildings, while ML3 was positioned closer to the road in a more exposed location.

While the background sound level ($L_{A90,T}$) measured at ML3 during the night-time period is marginally lower than that recorded at ML1 in 2018, the difference between the two surveys is primarily attributed to the difference in monitoring locations and height, rather than indicating any definitive change in the underlying acoustic environment.

4.1.4 NSR1 to NSR6

In line with BS 4142 (Section 8.1.4), background sound levels measured at ML3, were determined using a series of measurements to capture the range of conditions during the assessment periods.

Using the statistical method illustrated in Note 4 of Section 8.1.4, the modal values within the dataset were identified as 66 dB $L_{A90,T}$ during daytime, and 57 dB $L_{A90,T}$ during the night-time, and represent the most commonly occurring background levels, and provide an appropriate basis for assessment at **NSR1 to NSR6**.

4.1.5 NSR7 to NSR12

At receptors located to the south of TN, the 2018 results from ML2 indicate marginally lower ambient and background levels. No measurements were undertaken at this location in 2023; however, there is no evidence of any material change in local traffic, land use or operational activity that would affect the local environment.

Therefore, the background sound levels measured in 2018 continue to provide an appropriate basis for assessment at **NSR7 to NSR12**.

4.2 Telehouse South

As part of the planning application for the refurbishment of TS, a noise assessment and a noise impact assessment report was completed by Sweco in March 2022 (Doc Ref: TSX002-SWE-TS-ZZ-RP-Y-000010 Revision: P01). The data obtained during this survey is presented for use within the assessment at TS.

4.2.1 Results

The baseline sound data used within the Sweco noise report, was based on surveys undertaken by Cundall and Buro Happold, in May 2019 and January 2020 respectively. The survey was undertaken following the methodology found within BS4142, which includes appropriate weather conditions, and was subsequently approved by the LPA.

As stated within the Sweco noise report, the lowest background sound levels were selected allowing for a robust worst-case scenario, while considering the differences in noise levels within the Site, and the surrounding noise-sensitive receptors, depending on the distance to main roads.

A summary of the background sound levels used in the BS4142 assessment and reported in the Sweco report, is shown Table 4-2 below. A copy of the Sweco report which includes the monitoring location plan and survey data in included within in **Appendix D**.

Table 4-2: Telehouse South - Monitoring Results

Location	Receptor	Date	Period	$L_{A90,T}$
ML4 – Level 9 of existing building (U1 in Sweco report)	NSR13 to NSR14	17/01/2020 to 21/01/2020	Daytime	60
			Night-time	58
ML5 – Located adjacent to Aspen Way	NSR16 and NSR17	May 2019	Daytime	61
			Night-time	61

It should be noted that although the NVM advises against selecting the lowest $L_{A90,T}$ values, they are not considered to be isolated minima in this instance. They reflect normal, stable periods within the monitoring data, and the minor difference between daytime and night-time levels, shows that the noise climate is dominated by steady road traffic, meaning the lower values remain representative of typical quieter conditions, rather than unusual low points.

The background sound levels adopted within this assessment are consistent with those previously used and accepted as part of an earlier EP variation for the Site. Using the same representative values ensures continuity with the conclusions already established and avoids introducing unnecessary discrepancies between successive assessments of the same installation.

5.0 Operations at Telehouse North

As part of this EP variation, an additional data centre (TW2) is proposed at the TN Site. This section of the report details the proposed operations at TW2, along with the existing operations which are permitted at TN.

5.1 Proposed Operations at TW2

The development was granted outline planning permission in December 2019, for demolition of the Travelodge Hotel (Use Class C1) and the erection of a data centre (Use Class B8) (LPA Ref: PA/18/03088). This permission was then amended in 2022 (Ref: PA/22/01140), to vary a condition relating to maximum floorspace.

Subsequent to the above approved permissions, a Reserved Matters application relating to access, appearance, landscaping, layout and scale, was approved in April 2024 (Ref: PA/22/02552).

The data centre comprises of a ten-storey building, designed to accommodate IT operations with associated mechanical and electrical infrastructure. The ground floor will accommodate the required transformers and standby generators, with exhaust flues located on the southern façade of the building.

Each data hall floor will contain a dedicated UPS system, along with air handling units (AHUs) that draw in and discharge air via louvres on the southern façade. The rooftop level accommodates the required cooling plant, including both critical and non-critical chillers.

5.1.1 Noise Sources

TW2 will include the installation of 13 SBGs, on the inside the data centre building at ground level. These will be located within 7 dedicated generator rooms (two SBGs per room, plus one SBG in its own room), with air intake and discharge points for ventilation.

Each SBG will have an exhaust flue for the discharge of combustion emissions, and the flues will extend beyond the generator rooms and run vertically up the external wall of the data centre building, terminating above roof height.

The layout plans for the ground and mezzanine floor are shown in Figure 5-1 and Figure 5-2, and Figure 5-3 shows an annotated section view.

Figure 5-1: TW2 Ground Floor Plan

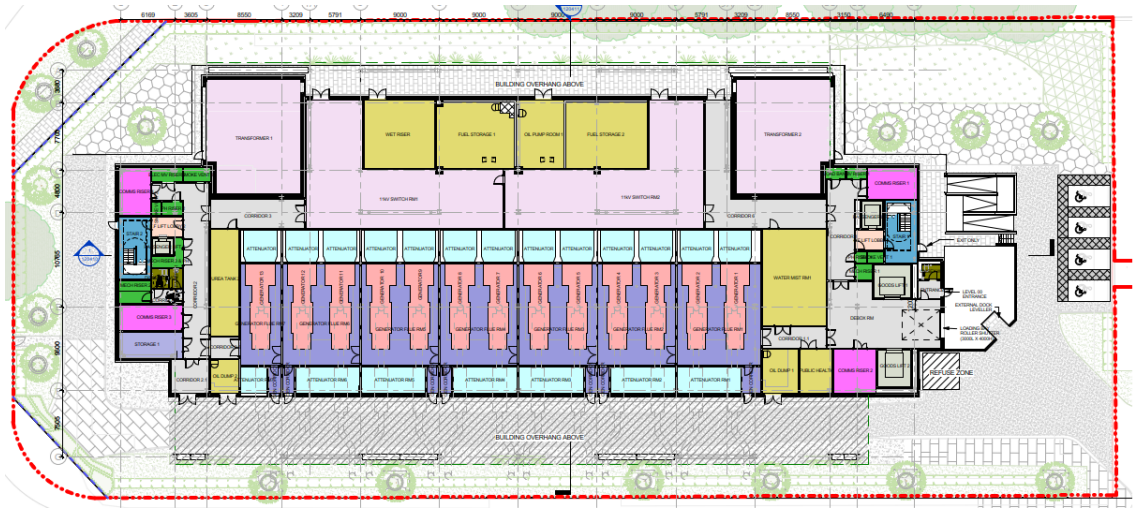


Figure 5-2: TW2 Mezzanine Floor Plan

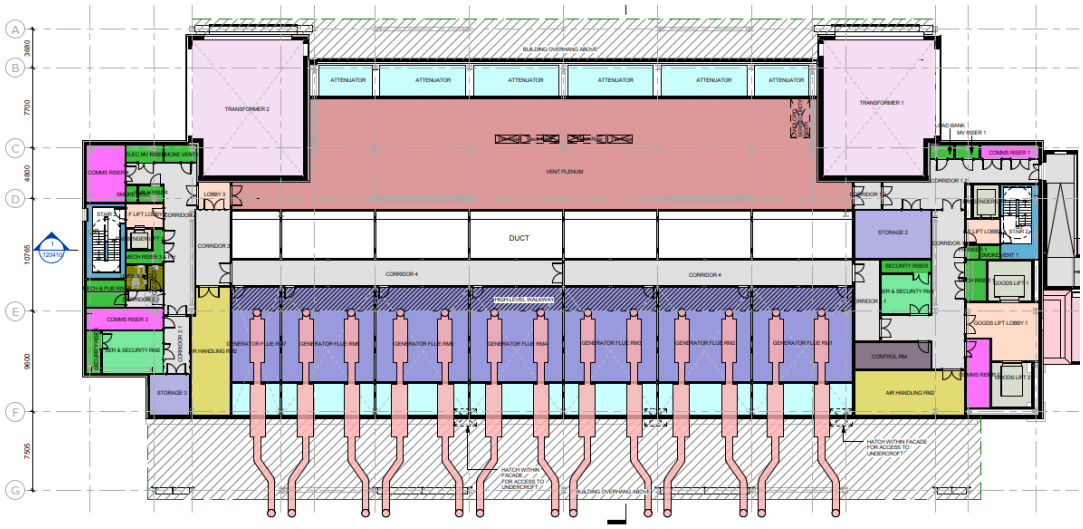
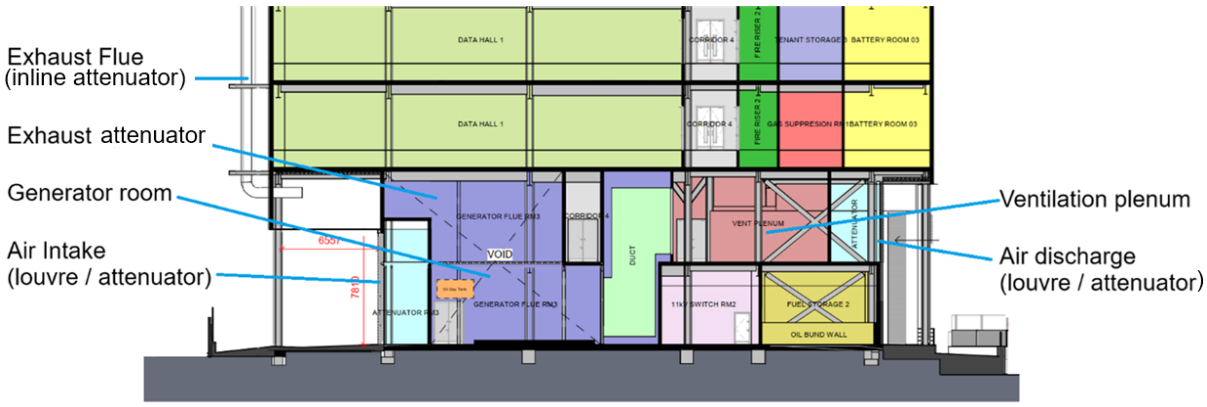


Figure 5-3: TW2 Ground and Mezzanine Section Plan (marked up)



Sound levels for the SBGs, are detailed in Table 5-1, along with the insertion loss values for the attenuators at the air intake and discharge points.

Table 5-1: TW2 Plant Sound Levels

Item	Sound Power Level per Octave band, Hz (dB)								L_{wA}
	63	125	250	500	1k	2k	4k	8k	
Cummins C3750 D5e – Engine (unhoused)	85	104	107	113	116	118	117	124	126
Cummins C3750 D5e – Exhaust (unsilenced)	89	114	118	120	120	119	116	118	126
	Insertion Loss per Octave band, Hz (dB)								
Intake and discharge attenuator - Modular MG18V/2C/L/S	14	23	39	55	55	55	53	42	n/a
Exhaust attenuator - Modular MG48V/2C/L/S	21	34	55	55	55	55	55	48	n/a
Exhaust silencer - Caice SG01V/3C/L/S	2	3	7	14	12	8	8	6	n/a

To represent the SBGs and associated plant within the noise model, the internal noise sources has been decomposed into source elements associated with the individual noise emission points.

Internal noise from the SBGs would be radiated externally via the air intake and discharge vents, and the external sound levels at these points has been calculated, incorporating the relevant attenuator insertion losses. Noise from the SBG exhaust would be reduced by the attenuator and inline flue silencer insertion losses, which is then radiated externally at roof level.

The above calculations are presented in Appendix E, and Table 5-1 below details the emission points included within the noise model for TW2, along with the single value sound levels (noting that the model uses octave band sound data shown in Appendix E).

Table 5-2: TW2 Proposed Plant

Building	Source	No.	Location and Height	Sound Level
TW2	SBG Air discharge	6	Air discharge from each SBG radiator fan is ducted into an internal ventilation plenum, then routed through an attenuator before discharging via louvres on the northern façade, at mezzanine level. Modelled as a point source 3m above ground.	70 dB L_{Aeq} @ 1m
	SBG Air intake	6	Fresh air is drawn into each generator room via a louvre and attenuator on the southern façade, at ground floor level. Modelled as a point source 2m above ground.	79 dB L_{Aeq} @ 1m
	SBG Exhaust flue	13	Individual exhaust stacks located on the southern façade of the building terminating at roof level. Modelled as a point source 65m above ground.	63 dB L_{wA}

5.2 Existing Operations at TN

As part of the original permit application, a noise assessment was prepared by SLR in June 2018 (Ref 410.04438.00003). The assessment considered the potential noise impact from all operations at the Site, and included a full description of the assumed plant, modelling approach and source data. This included both “normal” operations (e.g. chillers and HVAC plant), along with emergency operations involving the simultaneous operation of all SGBs.

However, as noted, the EA regulate the emissions of back up energy generation and associated infrastructure only, rather than the data centre itself. Therefore, noise associated with “normal” operations, such as chillers and HVAC plant, has not been included within this NIA. A summary of the relevant elements of the 2018 assessment, which form part of the permitted activities, is provided below.

5.2.1 Noise Sources

The existing TN Site comprises four data centres (North, North 2, West, and East), where a total of 27 SBGs are permitted. These are all located internally within ground floor generator rooms, with air intake and discharge vents located externally.

Each SBG has an exhaust flue for the discharge of combustion emissions, which extend beyond the generator rooms and terminate at roof height. With regard to East, it should be noted that the SBGs are located in adjacent East Support Building.

The sound levels for the SBGs, are detailed in Table 5-1 below, and **DRAWING 002A** which shows the site layout and the location of each generator, and exhaust flue.

Table 5-3: TN Permitted Plant

Building	Source	No.	Location and Height	Sound Level
North	SBG Air discharge	6	North east and south east facade, ground floor 3m	61 dB L_{Aeq} @ 1m, modelled as point source 71.9 dB L_{WA}
	SBG Air intake	6		
	SBG Exhaust flue	6	North east and south east, roof 39m	
North 2	SBG Air discharge	8	Western facade, ground floor 3m	
	SBG Air intake	8	Eastern facade, ground floor 3m	
	SBG Exhaust flue	8	North and south, roof 62m	
East (support building)	SBG Air discharge	5	Southern façade, ground floor 3m	
	SBG Air intake	5	Northern facade, ground floor 3m	
	SBG Exhaust flue	5	North, roof 27.3m	
West	SBG Air discharge	8	Western facade, ground floor 3m	
	SBG Air intake	8	Eastern facade, ground floor 3m	
	SBG Exhaust flue	8	East and west, roof 28.5m	

The specific sound level at each NSR and the BS 4142 impact assessment, is presented in Section 7.0which includes a cumulative assessment of TN and TS.

6.0 Operations at Telehouse South

In January 2022, a planning application for the data centre was submitted to Tower Hamlets Council (Planning Ref: PA/22/01023/NC), which was supported by a noise impact assessment report, prepared by Sweco in March 2022 (Doc Ref: TSX002-SWE-TS-ZZ-RP-Y-000010 Revision: P01).

As part of this EP variation, no changes are proposed at TS. However, it should be noted that the Sweco report, and the previous NIA for the EP included the installation of 10 x SBGs, but this was later reduced down to 4 SBGs as detailed below.

6.1 Noise Sources

With regard to the SBGs, these are located within the South Support Building and provide backup power for the adjacent TS data centre.

A total of 4 x SBGs are located within the support building, and each SBG will be housed in an acoustic enclosure. The exhaust flues terminate at roof level above the building, at 27m above local ground level, and include silencers.

Each SBG includes a ventilation discharge vent, which terminates at 19m above ground level, and includes an attenuator. The air intakes vents are located on the façade of the building at 19m above ground level and include attenuators. Additionally, each SBG features a remote cooling unit, which is located at roof level, which extends up to 26m above ground.

The main external emissions points have been represented in the noise model using the defined sound levels. These include the exhaust flues, the ventilation discharge and intake points, and the rooftop cooling units. The SBG enclosures themselves have not been included as separate sources, as the SBG containers are located behind the building façade, providing further attenuation, and would be less dominant over the external sources and would not materially influence the predicted sound levels.

The sound levels for the SBGs used in the model, are detailed in Table 6-1 below.

Table 6-1: Permitted Plant at TS

Building	Source	No.	Location and Height	Sound Level
South	SBG Air discharge	4	Above support building, modelled as point source, 19m high	65 dB L_{Aeq} @ 1m, 73 dB L_{WA}
	SBG Air intake	4	Northern and southern facade of support building, modelled as point source, 19m high	
	SBG Exhaust flue	4	Above support building, modelled as point source, 27m high	
	SBG Remote Cooling	4	Above support building, modelled as point source, 26m high	

The specific sound level at each NSR and the BS 4142 impact assessment, is presented in Section 7.0 which includes a cumulative assessment of TN and TS.

7.0 BS4142 Assessment (TN and TS)

7.1 Specific Sound Level

The predicted sound levels for each scenario are presented in Table 7-1 below and represent the **cumulative sound level of both TN and TS,** during emergency operations.

As required by NVM, the contribution from the proposed variation and existing operations are shown separately, along with the sound level from the combined operations (i.e. existing and proposed) at each NSR. The combined value represents the total cumulative specific sound level to be used in the BS 4142 assessment.

As the majority of NSRs are single-level apartments, the specific sound levels shown below are applicable to both the daytime and night-time periods. However, to ensure a robust assessment, the floor with the highest predicted sound level has been selected.

Table 7-1: Specific Sound Level

Location	Specific Sound Level, dB $L_{Aeq, T}$		
	Proposed Variation (TW2)	Existing Operations (TN + TS)	Combined Operations (TN + TS)
NSR1	38	30	39
NSR2	46	33	46
NSR3	45	38	45
NSR4	35	41	42
NSR5	29	39	40
NSR6	26	36	37
NSR7	9	35	35
NSR8	10	37	37
NSR9	11	37	37
NSR10	10	35	35
NSR11	13	41	41
NSR12	13	38	38
NSR13	0	38	38
NSR14	7	36	36
NSR15	0	34	34
NSR16	1	39	39
NSR17	2	34	34

7.2 Character Corrections

During emergency operations, the SBGs will start and could generate higher sound levels than normal operations. The spectral content of SBGs and associated ventilation, could include some tonal components which could be audible at nearby receptors. Therefore, a conservative +4 dB correction for tonality has been applied, reflecting the potential for perceptible tonal components associated with the SBGs. This represents a precautionary but proportionate correction.

7.3 Representative Background Sound Level

The representative background sound levels used in this assessment have been derived in accordance with BS 4142, NVM, and MID. As required, the background levels exclude all site-related sound, are based on a robust statistical method, and have been reported to the nearest whole decibel.

The monitoring locations used in this assessment were confirmed to be free from audible noise from TN and TS. The datasets consist of continuous 15-minute samples collected over suitably long durations, and the representative background values used have been determined by reviewing the distribution of the measured $L_{A90,T}$ levels, which indicate stable and recurring values, that characterise typical residual conditions.

This presents a robust statistical analysis, which is appropriate for an assessment focused solely on the SBGs.

7.4 Impact Assessment

In accordance with BS 4142, the specific sound level at each NSR, from the combined operations at TN (i.e. proposed and existing) and the character corrections detailed above, have been added to derive the rating level. This is then compared to the background sound level in order to determine difference, and the impact significance at each NSR, as detailed in Table 7-2 below.

Table 7-2: TN BS4142 Assessment

Receptor	Period	Specific Level	Rating Level	Background Level	Difference	Significance
NSR1	Daytime	39	43	66	-23	Low Impact
	Night-time	39	43	59	-16	Low Impact
NSR2	Daytime	46	50	66	-16	Low Impact
	Night-time	46	50	59	-9	Low Impact
NSR3	Daytime	45	49	66	-17	Low Impact
	Night-time	45	49	59	-10	Low Impact
NSR4	Daytime	42	46	66	-20	Low Impact
	Night-time	42	46	59	-13	Low Impact
NSR5	Daytime	40	44	66	-22	Low Impact
	Night-time	40	44	59	-15	Low Impact
NSR6	Daytime	37	41	66	-25	Low Impact
	Night-time	37	41	59	-18	Low Impact
NSR7	Daytime	35	39	61	-22	Low Impact
	Night-time	35	39	59	-20	Low Impact
NSR8	Daytime	37	41	61	-20	Low Impact
	Night-time	37	41	59	-18	Low Impact
NSR9	Daytime	37	41	61	-20	Low Impact
	Night-time	37	41	59	-18	Low Impact
NSR10	Daytime	35	39	61	-22	Low Impact
	Night-time	35	39	59	-20	Low Impact

Receptor	Period	Specific Level	Rating Level	Background Level	Difference	Significance
NSR11	Daytime	41	45	61	-16	Low Impact
	Night-time	41	45	59	-14	Low Impact
NSR12	Daytime	38	42	61	-19	Low Impact
	Night-time	38	42	59	-17	Low Impact
NSR13	Daytime	38	42	60	-18	Low Impact
	Night-time	38	42	58	-16	Low Impact
NSR14	Daytime	36	40	60	-20	Low Impact
	Night-time	36	40	58	-18	Low Impact
NSR15	Daytime	34	38	61	-23	Low Impact
	Night-time	34	38	61	-23	Low Impact
NSR16	Daytime	39	43	61	-18	Low Impact
	Night-time	39	43	61	-18	Low Impact
NSR17	Daytime	34	38	61	-23	Low Impact
	Night-time	34	38	61	-23	Low Impact

7.4.1 Initial Result

The initial result of the BS 4142 assessment indicates that during the daytime and night-time periods, sound from the site during emergency operations at Telehouse North and Telehouse South will remain below the background sound level at all NSRs. Overall, the smallest difference relative to background is -9 dB at NSR2, and in accordance with BS 4142 corresponds to a **low Impact at all receptors**, depending on the context.

With regard to context, the SBGs would only operate simultaneously during emergency conditions, but the resulting sound levels remain below the background level at all NSRs. While a precautionary 4 dB character correction has been included, the character of the plant is not expected to alter the prevailing acoustic environment, as the residual sound level (i.e. road traffic) exceeds the specific sound level. Therefore, noise from the SBGs, will be effectively masked by the existing acoustic environment and is unlikely to be audible or perceptible.

7.4.2 Routine Testing

In addition to emergency operations, each SBG at TN and TS, will be operated as part of a routine testing and maintenance schedule. The full schedule is set out in the BATOT report, however each SBG will only be operated for up to 50 hours per year. Furthermore, as part of the planning conditions for TW2, SBG testing is restricted to daytime working hours only, specifically between 09.00 and 16.00 hours.

Additionally, Telehouse will endeavour to avoid concurrent testing of SBGs across the data centres, although occasional simultaneous testing may still occur.

A separate assessment of this scenario has not been undertaken, however, the assessment of all SBGs at TN and TS operating simultaneously during emergency operations, has already demonstrated a low impact at all NSRs.

Therefore, routine testing, which involves fewer SBGs, would result in impacts which are no greater than those already assessed and will typically be lower and considered **negligible**.

7.4.3 Low-Frequency Noise

In accordance with EA requirements, the assessment should determine whether low-frequency noise (LFN) could cause pollution at NSRs. LFN is generally considered to occur within the between 10 Hz to 160 Hz , and is the frequency range most likely to be perceptible, interact with building structures, and/or give rise to disturbance inside dwellings.

For the SBGs, the octave-band data for the engine and exhaust shows that the 63 Hz band is significantly lower than the mid-frequency bands (500 Hz to 2 kHz). If the generators were producing meaningful energy below 63 Hz, this would normally be reflected by an increase in the adjacent 63 Hz and 125 Hz octave bands. However, no such increase is present in the data, and the spectral profile is typical of modern diesel generators, demonstrating that significant low-frequency noise is unlikely.

In addition, the SBGs are located within enclosed plant rooms and mounted on anti-vibration supports, which limits the transmission of low-frequency mechanical energy. The exhaust and ventilation systems are also fitted with silencers and attenuators, which further reduce the effects that could give rise to low-frequency noise.

On this basis, adverse effects from low-frequency noise are not anticipated at the NSRs.

7.5 NVM Outcome and Appropriate Measures

When context is considered, the BS 4142 assessment indicates **low Impact**, with the rating level below background at all NSRs, during the daytime and night-time periods. In NVM terms this corresponds to “no, or barely audible or detectable noise”. For this outcome, the EA expects no further action is required beyond the implementation and demonstration of appropriate measures and BAT.

The appropriate measures considered within this assessment include:

- Use of acoustic attenuators and silencers on exhaust flues, and ventilation emission points.
- SBG testing limited to 50 hours per year.
- Planning conditions which limit SBG testing to daytime hours.
- Avoidance of concurrent testing across buildings where practicable.
- Preventative maintenance, and complaint response protocols as set out in the BATOT report.

7.6 Statement of Uncertainty

Uncertainty has been considered as a limit to the accuracy of any noise assessment, including associated steps of measurement, calculation, or prediction. Factors which have been considered within this assessment includes (but not limited to) the following:

- The inherent accuracy limitation of methodology in standards and guidance.
- Variability in meteorological conditions.
- The accuracy of sound source input data of a calculation.

It is a requirement of BS 4142 and NVM to consider and minimise uncertainty to a level appropriate with the intention of the assessment objective. Measures taken in this assessment to minimise uncertainty have included:

- Background sound level measurements undertaken in accordance with recognised Standards, using an environmental windshield and during acceptable weather conditions e.g. low wind speeds and precipitation.

- Background sound levels were measured over an extended duration, which provides a good indication of representative background and residual sound levels.
- Field calibration checks were undertaken before and after measurements, and low levels of equipment drift were recorded (no more than 0.5 dB).
- Source sound levels have been provided by the project team and are based on data of the existing and proposed plant.
- The modelling, predictions, and calculations have been undertaken on a conservative basis, to ensure a robust assessment which does not under-predict the resulting impacts. Further detail regarding the assumptions used in the noise model are detailed within Section 2.3.

8.0 Conclusion

SLR Consulting Limited has been instructed by TIE to prepare a NIA, to support an EP variation application. The Campus comprises of two separate Sites, known as TN and TS, and TIE intends to develop TW2, a new data centre which will extend the existing TN campus.

In the event of an emergency such as a brown- or black-out of the local electricity transmission network, where there are fluctuations or loss of the electrical power provided by the network, SBGs are used to provide power to the data centre.

In accordance with EA guidance, the NIA considers the noise emissions of back up energy generation and associated infrastructure only, rather than operations at the data centre itself. Therefore, this assessment considered the noise impact associated with the proposed SBGs and associated ventilation plant to be installed at TW2, and the existing plant permitted at TN and TS.

Accordingly, this NIA considers the cumulative noise impact from:

- the proposed SBGs and associated ventilation plant at TW2, and
- the existing permitted SBGs and associated ventilation plant at TN and TS.

The assessment has been undertaken in accordance with BS 4142 and EA noise guidance (NVM and MID), and the predictions have completed using ISO 9613-2, modelling with appropriate worst-case propagation assumptions, due to the combined simultaneous operation of all SBGs at TN (existing and proposed) and at TS, during emergency operations.

The results of the assessment demonstrate that the cumulative rating levels from all SBGs at TN and TS during emergency operations, remain below the representative background sound levels at all NSRs.

When context is considered, the BS 4142 assessment indicates **low Impact**, at all receptors. In EA terms this corresponds to “no, or barely audible or detectable noise” when assessed using the NVM guidance. For this outcome, the EA state that no action is required beyond the implementation and demonstration of appropriate measures and BAT.

With regard to routine testing, the SBGs will typically be operated individually during daytime hours and avoid concurrent testing across multiple buildings where practicable. Therefore, noise impact of a single SBG will be lower than emergency operations (which considered simultaneous operation) and thus considered **negligible**.

Overall, operation of the SBGs at the Campus is not expected to give rise to adverse noise impacts and is therefore considered acceptable in the context of this EP variation.

9.0 Closure

The assessment has required a suitable level of technical ability and has been undertaken by a Suitably Qualified Person (SQP). An individual with all the following credentials has been considered a SQP for this assessment:

- Has a minimum of three years' verifiable experience (within the last five years) of providing noise and vibration assessments in planning. Such experience has clearly demonstrated a practical understanding of factors affecting acoustics in relation to the proposed development use and in the built environment in general, including acting in an advisory capacity to provide recommendations and design advice in planning, and;
- Holds a recognised acoustic qualification and membership of an appropriate professional body. The primary professional body for acoustics in the UK is the Institute of Acoustics.

This assessment has been led and managed by a SQP as defined above. The SQP confirms that the relevant measurements and calculations:

- Represent good industry practice in accordance with available guidance.
- Are appropriate given the development being assessed and scope of works proposed.
- Avoid invalid, biased and exaggerated claims.

The checker and author of this document confirm that they both comply with the definition of a SQP defined in this Section.

Regards,

SLR Consulting Limited

N Auckland

N Auckland, MIOA
Associate Acoustic Consultant

Alasdair Baxter, MIOA
Technical Director - Acoustics

Appendix A Glossary of Terminology

Noise Impact Assessment

Telehouse West 2 – Environmental Permit Variation

Telehouse International Corporation of Europe Ltd

SLR Project No.: 410.066261.00001

12 March 2026

A.1 Introduction

The human ear can detect a very wide range of pressure fluctuations, which are perceived as sound. In order to express these fluctuations in a manageable way, a logarithmic scale called the decibel, or dB scale is used. The decibel scale typically ranges from 0dB (the threshold of hearing) to over 120dB. An indication of the range of sound levels commonly found in the environment is given in the following table.

Table A01 Sound Levels Commonly Found in the Environment

Sound Level	Location
0 dB(A)	Threshold of hearing
20 to 30 dB(A)	Quiet bedroom at night
30 to 40 dB(A)	Living room during the day
40 to 50 dB(A)	Typical office
50 to 60 dB(A)	Inside a car
60 to 70 dB(A)	Typical high street
70 to 90 dB(A)	Inside factory
100 to 110 dB(A)	Burglar alarm at 1m away
110 to 130 dB(A)	Jet aircraft on take off
140 dB(A)	Threshold of Pain

A.2 Acoustic Terminology

dB (decibel) The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (of 20 μPa).

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.

$L_{Aeq, T}$ This is defined as the notional steady sound level which, over a stated period T, would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.

$L_{A10, T}$ & L_{A90} If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln 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 as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L_{10} index to describe traffic noise.

$L_{Amax(F)}$ $L_{Amax(F)}$ 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.

Appendix B TN - 2023 Cundal Report and Survey

Noise Impact Assessment

Telehouse West 2 – Environmental Permit Variation

Telehouse International Corporation of Europe Ltd

SLR Project No.: 410.066261.00001

12 March 2026

Telehouse Project TW2

Environmental noise survey

Telehouse International Corporation of Europe Ltd

Job No:	**1036281**
Doc ref:	**TW2001-CDL-TW2-XX-RP-AS-45200**
Revision:	**P02**
Revision date:	**30 November 2023**

Project title	Telehouse Project TW2	**Job number**
Report title	Environmental noise survey	1036281

Document revision history

Revision ref	Issue date	Purpose of issue / description of revision
P01	17 February 2023	For information
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Document validation (latest issue)

[redacted] 01/12/2023

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X [redacted] 01/12/2023

Verified by

Signed by: O'Connor, Colin

Executive summary

Cundall has carried out an environmental noise survey for the proposed erection of a data centre to replace the existing London Docklands Travelodge Hotel, Coriander Avenue, London, E14 2AA.

The survey comprised unattended noise monitoring on the rooftop of the existing Travelodge building between 12:15 on 1 February 2023 and 13:15 on 2 February 2023.

The nearest noise sensitive receptors (NSRs) are identified to be residential properties directly on the opposite side of East India Dock Road.

Noise emission limits for the operation of the development has been set in order to comply with LBTH requirements. The plant noise emission criteria have been set for the following plant operational modes:

- Standard duty, i.e., 10 dBA below background noise levels
- Emergencies and testing of the standby generators i.e., 5 dBA above background noise levels (with testing restricted to normal working hours of 09.00-16.00 Monday to Sunday)

Recommended plant noise emission limits are summarised below.

Receptors	Period	Background sound level, $L_{A90,15min}$ (dB)	Plant rating level at 1 m from receptor façade, $L_{Ar,Tr}$ (dB)	
			Standard duty	Emergencies and testing of the standby generators
NSRs along East India Dock Road	Daytime (07:00-23:00)	66	56	71
	Night-time (23:00-07:00)	57	47	62

The plant noise emission limits for standard duty are more stringent than, and therefore comply with, the BREEAM Pol 8 requirements. It is understood that the BREEAM Pol 8 requirements apply to normal operating conditions and do not apply to emergency scenarios.

These limits apply to the cumulative level from all new items of plant operating at their standard duty and are applicable at 1 metre from the window of the nearest NSRs.

Acoustic mitigation for plant rooms and equipment (e.g. plant enclosures, acoustic louvres, mufflers, silencers to intake and extracts, acoustically rated external doors for plantrooms) can be implemented to reduce external noise emissions to meet the plant noise emission limits. These will need to be developed as the design of the development progresses.

Contents

1.0

Introduction

1.0 Introduction

Cundall has been instructed by Telehouse International Corporation of Europe Ltd to carry out an environmental noise survey for the proposed erection of a data centre to replace the existing London Docklands Travelodge Hotel, Coriander Avenue, London, E14 2AA.

The purpose of this report is to:

- Review appropriate local planning requirements and relevant guidance.
- Determine existing background noise levels at nearby noise sensitive receptors (NSR); and
- Propose noise emission limits at nearby NSRs for externally mounted building services plant and equipment associated with the proposed development.

2.0

Site description

2.0 Site description

The site is located within the administrative boundaries of the London Borough of Tower Hamlets (LBTH) and is bounded by East India Docks Road to the north, by Coriander Avenue to the south and by Nutmeg Lane to the west.

The closest noise sensitive receptors to the site are residential properties located to the north of the site, on East India Dock Road. Noise monitoring was carried out on the rooftop of the Travelodge building directly facing East India Dock Road at location MP1. The site location, NSRs and monitoring location MP1 are shown in Figure 2-1.

Figure 2-1: Site map with nearest noise sensitive receptors

3.0

Assessment criteria

3.0 Assessment criteria

3.1 Local Planning Authority requirements

Planning permission for the development (ref: PA/22/01140) sets out the following condition relevant to noise:

6 - Noise (in dB $L_{Aeq,T}$) from operation of the development shall be designed to achieve noise levels of at least 10 dB(A) below background noise levels (in dB $L_{A90,15mins}$). Exceptions to this are during emergencies and testing of the standby generators, whereby noise levels will be restricted to no more than 5dB(A) above background noise levels with testing restricted to normal working hours of 09.00-16.00 Monday to Sunday - in order to limit the impact on the nearby residential dwellings. These limits apply at one metre from the nearest affected window of the nearest affected residential property.

Reason: To ensure that the development does not result in noise disturbance to neighbouring residents in accordance with policies D.DH8 and D.ES9 of the Tower Hamlets Local Plan 2031 (2020).

3.2 BS 4142: 2014 'Methods for rating and assessing industrial and commercial sound'

British Standard (BS) 4142: 2014+A1:2019 'Methods for rating and assessing industrial and commercial sound' provides a methodology for assessing the impacts arising at sensitive receptors due to noise from industrial and commercial activities. A formal BS 4142 impact assessment has not been carried out in this report; however, the principles of the standard have been used to inform this assessment.

A key aspect of the BS 4142 assessment method is a comparison between the background noise level in the vicinity of receptor locations and the rating level of the noise source under consideration. The relevant parameters in this instance are as follows:

background sound level – $L_{A90,T}$ – defined in the Standard as the 'A' weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting F and quoted to the nearest whole number of decibels.

specific sound level – $L_{Aeq,Tr}$ – the equivalent continuous 'A' weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, Tr; and

rating level – $L_{Ar,Tr}$ – the specific sound level plus any adjustment made for the characteristic features of the noise.

BS 4142 recommends that the specified interval over which the specific sound level is determined as 1-hour during the day from 07:00 to 23:00 hours and a shorter period of 15-minutes at night from 23:00 to 07:00 hours.

The standard recognises that certain acoustic features of a sound source can increase the impact over that expected based purely on the sound level. The standard identifies the following features to be considered:

Tonality - a penalty of 2 dB is applied for a tone which is just perceptible at the receptor, 4 dB where it is clearly perceptible and 6 dB where it is highly perceptible.

Impulsivity - a penalty of 3 dB is applied for impulsivity which is just perceptible at the receptor, 6 dB where it is clearly perceptible and 9 dB where it is highly perceptible. An impulse is defined as the sudden onset of a sound.

Intermittency - a penalty of 3 dB can be applied if the intermittency of the specific sound is readily identifiable against the residual acoustic environment at the receptor i.e., it has identifiable on/off conditions.

Other sound characteristics - a penalty of 3 dB can be applied where the specific sound features characteristics that are neither tonal nor impulsive, nor intermittent, though otherwise are readily distinctive against the residual acoustic environment. Note that this correction should only be applied in the absence of the other characteristics and is not to be added to the corrections for tonality, impulsivity, or intermittency.

Once any adjustments have been made, the background level and the rating levels are compared. BS4142 advises the following:

"Typically, the greater the 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 upon the context.

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

"The lower the rating level is to the measured background sound level, the less likely it is that the specific sound 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 upon the context."

3.3 BREEAM UK Data Centres version 1.1 (2010)

Works relating to the development are being assessed under BREEAM UK Data Centres version 1.1 published in 2010.

One credit is available where an impact assessment of noise emissions is undertaken, and the noise level from the building is controlled to meet the values set out in BREEAM Pol 8 – Noise Attenuation, described below. Note that BS 4142 was revised in 2014 with subsequent amendments in 2019.

1. There are, or will be, existing noise-sensitive areas or buildings within 800m radius of the assessed development.

Where there are or will be no noise-sensitive areas or buildings in the locality of the assessed development, the credits can be awarded by default.

2. A noise impact assessment in compliance with BS 4142:1997 has been carried out and the following noise levels measured/determined:

a. Existing background noise levels at the nearest or most exposed noise-sensitive development to the proposed development; or at a location where background conditions can be argued to be similar.

b. The rating noise level resulting from the proposed noise-source. This can be based upon reference to similar installations or sites, or determined by calculation. The noise impact assessment must be carried out by a suitably qualified acoustic consultant holding a recognised acoustic qualification and membership of an appropriate professional body.

3. Where the rating level of the noise source(s) from the site/building is equivalent to or less than the background noise level, the credits can be awarded.

4. Where the rating level of the noise source(s) from the site/building is greater than the background noise level, measures have been installed to attenuate the noise at its source to a level where it will comply with requirement 3.

In accordance with BREEAM requirements, the assessment has been undertaken by a suitably qualified acoustic consultant holding a recognised acoustic qualification and membership of an appropriate professional body.

This noise report was authored by Filippo Ciarla. All work was checked by Colin O'Connor. Andrew Parkin is the Project Partner in overall responsibility for acoustics. Credentials are provided below:

Filippo Ciarla: Acoustic Consultant for 3 years; BSc(Hons) Applied Sound Engineering, , Associate Member of the IOA (AMIOA).

Colin O'Connor: Associate. Acoustics consultant for 15 years; BEng(Hons) Acoustical Engineering, Incorporated Engineer (IEng), Member of the IOA (MIOA); and

Andrew Parkin: Partner for Acoustics. Acoustics consultant for 25 years; BEng(Hons) Electroacoustics, Chartered Engineer (CEng), Fellow of the IOA (FIOA).

Cundall are also full members of the Association of Noise Consultants.

4.0

Background noise survey

4.0 Background noise survey

4.1 Methodology

The survey comprised unattended noise monitoring on the rooftop of the existing Travelodge building between 12:15 on 1 February 2023 and 13:15 on 2 February 2023.

The rooftop monitoring location was based on accessibility, and in order to safely secure the equipment in a location suitably representative of the noise environment at the nearest NSRs to the proposed development (i.e., residential properties along East India Dock Road) that may be affected by noise from plant and equipment.

Measurements were carried out following guidance from BS 4142 and BS 7445-1:2003 'Description and measurement of environmental noise Part 1: Guide to quantities and procedures'. Measurements were taken of the following sound level indicators:

- $L_{Aeq,T}$ (the continuous equivalent A-weighted sound level over a given time period)
- $L_{A90,T}$ (the A-weighted background sound level over a given time period)

Table 4-1 provides relevant details of the equipment used during the survey. The sound level meter used conforms to BS EN 61672-1:2013 Class 1 accuracy and was field calibrated before and after use with no significant drift in measurements observed between calibrations.

Position	Equipment	Manufacturer & model	Serial number
MP1	Sound level meter	01dB Fusion	11766
	Calibrator	01dB Cal31	84908

Table 4-1: Noise survey equipment

Copies of external calibration certificates are provided in Appendix A. Photos of the equipment setup are provided in Appendix B.

4.2 Observations

During site visits, the main contributor to the noise climate was observed to be road traffic on surrounding roads (primarily East India Dock Road).

Weather conditions over the measurement period were conducive to noise measurements and within the recommended limits in BS 4142 (i.e., wind speeds less than 5 m/s and no precipitation).

4.3 Uncertainty

There is some inherent uncertainty associated with the results of any noise survey. However, the measurement location chosen is considered representative of the conditions at the nearest receptors, Class 1 equipment was used, and calibrations made before/after measurements, and weather conditions during the survey period were conducive with noise monitoring. It is therefore considered that the potential risk associated with such uncertainties is minimal and that the measured noise levels are appropriate to inform the noise assessment detailed in this report.

4.4 Measurement data

A summary of the measured ambient (L_{Aeq}) and background (L_{A90}) sound levels is given in Table 4-2. A time-history chart of the monitoring data is provided in Figure 4-1.`

Measurement start/end	Daytime (T = 07:00 – 23:00)		Night time (T = 23:00 – 07:00)	
	$L_{Aeq, 16h}$ (dB)	Representative $L_{A90, 15min}$ (dB) - (mode)	$L_{Aeq, 8h}$ (dB)	Representative $L_{A90, 15min}$ (dB) - (mode)
Start: 12:15 01/02/2023 End: 13:15 02/02/2023	71	66	69	57

Table 4-2: Summary of MP1 noise measurement results

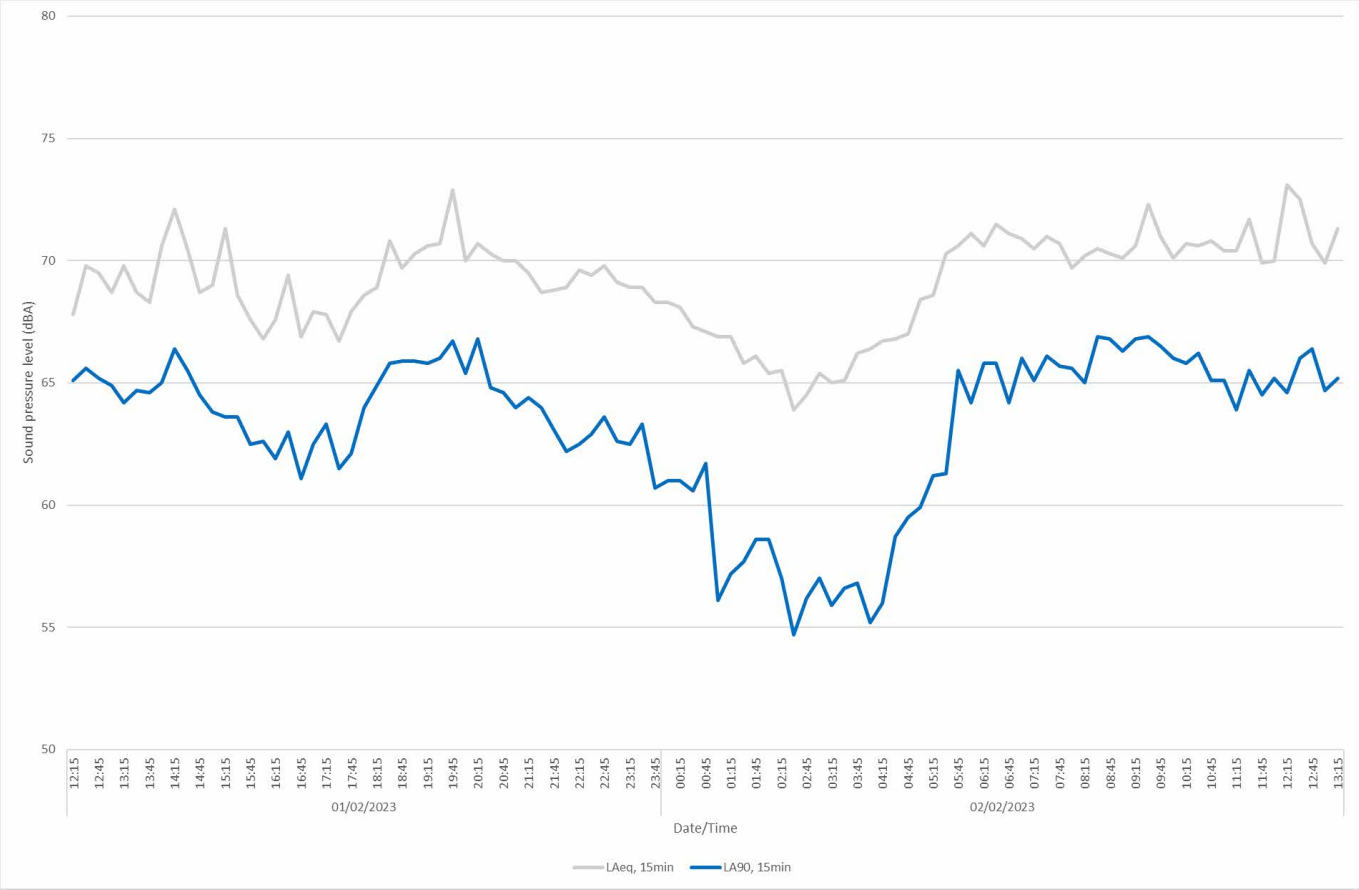


Figure 4-1: Time history graph of MP1 noise measurement results

5.0

Noise emission limits

5.0 Noise emission limits

Noise emission limits for the operation of the development has been set in order to comply with LBTH requirements described in section 3.1 of this document. The plant noise emission criteria have been set for the following plant operational modes:

Standard duty, i.e., 10 dBA below background noise levels

Emergencies and testing of the standby generators i.e., 5 dBA above background noise levels (with testing restricted to normal working hours of 09.00-16.00 Monday to Sunday)

Recommended plant noise emission limits are summarised in Table 5-1.

Receptors	Period	Background sound level, $L_{A90,15min}$ (dB)	Plant rating level at 1 m from receptor façade, $L_{Ar,Tr}$ (dB)	
			Standard duty	Emergencies and testing of the standby generators
NSRs along East India Dock Road	Daytime (07:00-23:00)	66	56	71
	Night-time (23:00-07:00)	57	47	62

Table 5-1: Plant noise emission limits

The plant noise emission limits for standard duty are more stringent than, and therefore comply with, the BREEAM Pol 8 requirements. It is understood that the BREEAM Pol 8 requirements apply to normal operating conditions and do not apply to emergency scenarios.

Plant emission limits in Table 5-1 apply to the cumulative level from all new items of plant operating at their standard duty and are applicable at 1 metre from the window of the nearest NSRs.

It is also important to note that the plant limits are in terms of ‘rating level’ as defined in BS 4142. Therefore, if acoustic features, such as tones, impulsivity or intermittency are present, a correction will be applied and the actual ‘specific sound level’ produced by any plant / equipment will need to be lower than the values above. The required level will depend on the type of sound in question.

Acoustic mitigation for plant rooms and equipment (e.g., plant enclosures, acoustic louvres, mufflers, silencers to intake and extracts, acoustically rated external doors for plantrooms) can be implemented to reduce external noise emissions to meet the plant noise emission limits. These will need to be developed as the design of the development progresses.

6.0

Conclusions

6.0 Conclusions

An environmental noise survey has been undertaken for the proposed Telehouse TW2 development.

Noise levels around the site and at the nearest NSRs to the development have been assessed. Noise emission limits for new items of plant and equipment associated with the development have been proposed in line with LBTH requirements and BREEAM Pol 8.

Appendices

Appendices

Appendix A - Calibration certificates

MEASUREMENT SYSTEMS

CERTIFICATE OF CALIBRATION

Date of Issue: 18 March 2021

Certificate Number: TCRT21/1189

Issued by:
ANV Measurement Systems
Beaufort Court
17 Roebuck Way
Milton Keynes MK5 8HL
Telephone 01908 642846 Fax 01908 642814
E-Mail: info@noise-and-vibration.co.uk
Web: www.noise-and-vibration.co.uk
Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 3 Pages

Approved Signatory

[redacted]

B. Giles

CUSTOMER	Cundall 1 Carter Lane London EC4V 5ER
ORDER No	Jonathan Barnard
Job No	TRAC21/03110
DATE OF RECEIPT	16 March 2021
PROCEDURE	Calibration Engineer's Handbook section 25
IDENTIFICATION	Sound level meter 01dB type FUSION serial No 11766 connected via an extension lead type RAL135-5M and preamplifier type PRE 22 serial No 1610647 to a half-inch microphone type GRAS 40CE serial No 383343 fitted with a 'DMK01' weatherproof outdoor windshield including nosecone type RA 0208. Associated calibrator 01dB type CAL31 serial No 84908 with a half-inch housing.
CALIBRATED ON	18 March 2021
PREVIOUS CALIBRATION	None known

CERTIFICATE OF CALIBRATION

Date of Issue: 24 November 2022 **Certificate Number: TCRT22/1737**

Issued by:
ANV Measurement Systems
Beaufort Court
17 Roebuck Way
Milton Keynes MK5 8HL
Telephone 01908 642846 Fax 01908 642814
E-Mail: info@noise-and-vibration.co.uk
Web: www.noise-and-vibration.co.uk
Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Approved Signatory

[redacted]

K. Mistry

CUSTOMER	Cundall 1 Carter Lane London EC4V 5ER
ORDER No	Jonathan Barnard
Job No	TRAC22/11422
DATE OF RECEIPT	23 November 2022
PROCEDURE	Procedure TP 1 Calibration of Sound Calibrators
IDENTIFICATION	Sound Calibrator 01dB type CAL31 serial number 84908 with half-inch housing
CALIBRATED ON	24 November 2022
PREVIOUS CALIBRATION	Calibrated on 18 November 2021, Certificate No. TCRT21/1805 issued by this laboratory.

Appendix B - Noise survey photos

Cundall Johnston & Partners LLP
One Carter Lane London EC4V 5ER
Tel:+44 (0)20 7438 1600
Asia Australia Europe MENA UK and Ireland
www.cundall.com

ZERO CARBON DESIGN 2030

Appendix C TN – 2018 Monitoring Location Plan and Survey Data

Noise Impact Assessment

Telehouse West 2 – Environmental Permit Variation

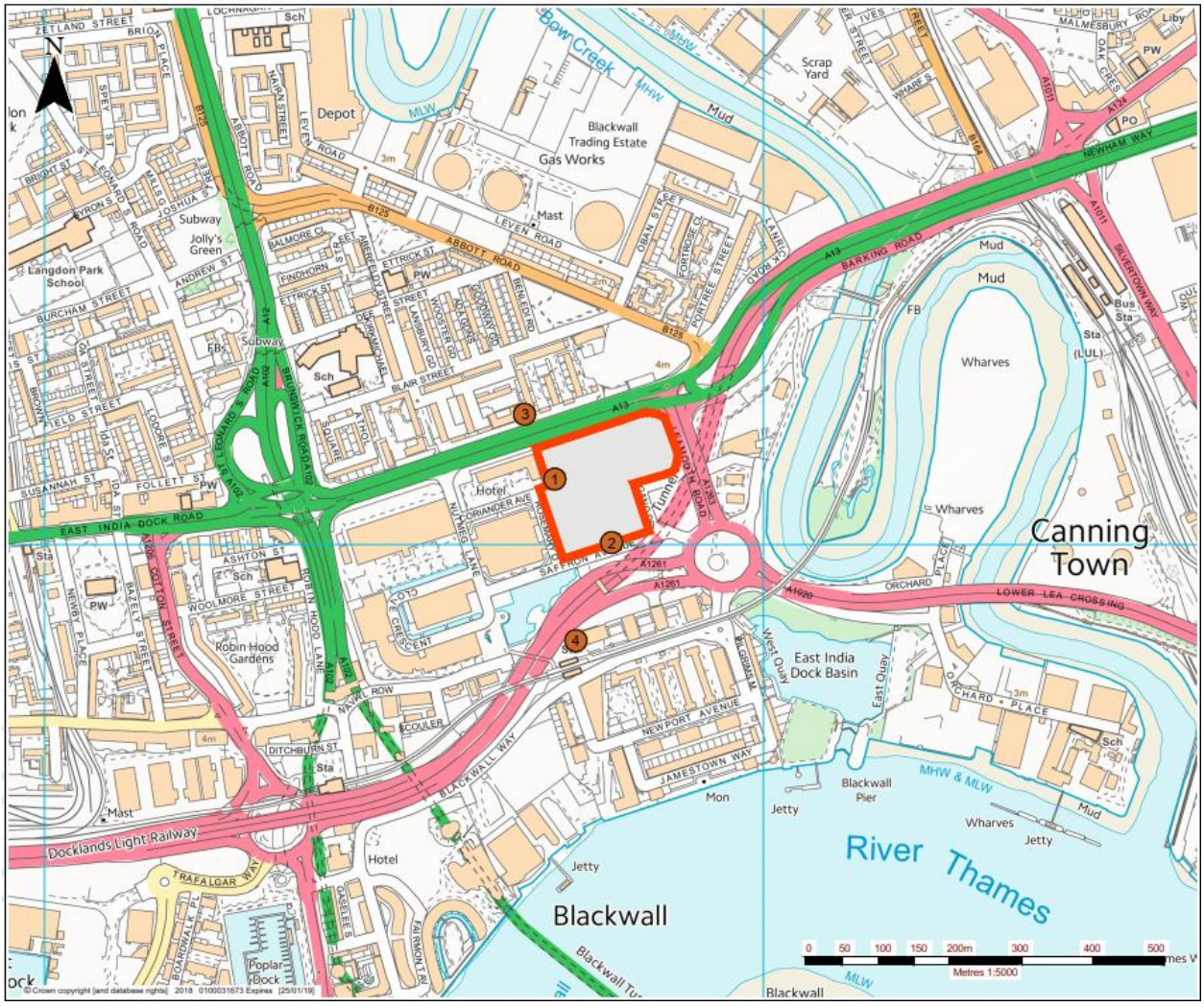
Telehouse International Corporation of Europe Ltd

SLR Project No.: 410.066261.00001

12 March 2026

C.1 2018 Monitoring Location Plan

Figure B01 Telehouse North - Monitoring Location Plan



C.2 2018 Survey Data

Table C1: Telehouse North - Location 1 Survey Results, dB

Date	Time	LAeq	LA90	LA10	LAFmax
17th May 2018	12:45	63.9	63.2	64.6	74.5
	13:00	65.0	63.2	65.5	81.9
	13:15	64.4	63.1	65.5	75.9
	13:30	64.0	63.1	64.8	77.1
	13:45	63.8	63.2	64.6	74.9
	14:00	64.0	63.2	65.1	72.9
	14:15	64.6	63.6	65.6	73.7
	14:30	64.8	63.7	65.9	75.4
	14:45	64.0	63.1	65.0	78.0

Date	Time	LAeq	LA90	LA10	LAFmax
	15:00	64.8	63.1	65.2	80.4
	15:15	64.3	63.2	65.5	74.1
	15:30	63.6	62.8	64.6	73.4
	15:45	65.7	62.8	64.5	88.5
	16:00	64.7	63.0	65.9	78.5
	16:15	63.7	62.9	64.5	75.6
	16:30	63.7	62.9	64.7	78.3
	16:45	65.2	62.9	64.6	87.1
	17:00	63.6	62.8	64.3	77.8
	17:15	63.8	62.9	64.7	74.8
	17:30	63.7	63.0	64.5	71.9
	17:45	63.6	63.0	64.3	73.2
	18:00	63.8	63.0	64.8	77.9
	18:15	63.9	63.0	65.0	77.1
	18:30	63.5	62.9	64.3	70.5
	18:45	63.9	63.1	64.9	76.2
	19:00	64.1	63.2	65.5	74.4
	19:15	63.8	63.2	64.6	71.8
	19:30	64.2	63.4	65.1	74.4
	19:45	64.2	63.4	65.1	74.7
	20:00	64.1	63.4	65.0	71.6
	20:15	64.2	63.5	64.8	76.4
	20:30	63.8	63.2	64.4	78.8
	20:45	63.7	63.2	64.4	75.0
	21:00	63.8	63.2	64.5	73.7
	21:15	63.7	63.2	64.3	73.4
	21:30	63.7	63.2	64.3	67.8
	21:45	63.7	63.2	64.3	70.6
	22:00	63.9	63.3	64.7	71.4
	22:15	64.4	63.4	64.3	83.9
	22:30	63.8	63.2	64.3	74.2
	22:45	63.5	63.1	64.1	65.8
	23:00	63.6	63.2	64.2	67.3
	23:15	63.5	63.0	64.1	71.7
	23:30	63.6	63.1	64.2	76.9
	23:45	63.6	63.2	64.2	70.9

Date	Time	LAeq	LA90	LA10	LAFmax
18th May 2018	00:00	63.5	63.1	64.0	73.3
	00:15	63.5	63.2	64.1	67.8
	00:30	63.4	63.1	64.0	65.9
	00:45	63.8	63.2	64.4	73.7
	01:00	63.5	63.2	64.1	71.0
	01:15	63.7	63.1	64.0	75.9
	01:30	63.4	63.1	63.9	67.5
	01:45	63.3	63.0	63.8	65.4
	02:00	63.6	63.0	63.9	74.8
	02:15	63.4	63.1	63.8	66.6
	02:30	63.2	62.9	63.7	65.4
	02:45	63.2	62.9	63.7	65.2
	03:00	63.2	62.9	63.7	67.0
	03:15	63.3	63.0	63.8	64.7
	03:30	63.3	62.9	63.8	72.2
	03:45	63.4	62.8	63.6	78.1
	04:00	63.7	62.9	63.8	82.2
	04:15	63.2	62.8	63.7	72.0
	04:30	63.2	62.8	63.7	65.1
	04:45	63.2	62.9	63.8	65.4
	05:00	63.3	62.9	63.9	66.4
	05:15	63.9	63.0	64.5	79.1
	05:30	63.7	63.1	64.4	71.1
	05:45	63.8	63.2	64.6	70.6
	06:00	64.0	63.2	64.8	75.0
	06:15	63.9	63.2	64.6	72.5
	06:30	65.1	63.3	65.3	85.2
	06:45	65.8	63.4	66.0	88.1
	07:00	64.6	63.5	65.8	76.3
	07:15	64.1	63.3	65.1	74.1
	07:30	64.0	63.4	65.1	70.7
	07:45	64.5	63.5	65.7	74.9
	08:00	64.6	63.7	65.6	77.9
	08:15	64.2	63.4	65.3	71.0
	08:30	64.4	63.5	65.2	76.1
	08:45	64.5	63.6	65.8	73.8

Date	Time	LAeq	LA90	LA10	LAFmax
	09:00	64.7	63.5	65.7	78.0
	09:15	64.1	63.4	64.8	73.2
	09:30	64.3	63.3	65.2	76.5
	09:45	65.0	63.5	65.9	81.7
	10:00	65.8	63.7	66.6	79.6
	10:15	64.8	63.5	66.0	77.5
	10:30	64.1	63.2	65.0	73.1
	10:45	63.9	63.2	64.6	73.4
	11:00	64.0	63.3	64.8	72.4
	11:15	64.1	63.2	64.9	79.5
	11:30	63.5	63.0	64.1	72.0
	11:45	64.5	63.2	65.2	78.9
	12:00	70.7	64.3	74.2	84.4
	12:15	64.3	63.4	65.4	74.6
	12:30	65.9	63.2	65.6	83.8
	12:45	64.2	63.3	65.3	75.5
	13:00	64.6	63.2	65.6	78.1
	13:15	64.2	63.3	65.3	73.9
	13:30	64.4	63.4	65.3	74.8
	13:45	63.8	63.1	64.4	75.0
	14:00	64.1	63.1	65.1	74.2
	14:15	64.8	63.6	65.8	77.5
	14:30	63.8	62.8	64.9	74.5
	14:45	63.9	62.8	64.6	80.5
	15:00	64.8	62.7	65.2	80.5
	15:15	63.8	63.1	64.6	71.4
	15:30	63.8	63.0	64.9	72.1
	15:45	63.6	62.7	64.2	75.8
	16:00	63.6	62.7	64.3	78.6
	16:15	63.3	62.6	64.1	73.5
	16:30	63.2	62.5	64.1	74.7
	16:45	64.4	62.5	63.9	85.3
	17:00	63.5	62.7	64.3	75.8
	17:15	63.7	62.8	64.7	80.5
	17:30	64.3	62.8	64.9	78.3
	17:45	65.2	62.8	66.2	79.3

Date	Time	LAeq	LA90	LA10	LAFmax
	18:00	65.4	62.9	67.6	82.2
	18:15	64.3	62.9	64.9	78.2
	18:30	65.5	62.8	66.6	83.8
	18:45	63.5	62.7	64.5	72.8
	19:00	63.5	62.7	64.4	79.9
	19:15	63.8	63.0	64.7	72.1
	19:30	63.6	63.0	64.3	74.0
	19:45	63.7	63.1	64.4	73.0
	20:00	64.0	63.3	64.9	69.9
	20:15	63.6	63.3	64.2	68.3
	20:30	63.8	63.3	64.5	69.5
	20:45	63.6	63.1	64.3	69.3
	21:00	63.7	63.1	64.3	69.7
	21:15	64.2	63.1	64.8	76.2
	21:30	63.7	63.1	64.3	73.7
	21:45	63.7	63.2	64.3	68.9
	22:00	63.8	63.3	64.3	70.4
	22:15	63.7	63.3	64.3	71.0
	22:30	63.6	63.1	64.2	70.9
	22:45	63.7	63.2	64.3	72.2
	23:00	63.7	63.2	64.3	71.2
	23:15	63.7	63.1	64.3	75.5
	23:30	63.8	63.2	64.3	76.3
	23:45	63.5	63.2	64.1	68.9
19th May 2018	00:00	63.6	63.4	64.2	66.1
	00:15	63.7	63.3	64.2	70.7
	00:30	63.4	63.1	64.0	66.9
	00:45	63.5	63.2	64.1	68.6
	01:00	63.6	63.2	64.3	72.6
	01:15	63.5	63.1	64.0	67.0
	01:30	63.5	63.2	64.0	67.3
	01:45	63.3	63.0	63.8	65.0
	02:00	63.4	63.0	63.9	72.3
	02:15	63.6	63.2	64.1	66.8
	02:30	63.4	63.1	63.9	65.3
	02:45	63.5	63.1	64.1	66.4

Date	Time	LAeq	LA90	LA10	LAFmax
	03:00	63.3	63.0	63.8	65.8
	03:15	63.4	63.1	63.8	66.7
	03:30	63.4	63.2	63.9	65.8
	03:45	63.4	63.1	63.9	65.0
	04:00	63.4	63.0	63.9	71.6
	04:15	63.4	63.1	63.9	70.8
	04:30	63.4	63.1	64.0	65.7
	04:45	63.6	63.2	64.1	71.3
	05:00	63.6	63.3	64.3	66.8
	05:15	63.7	63.2	64.2	79.9
	05:30	63.6	63.2	64.2	75.7
	05:45	63.6	63.2	64.2	68.5
	06:00	63.9	63.2	64.6	76.8
	06:15	63.7	63.2	64.4	70.0
	06:30	64.1	63.2	64.7	86.5
	06:45	63.7	63.2	64.5	70.4
	07:00	63.8	63.2	64.5	73.6
	07:15	64.1	63.3	64.9	75.4
	07:30	63.8	63.2	64.7	71.9
	07:45	64.0	63.3	64.9	73.3
	08:00	63.8	63.2	64.7	71.5
	08:15	63.9	63.2	65.0	71.5
	08:30	63.9	63.2	64.7	71.9
	08:45	64.0	63.3	64.7	75.9
	09:00	63.7	63.1	64.4	71.0
	09:15	64.0	63.0	65.2	70.6
	09:30	64.0	63.1	65.2	70.4
	09:45	64.3	63.0	66.1	73.5
	10:00	64.6	63.4	66.1	71.1
	10:15	64.0	62.9	65.6	70.3
	10:30	63.5	62.9	64.1	72.8
	10:45	63.5	63.1	64.1	70.7
	11:00	63.6	63.0	64.2	71.2
	11:15	63.5	62.9	64.2	70.5
	11:30	63.6	62.9	64.2	73.2
	11:45	63.5	62.9	64.1	76.0

Date	Time	LAeq	LA90	LA10	LAFmax
	12:00	64.2	63.1	65.1	78.3
	12:15	63.5	63.0	64.2	70.5
	12:30	63.4	62.9	64.0	71.7
	12:45	63.4	62.8	64.0	71.5
	13:00	63.3	62.7	63.8	73.5
	13:15	63.4	62.7	63.8	76.8
	13:30	63.1	62.6	63.7	69.9
	13:45	63.2	62.6	63.7	75.2
	14:00	63.2	62.6	63.8	71.3
	14:15	63.0	62.6	63.6	72.3
	14:30	63.0	62.7	63.6	69.4
	14:45	63.1	62.6	63.7	67.8
	15:00	63.4	62.7	63.9	74.0
	15:15	63.0	62.6	63.6	69.9
	15:30	63.0	62.6	63.5	68.2
	15:45	62.8	62.4	63.3	70.1
	16:00	63.0	62.6	63.4	68.5
	16:15	63.0	62.5	63.3	77.9
	16:30	63.1	62.6	63.5	67.5
	16:45	63.5	62.7	63.8	74.6
	17:00	63.4	62.8	63.9	67.3
	17:15	63.5	62.9	64.0	73.5
	17:30	63.4	62.8	63.9	67.5
	17:45	63.6	62.9	64.1	73.4
	18:00	63.5	63.0	64.1	72.4
	18:15	63.9	63.0	64.7	74.4
	18:30	64.0	63.1	65.6	73.1
	18:45	64.1	63.1	64.5	80.8
	19:00	63.5	62.9	64.1	78.4
	19:15	63.4	62.9	64.1	72.4
	19:30	63.5	62.8	64.1	74.4
	19:45	63.6	62.9	64.2	72.2
	20:00	63.4	62.9	64.1	71.0
	20:15	63.4	62.9	64.0	80.1
	20:30	63.8	63.1	64.3	76.9
	20:45	63.5	63.0	64.1	68.0

Date	Time	LAeq	LA90	LA10	LAFmax
	21:00	63.4	63.0	64.0	69.4
	21:15	63.5	62.9	64.0	72.5
	21:30	63.4	62.9	64.0	75.9
	21:45	64.0	63.0	64.1	81.8
	22:00	63.5	63.0	64.1	71.2
	22:15	63.7	63.0	64.1	73.8
	22:30	63.6	63.2	64.2	74.4
	22:45	63.6	63.2	64.2	71.3
	23:00	63.7	63.3	64.3	70.4
	23:15	63.6	63.2	64.2	69.7
	23:30	63.6	63.2	64.1	70.6
	23:45	63.7	63.2	64.2	74.6
20th May 2018	00:00	63.5	63.2	64.1	74.4
	00:15	63.5	63.1	64.0	68.4
	00:30	63.5	63.1	64.0	69.5
	00:45	63.6	63.2	64.2	71.0
	01:00	63.3	62.9	63.9	67.9
	01:15	63.3	63.0	63.8	66.8
	01:30	63.2	62.9	63.8	68.0
	01:45	63.3	62.9	63.8	67.7
	02:00	63.3	63.0	63.8	65.4
	02:15	63.3	63.0	63.9	70.2
	02:30	63.3	63.0	63.8	67.9
	02:45	63.4	63.0	63.8	72.4
	03:00	63.1	62.8	63.6	64.6
	03:15	63.1	62.8	63.6	64.6
	03:30	63.2	62.9	63.6	64.8
	03:45	63.2	62.9	63.6	65.8
	04:00	63.2	63.0	63.7	66.6
	04:15	63.3	63.0	63.7	67.9
	04:30	63.4	63.1	63.9	65.9
	04:45	63.4	63.1	63.9	71.8
	05:00	63.3	63.0	63.8	65.4
	05:15	63.4	63.1	63.9	71.5
	05:30	63.3	63.0	63.9	64.8
	05:45	63.4	63.0	63.9	70.6

Date	Time	LAeq	LA90	LA10	LAFmax
	06:00	63.6	63.1	64.1	73.7
	06:15	63.4	63.0	64.0	70.4
	06:30	63.7	63.0	64.1	86.0
	06:45	63.7	63.1	64.3	77.6
	07:00	63.5	63.1	64.0	71.5
	07:15	63.6	63.2	64.2	69.5
	07:30	63.5	63.1	64.1	68.6
	07:45	64.6	63.1	64.1	87.1
	08:00	63.6	63.1	64.2	72.5
	08:15	63.6	63.1	64.2	70.0
	08:30	63.4	63.0	64.0	67.6
	08:45	63.5	63.0	64.1	68.8
	09:00	63.5	63.1	64.2	74.0
	09:15	63.4	63.0	64.1	70.8
	09:30	63.3	62.9	63.9	69.9
	09:45	63.3	62.9	63.9	71.3
	10:00	63.2	62.8	63.9	71.4
	10:15	63.6	63.0	64.2	70.5
	10:30	63.7	63.0	64.1	76.2
	10:45	64.1	63.4	64.5	73.7
	11:00	64.8	63.7	65.1	82.6

Table C2: Telehouse North - Location 2 Survey Results, dB

Date	Time	LAeq	LA90	LA10	LAFmax
17th May 2018	13:00	64.2	60.6	65.8	82.7
	13:15	67	60.7	68.6	89.5
	13:30	63	60.2	65	75.2
	13:45	63.3	60.4	64.7	80.2
	14:00	62.8	60.2	64.6	75.2
	14:15	63	60.3	64.8	78.5
	14:30	63.2	60.2	65.3	76.5
	14:45	63.1	60.3	65.6	75.4
	15:00	62.3	60.2	63.6	76.1
	15:15	62.1	60.3	63.2	73.8
	15:30	63.9	60.2	66.3	80.5
	15:45	63.2	60.3	64.5	78.9
	16:00	64.7	60.7	67.1	88.9

Date	Time	LAeq	LA90	LA10	LAFmax
	16:15	64.1	60.6	66.8	83.3
	16:30	63.6	60.3	65.4	78.9
	16:45	63.8	60.3	65.7	82.8
	17:00	63.8	60.1	66.2	77.2
	17:15	63.5	59.7	66.5	81.2
	17:30	62.8	60.1	64.8	76.3
	17:45	63.8	60.5	66.6	77.2
	18:00	63.9	60.7	66.7	74
	18:15	64.2	61.1	66.4	85.5
	18:30	64	60.8	66.5	78.3
	18:45	64.2	61.1	67	76.1
	19:00	65.2	61.2	68.3	82.4
	19:15	64.2	61	66.5	75.7
	19:30	63.7	60.9	65.3	75.7
	19:45	64	60.7	66.4	78
	20:00	63.8	60.5	66.4	76.3
	20:15	62.1	60.5	62.9	73.6
	20:30	62.5	60.3	63.5	75
	20:45	62.4	59.9	63.2	75.2
	21:00	62.1	59.8	63.3	73.7
	21:15	61.6	59.9	62.3	73.4
	21:30	61.7	59.8	61.9	76.4
	21:45	61.8	59.8	62.7	73.5
	22:00	60.9	59.7	61.7	69.9
	22:15	61.5	59.9	62.5	70.7
	22:30	61.3	59.9	62	72
	22:45	60.9	59.5	61.7	70.7
	23:00	60.9	59.5	61.9	67
	23:15	60.8	59.4	61.7	69.5
	23:30	61.4	59.3	61.6	87.4
	23:45	60.8	59.4	61.9	68.8
18th May 2018	00:00	60.4	59	61.4	70.3
	00:15	60.4	59	61.4	68.3
	00:30	60.1	59	60.9	67.6
	00:45	60.1	58.9	61.1	71
	01:00	59.9	58.8	60.8	65.9

Date	Time	LAeq	LA90	LA10	LAFmax
	01:15	60.2	58.8	61.1	69.1
	01:30	59.9	58.5	60.6	70.2
	01:45	59.4	58.3	60.2	67.5
	02:00	59.7	58.5	60.5	68
	02:15	59.3	58.1	60.1	65.8
	02:30	59.1	58	60.1	65.3
	02:45	59	58	59.8	61.8
	03:00	59.2	58	59.8	69.8
	03:15	59.1	58	60.2	64.3
	03:30	59.6	58	60.1	76.6
	03:45	59	57.9	59.8	64.3
	04:00	59.8	58.2	60.4	73.8
	04:15	59.9	58.6	60.6	69.2
	04:30	59.8	58.7	60.6	63.5
	04:45	59.9	58.7	60.7	67.3
	05:00	60.5	59.1	61.4	69.1
	05:15	61.2	59.6	62.2	70.1
	05:30	61.5	60.1	62.4	67.1
	05:45	61.9	60.6	62.7	72
	06:00	62.9	60.7	63.7	81.7
	06:15	63.6	60.7	64	85.3
	06:30	64.4	61	66	79.8
	06:45	66.3	61.1	66.5	93.1
	07:00	64.8	60.9	66.7	82.5
	07:15	64.2	61	66.5	76.9
	07:30	64.5	60.8	66.9	80.4
	07:45	64.3	60.9	66.9	76.2
	08:00	65.2	60.9	66.6	92.4
	08:15	63.8	60.7	66.7	75.9
	08:30	63.6	60.7	65.2	81.4
	08:45	65.4	61.2	66.7	89.1
	09:00	63.7	61	65.6	79.6
	09:15	62.9	60.6	64.6	76.3
	09:30	64.6	60.8	65.2	88.3
	09:45	65.2	61.8	66.7	82.9

Table C3: Telehouse North - Location 3 Survey Results, dB

Date	Time	LAeq	LA90	LA10	LAFmax
17th May 2018	14:51	71.6	65.5	73.9	83.3
	14:52	72.4	69.5	75.0	78.5
	14:53	71.0	60.7	73.7	81.7
	14:54	73.1	68.7	76.2	80.8
	14:55	74.6	68.0	77.7	85.2
	14:56	71.8	65.2	75.2	80.7
	14:57	70.8	68.9	72.6	77.0
	14:58	71.4	67.5	74.0	82.0
	14:59	72.3	66.5	75.2	80.9
	15:00	71.1	66.0	73.5	78.0
	15:01	67.8	64.5	69.9	74.7
	15:02	70.8	67.6	72.4	76.0
	15:03	77.3	65.5	80.7	90.7
	15:04	72.3	66.4	74.6	76.3
	15:05	72.5	68.0	75.0	78.1
	15:06	72.6	68.0	75.2	82.6
	15:07	71.3	67.2	73.7	78.9
	15:08	70.0	66.5	72.7	75.3
	15:09	72.5	67.5	76.2	80.4
	15:10	71.3	68.6	73.2	75.1
	15:11	72.1	69.6	74.0	77.1
	15:12	71.7	65.8	73.7	75.4
	15:13	70.0	66.6	72.4	75.1
	15:14	73.7	69.8	76.1	82.6
	15:15	71.3	68.2	73.4	80.1
	15:16	70.0	66.1	72.8	74.5
	15:17	72.2	67.5	74.7	79.1
	15:18	72.6	65.5	75.9	80.3
	15:19	68.8	66.1	70.8	74.9
	15:20	72.0	66.1	73.6	82.2
	15:21	70.2	65.7	73.2	81.1
	15:22	67.2	64.5	69.1	72.8
	15:23	77.2	67.0	80.5	87.1
	15:24	68.2	64.1	71.0	72.7
	15:25	71.1	65.0	74.6	82.2

Date	Time	LAeq	LA90	LA10	LAFmax
	15:26	69.3	63.1	72.7	77.0
	15:27	68.2	63.8	68.6	83.0
	15:28	64.9	61.7	67.7	70.5
	15:29	68.0	64.6	70.0	74.2
	15:30	69.4	63.9	72.3	79.3
	15:31	66.3	63.4	68.4	73.7
	15:32	69.3	65.1	72.2	75.8
	15:33	71.6	64.5	74.5	80.1
	15:34	69.2	62.4	72.1	79.8
	15:35	71.3	62.0	74.5	77.4
	15:36	67.9	63.3	69.6	78.1
	15:37	69.9	62.1	73.4	79.3

Table C4: Telehouse North - Location 4 Survey Results, dB

Date	Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
17th May 2018	13:51	76.6	71.8	78.5	86.0
	13:52	76.5	70.1	78.6	81.5
	13:53	76.2	72.4	78.1	79.4
	13:54	75.3	72.6	77.0	80.2
	13:55	76.1	72.1	77.5	78.7
	13:56	76.7	72.0	79.8	82.3
	13:57	76.6	74.4	78.4	81.7
	13:58	76.6	74.2	78.5	80.3
	13:59	76.8	72.4	78.9	81.2
	14:00	77.0	72.2	80.0	85.1
	14:01	77.1	73.5	79.1	82.8
	14:02	76.1	72.6	78.2	80.3
	14:03	77.5	74.6	79.4	83.1
	14:04	77.3	74.5	79.5	82.4
	14:05	77.2	74.1	79.1	80.8
	14:06	75.7	70.1	77.8	83.0
	14:07	75.5	70.4	78.1	81.6
	14:08	75.3	70.3	78.1	80.7
	14:09	76.1	72.0	78.0	80.5
	14:10	76.2	73.1	78.6	81.8
	14:11	75.7	71.4	77.9	80.7
	14:12	77.8	74.8	79.8	82.5

Date	Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
	14:13	77.5	73.8	79.5	82.4
	14:14	76.3	72.6	78.3	81.6
	14:15	76.3	73.3	78.3	80.8
	14:16	75.7	73.2	77.3	79.6
	14:17	77.1	74.1	79.0	81.7
	14:18	76.7	73.6	79.0	81.9
	14:19	76.4	73.4	78.8	82.3
	14:20	77.1	75.5	78.5	82.6
	14:21	77.1	75.0	78.5	81.4
	14:22	75.2	71.7	77.6	79.8
	14:23	75.9	74.0	77.3	79.2
	14:24	76.1	73.4	77.8	79.7
	14:25	76.6	73.1	78.9	80.5
	14:26	76.4	73.2	78.6	80.8
	14:27	76.6	73.8	78.7	81.6
	14:28	77.3	74.9	78.8	81.2
	14:29	74.9	72.0	76.9	84.7
	14:30	75.7	72.0	78.3	80.1
	14:31	76.2	73.9	78.1	80.3
	14:32	76.1	73.9	78.1	80.4
	14:33	76.9	73.8	78.6	81.3
	14:34	76.4	73.2	78.4	81.1
	14:35	76.2	72.9	78.6	80.9
	14:36	77.8	71.6	80.2	88.7
	14:37	75.6	74.1	76.5	77.3
	23:00	75.5	70.9	77.7	80.8
	23:01	75.0	71.8	77.4	79.2
	23:02	77.0	72.1	78.8	83.1
	23:03	74.1	68.8	76.5	79.7
	23:04	76.0	73.3	77.9	80.7
	23:05	74.8	70.2	78.6	80.1
	23:06	74.9	72.7	77.0	79.2
	23:07	72.2	68.3	75.1	76.8
	23:08	74.4	69.1	77.0	78.1
	23:09	75.1	72.1	76.8	78.7
	23:10	73.9	71.4	76.2	78.5

Date	Time	L_{Aeq}	L_{A90}	L_{A10}	L_{AFmax}
	23:11	75.0	72.0	76.7	79.0
	23:12	73.9	69.9	76.1	78.3
	23:13	74.6	68.7	77.6	80.9
	23:14	75.3	72.3	76.9	78.6
	23:15	74.4	69.0	76.7	80.5
	23:16	75.8	73.1	77.6	80.2
	23:17	75.8	72.1	77.8	80.3
	23:18	76.4	72.4	78.5	82.2
	23:19	75.8	71.6	77.8	84.1
	23:20	76.0	73.4	78.0	80.0
	23:21	74.9	72.4	76.7	78.8
	23:22	76.3	73.1	78.7	80.7
	23:23	75.1	71.5	76.9	81.3
	23:24	75.8	71.4	78.5	79.9
	23:25	74.4	71.0	76.7	78.5
	23:26	74.3	71.9	76.2	79.5
	23:27	74.3	67.3	77.2	83.1
	23:28	74.9	70.5	76.8	79.2
	23:29	75.7	72.5	78.0	80.0
	23:30	74.7	71.0	77.6	80.9
	23:31	74.7	72.1	76.6	80.0
	23:32	74.5	69.5	78.0	79.9
	23:33	74.7	70.4	76.9	79.5
	23:34	76.5	74.6	78.0	79.7
	23:35	75.4	72.6	77.6	79.5
	23:36	75.6	71.0	78.1	80.7
	23:37	76.0	70.9	78.1	84.7
	23:38	74.4	68.2	77.5	81.1
	23:39	76.1	72.5	77.6	83.6
	23:40	76.5	71.0	79.3	85.5
	23:41	75.2	70.9	78.3	80.7
	23:42	76.1	73.2	78.4	83.4
	23:43	75.8	72.9	77.9	81.8
	23:44	74.2	70.3	76.1	78.0
	23:45	76.7	72.6	79.2	85.0

Appendix D TS – 2022 Sweco Noise Report

Noise Impact Assessment

Telehouse West 2 – Environmental Permit Variation

Telehouse International Corporation of Europe Ltd

SLR Project No.: 410.066261.00001

12 March 2026

TELEHOUSE

black&white engineering

Client	Telehouse International Corporation of Europe Ltd.
Project No.	TSX002
Date	20/05/2022
Revision	00

Telehouse South Main Works

Planning Application

Acoustic Report

May 2022

Acoustic Report

Noise Impact Assessment – Stage 3

Telehouse South Main Works

Main Building and SSB

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12/05/2022
Project Reference: 65202635
Document Reference: TSX002-SWE-ZZ-TS-RP-Y-000010
Revision: 3
Prepared For: Black & white Engineering

Status / Revisions

Rev.	Date	Reason for issue	Prepared		Reviewed		Approved	
P01	23.03.22	S2	MA	21.03.22	JW	21.03.22	JF	23.03.22
P02	08.04.22	S2	MA	08.04.22	JW	08.04.22	JF	08.04.22
P03	12.05.22	S2 – EP variation report	MA	12.05.22	JW	12.05.22	JF	12.05.22

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Appendices

1 Introduction

Sweco UK Ltd has been commissioned by Black and White Engineering to undertake a noise impact assessment at RIBA Stage 3 for the proposed data centre re-development located at 1 Blackwall Way, Paul Julius Cl, London, E14 2EH.

The proposals include the re-development of the existing main building and the SSB, with a partial or full new fitout of Levels 1 to 9M incorporating new supporting infrastructure and services for 6No. Data Centre floors. This will include the removal of existing rooftop plant and the installation of new cooling and ventilation plant.

The main building will be extended up to level 11 to accommodate data halls in levels three to eight. Plant will be located at levels 9, 10 and 11.

In addition to new external plant at the THS building, the SSB building will accommodate the backup power generation for the site. The current backup generation plant is located in the SSB building and on levels 1 and 9 of the main building. The new proposals will replace existing backup generation plant.

The proposals are to be subject to a planning application and therefore, this report contains a noise impact assessment for the current design to inform the client and the design team, and to support a planning application.

The proposals will also require a variation of the existing environmental permit for the existing data centre facilities, and this report is also intended to be submitted to the Environmental Agency (EA) in support of the Environmental Permit application.

The site has been operated previously as a Data Centre. The existing site noise conditions were established by others as part of the due-diligence assessments.

This report presents the acoustic works undertaken for Stage 3 in reference to the control of external building services noise.

This report presents the acoustic planning criteria to be achieved for the development and assess the capability of the proposals to meet the planning targets in terms of noise impact. Where necessary, mitigation measures have been proposed and included in the design to meet the advised criteria.

The noise impact assessment has been undertaken in line with EA guidance. It must be noted that LBTH noise limit requirements at the closest noise sensitive receptors would correspond to no noise or barely audible noise in terms of the EA guidance. On this basis, the LBTH planning noise requirements have been used as the key drivers in the noise assessment.

The assessment presents the impact for the proposed plant in respect of the limits for the site based on a sound survey carried out prior to the Covid-19 outbreak and with the existing data centre operating, in January 2020 by Cundall, and presented in Cundall's "Acoustic Constraints Review" report, Doc. Ref. THTRR-CDL-XX-XX-RP-AS-001 Rev P02 dated 24 June 2020. Further analysis of the sound survey data has

been undertaken and presented in this report following consultation with the London Borough of Tower Hamlets Environmental protection team.

The sound survey data available and presented in Buro Happold's Noise Impact Assessment report for Blackwall Yard, Doc. Ref 0040787 Revision 02 dated 25 August 2020, has also been used to add context.

Whilst every effort has been made to ensure that this Report is easily understood, it is technical in nature; a glossary of terms in Appendix A is included to assist the reader.

2 Assessment Methodology and Criteria

The assessment has been undertaken in accordance with the following references and standards.

- BS4142:2014+A1 Method for Rating and Assessing Industrial and Commercial Sound.
- Local Authority requirements: London Borough of Tower Hamlets
- EA Guidance on noise

2.1 Relevant Guidance - British Standard 4142

BS 4142 sets out a method to assess the likely effect of sound from factories, industrial premises or fixed installations and sources of an industrial nature in commercial premises, on people who might be inside or outside a dwelling or premises used for residential purposes in the vicinity.

The procedure contained in BS 4142 for assessing the effect of sound on residential receptors is to compare the measured or predicted sound level from the source in question, the $L_{Aeq,T}$ 'specific sound level', immediately outside the dwelling with the $L_{A90,T}$ background sound level.

Where the sound contains a tonality, impulsivity, intermittency and other sound characteristics, then a correction depending on the grade of the aforementioned characteristics of the sound is added to the specific sound level to obtain the $L_{Ar,Tr}$ 'rating sound level'. A correction to include consideration of a level of uncertainty in sound measurements, data and calculations can also be applied when necessary. BS 4142 states: "The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs". An estimation of the impact of the specific sound can be obtained by the difference of the rating sound level and the background sound level and considering the following:

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

For the daytime, the assessment is carried out over a reference time period of one hour, but at night-time it is carried out over a 15-minute period. The periods associated with day or night, for the purposes of the Standard, are considered to be 07.00 to 23.00 and 23.00 to 07.00, respectively.

The Data Center will operate 24/7 and therefore, both night-time and daytime periods have been considered.

It is assumed that the Emergency Plant will be tested during daytime working hours, and therefore the impact has been assessed during the daytime periods. In case of an emergency operation, this has the potential to happen during the daytime and night-time periods and therefore, although this operation is unlikely and will be for short periods of time, the impact of night-time operation has been considered.

2.2 Local Authority Consultation and Requirements

Typical London Borough of Tower Hamlets (LBTH) requirements state that the normal operation of the site should not exceed a level 10 dB below the lowest $L_{A90,\ 15minutes}$.

For the emergency plant operation, which applies to the generators in the SSB building, a relaxed limit of not exceeding the lowest $L_{A90,\ 15minutes}$ would normally apply.

In the event of a power failure all generators will run simultaneously to provide continuous power to the data halls. This scenario will only occur in the very rare case that a power outage occurs. Generators will also be tested, typically on a monthly basis.

A consultation with the LBTH Environmental Protection team has been undertaken, in order to agree methodology and noise limits for the development, due to the fact that the proposed external plant will generally replace existing external plant, and the site has been operating as a Data Centre.

The consultation was undertaken via email and online meeting with Mr. Paul Murphy, Principal Environmental Protection Officer (Noise), on 15 and 16 February 2022.

The assessment methodology proposed included the following aspects:

- The consideration as sensitive receptors of the existing Radisson Blu Edwardian hotel building situated directly to the west of the site, the Ontario Tower residential development located further to the west, and the consented residential development to the east (Blackwall Yard).
- The use of the available data from the baseline sound survey undertaken by Cundall in January 2020 at the site prior to the Covid-19 outbreak for the current assessment.
- The noise assessment to be carried out in accordance with BS4142:2014+A1:2019.
- Based on the character of the proposed re-development of the site, and the replacement of existing plant, the limits for the normal site operations were proposed to not exceed the lowest background levels reported in the January 2020 survey.
- For the backup generator emergency operation, the limits were proposed to not exceed the lowest background levels reported in the January 2020 survey.

During our meeting, Mr. Paul Murph agreed to the use of the available baseline sound survey data for the current assessment. He acknowledged the fact that the site has been operating as a data centre and therefore proposed the use of average $L_{A90,15min}$

as background levels for the daytime and night-time periods instead of the lowest $L_{A90, 15min}$ values for the current assessment.

In relation to the noise limits for the site, it was understood that targeting a sound rating level of 10 dB below the average $L_{A90,15\ min}$ was preferred for the existing and proposed residential receptors in the area, for normal operations.

The worst-case approach methodology for the noise assessment was also discussed in order to provide context.

In relation to the new residential development, the fact that the site was consented accepting a high noise impact from the existing plant was discussed.

The consented development is understood to incorporate into the design mitigations to deal with noise impact from the existing external plant, based on the information supporting Planning Application PA/20/02509.

It was agreed to consider the consented development as a sensitive receptor, although the impact should be assessed considering the context.

It is understood that the applicant for the current re-development has negotiated with Hadley development a noise limit of 58 dB $L_{Aeq\ (free\text{-}field)}$ at Backwall Yard residential building facades from the operation of the data centre building external plant.

3 Site Location and Development Proposals

3.1 Site Description

The site is located at 1 Blackwall Way, Paul Julius Cl, London, E14 2EH. The site is south of Aspen Way and falls within the jurisdiction of The London Borough of Tower Hamlets. The surrounding area is a mixture of commercial and residential developments. The site will also see additional permitted residential properties constructed to the east of the Site.

The site is currently not operational and under construction, although it was previously operating as a Data Centre. The location of the Telehouse building and SSB building and surrounding noise-sensitive land uses are presented in Figure 1 below.

Figure 1: Telehouse building and surrounding land uses, Nearest Noise Sensitive Receptors

The nearest/worst-affected existing noise-sensitive receptors to the Proposed Development are expected to be the residential properties on Ontario Tower and Radisson Blue Hotel to the west. The consented Blackwall Yard residential development is to be located adjacent to the site boundary to the east.

3.2 Proposed Development

The proposals include the re-development of the existing main building and the SSB, with a new fitout of Levels 2 to 8, incorporating new supporting infrastructure and services for 6No. Data Centre floors. This will include the removal of currently operating rooftop plant and installation of new cooling and ventilation plant.

The main building will be extended up to level 11 to accommodate data halls in levels 2 to 8. Plant will be located at levels 9, 10 and 11.

The current building includes external roof rejection plant at level 9M, and other external plant at level 9.

In addition to new external plant at the THS building, the SSB building will accommodate the backup power generation for the site. The current backup generation plant is located at SSB building and at levels 1 and 9 of the main building.

3.2.1 Main Building – THS

The proposals for the heat rejection plant at Level 11 include 14 No Air-Cooled Chillers Flakt 1530kW with attenuation packages.

Additional external plant will be installed, such as three AHUs and 36No outdoor condenser units at Level 10; and two chillers and a Heat Pump at Level 9.

The proposed AHUs will replace the existing provisions.

The locations of the external plant are shown in the images below.

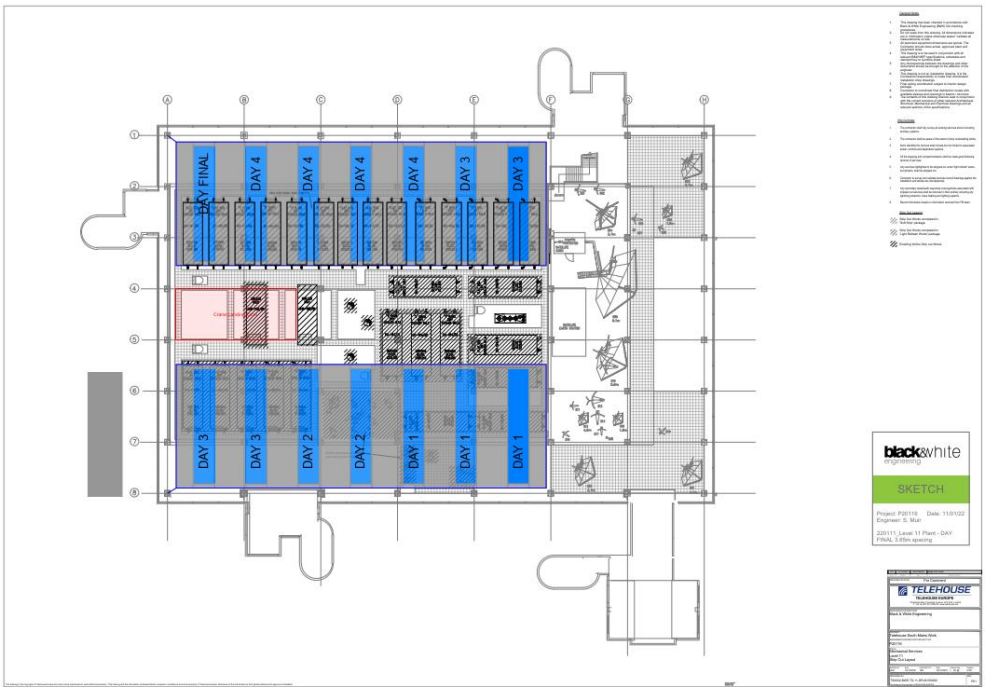


Figure 2: Air Cooled Chillers (14 units) with attenuation packages

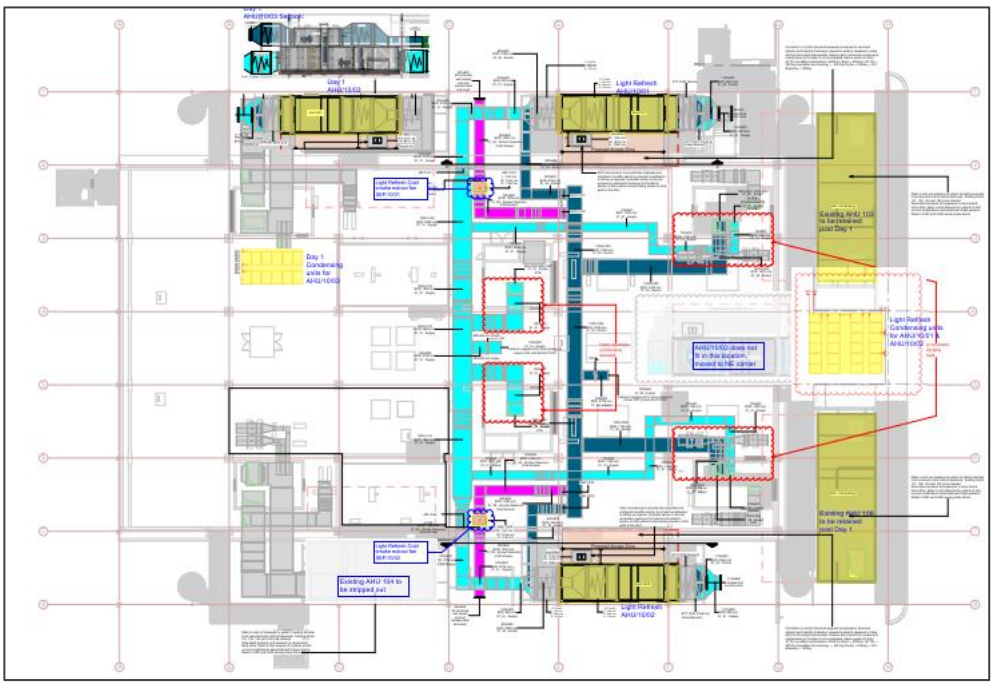


Figure 3: AHUs and Condensers location Level 10

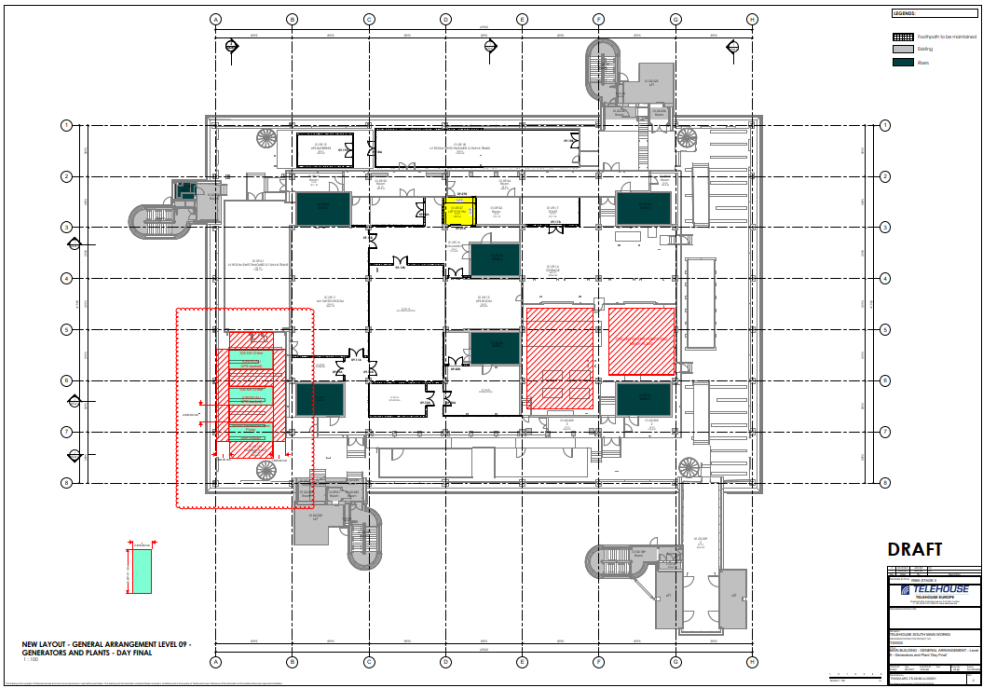


Figure 4: Chillers and Heat Pump location Level 9

3.2.2 SSB

The SSB building will accommodate the backup power generation for the site.

At this stage the proposal for the emergency power generation at the site includes 10no 2.9MW generator sets in acoustic enclosures.

The proposal includes the removal of the existing gensets within the main building.

Each genset will be housed in an acoustic enclosure. Flue stacks will be silenced and will be located at approximately 21.5 metres above local ground level. The unit's ventilation air exhausts will be turned vertically and attenuated with louvres at Level 4. The air intakes will be attenuated and located at each end of the acoustic containers at Level 2. Remote cooling units will be located at Level 4.

The proposals are shown in Figures 5 – 7 below:

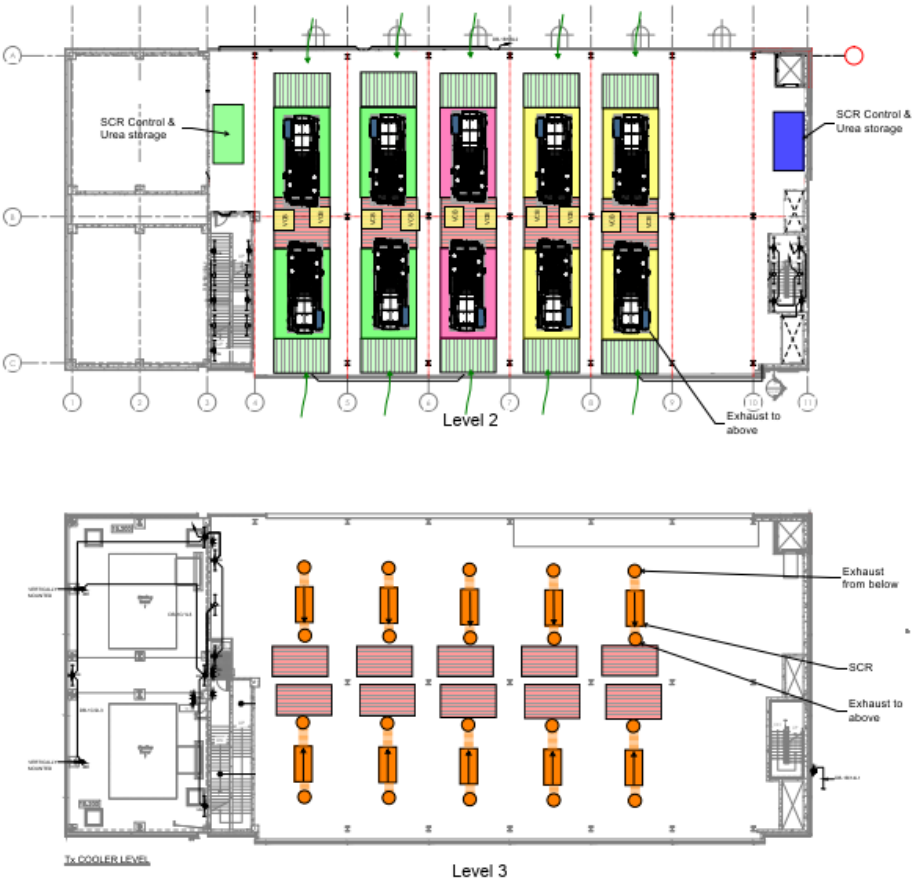


Figure 5: Level 2 and Level 3 SSB

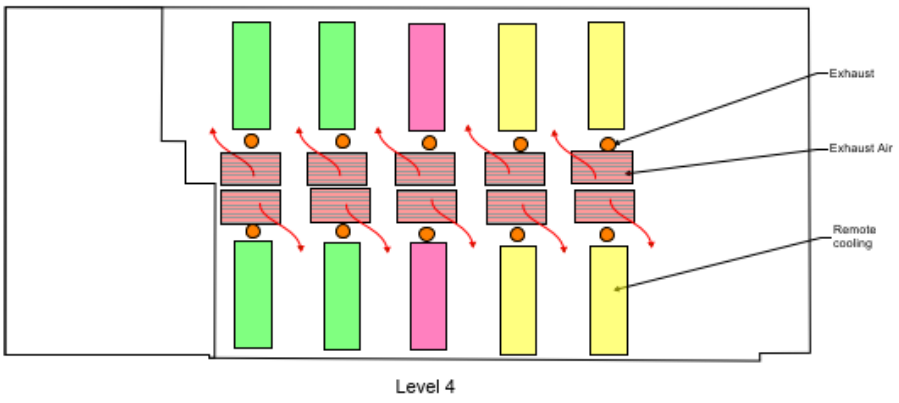


Figure 6: Level 4 SSB

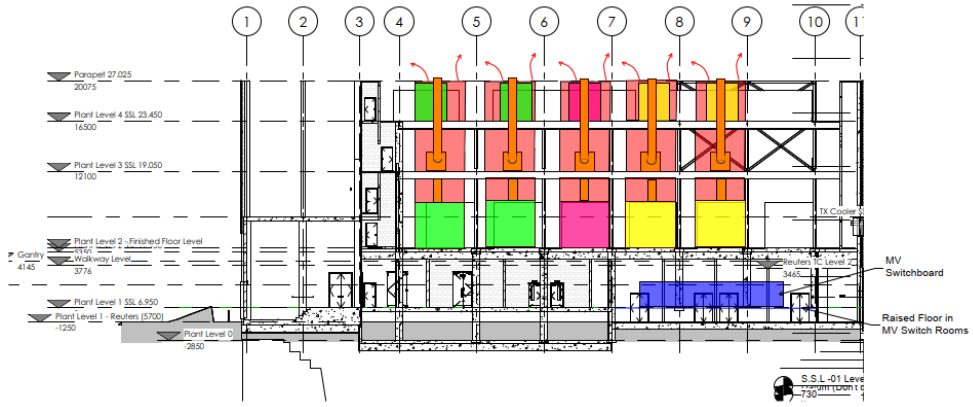


Figure 7: Section SSB

4 Baseline Sound Survey

The results from sound surveys undertaken by Cundall and Buro Happold in January 2020 and May 2019 respectively have been considered in the current assessment. As agreed with LBTH, the data for the survey undertaken by Cundall in January 2020 has been analysed in terms of average $L_{A90,15min}$ to set out the background levels to be considered for the assessment of the proposed development.

The details of the sound surveys can be found in the following reports:

- Cundalls' "Acoustic Constraints Review" report, Doc. Ref. THTRR-CDL-XX-XX-RP-AS-001 Rev P02 dated 24 June 2020.
- Buro Happold's Noise Impact Assessment report for Blackwall Yard, Doc. Ref 0040787 Revision 00 dated 6 October 2020.

A summary of the results presented in the above documents, along with the current analysis of the average $L_{A90,15min}$ for the Cundall Survey, are presented below for the purposes of clarity. Time history graphs for the January 2020 long term survey are provided in Appendix B

4.1 January 2020 Sound Survey

The sound survey was undertaken in January 2020 and included unattended long-term monitoring and short-form attended measurement positions.

The sound levels measured at U1 on Level 9 and used for setting the limits for the development, were reported to be dominated by road traffic, and not affected by noise from the DC plant which was reported as barely audible. The monitoring positions are shown in Figure 15 below.

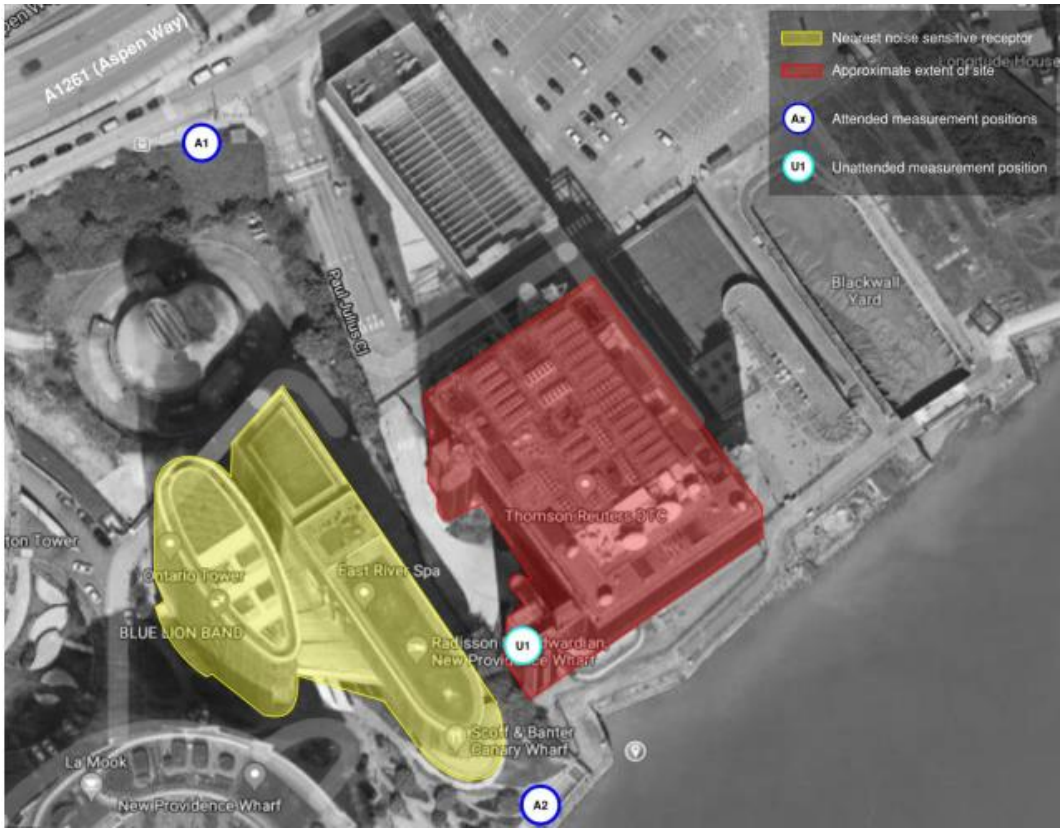


Figure 8: Sound Monitoring Positions U1, A1 and A2 – Cundall Survey – Extracted from Cundall Report

Measurement Position A1 was found to be representative of the noise levels affecting areas closer to Aspen Way, which will be representative of the background sound levels affecting some of the buildings of the new Blackwall Yard development.

The following table provides a summary of the measured noise levels during the survey as reported in the Cundall Report.

Table 1: Summary of Cundall Baseline Survey Results

Measurement Position	Date	*Period	Measurement time, T (hrs)	Lowest background noise level $L_{A90,15min}$ (dB)	Ambient noise level $L_{Aeq,T}$ (dB)
U1	Fri 17 Jan	Day	11.5	58	62
		Night	8	57	59
	Sat 18 Jan	Day	16	59	62
		Night	8	57	61
		Day	16	59	63

Table 1: Summary of Cundall Baseline Survey Results					
Measurement Position	**Date**	***Period**	**Measurement time, T (hrs)**	**Lowest background noise level $L_{A90,15min}$ (dB)**	**Ambient noise level $L_{Aeq,T}$ (dB)**
	Sun 19 Jan	Night	8	56	61
	Mon 20 Jan	Day	16	59	64
		Night	8	53	61
	Tue 21 Jan	Day	3.25	61	65
*Day=07:00 – 23:00 hours, Night=23:00 – 07:00 hours					

Table 2: Summary of Cundall Baseline Survey Results				
Measurement Position	**Measurement start time**	**Measurement duration, T**	**Lowest background noise level $L_{A90,15min}$ (dB)**	**Ambient noise level $L_{Aeq,T}$ (dB)**
A1	11:45	30 min	71	73
A2	12:40	1 hr	55	61

The average background levels extracted from the previous sound survey at the site, and agreed to be used as the background levels for the proposed development are as follows:

Table 3: Average Background Levels		
Period	**Location**	**Average background noise level $L_{A90,15min}$ (dB)**
Daytime (07:00 – 23:00)	Hotel and proposed residential development	60
Night-time (23:00 – 07:00)		58

4.2 May 2019 Sound Survey

The sound survey was undertaken in May 2019. The monitoring positions are shown in Figure 9 below.

The results for the long-term monitoring position 3 undertaken for 7 days are deemed to be representative of the sound levels affecting some of the buildings of the new Blackwall Yard development, closer to Aspen Way.

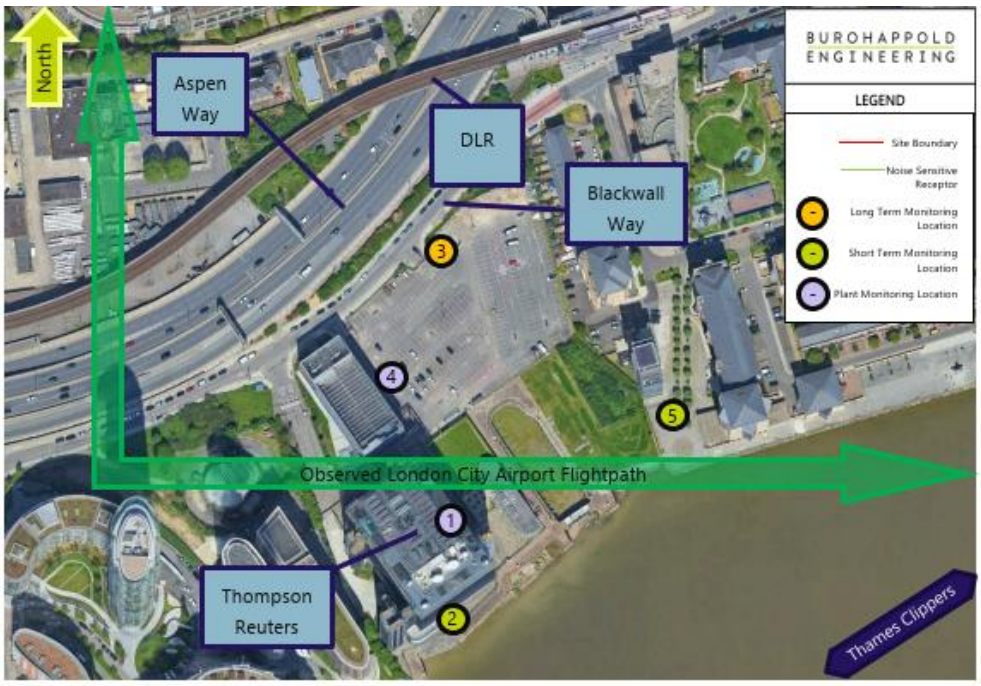


Figure 9: Sound Monitoring Positions– Buro Happold Survey – Extracted from Buro Happold Report

The reported background levels at position 3 are 61 dB $L_{A90,T}$ during the night-time periods. No information is provided for the daytime.

4.3 Background Levels Used for the Current Assessment

Based on the results of the surveys presented above, the following background levels have been used for the assessment of the proposed development.

The background sound levels have been selected allowing for a robust worst-case scenario, while considering the differences in noise levels within the site and the surrounding noise-sensitive receptors, depending on the distance to main roads.

The average $L_{A90,15\ min}$ measured form the Cundall Survey will be used as the background level for the existing receptors and the new residential buildings closer to the river at Blackwall Yard Development (Plot 4). For the new proposed buildings closer to Aspen Way (Plot 1.1), the background levels measured during the night-time will be adopted as the background sound level for the assessment. It should be noted that the levels measured by Cundall during the daytime close to Aspen Way are well above, however the measurement duration is only of 30 min, and could be only representative of the levels during the central hours of the day.

Table 4: Summary of Baseline Background levels adopted for each receptor

Position	Period (T)	$L_{A90,15min}$ (dB)
NSR1 Radisson Blue Hotel	Daytime (07:00 – 23:00)	60
	Night-time (23:00 – 07:00)	58

Table 4: Summary of Baseline Background levels adopted for each receptor		
Position	**Period (T)**	**$L_{A90,15min}$ (dB)**
NSR2 Ontario Tower	Daytime (07:00 – 23:00)	60
	Night-time (23:00 – 07:00)	58
NSR3 Blackwall Yard Development Plot 4 (South)	Daytime (07:00 – 23:00)	60
	Night-time (23:00 – 07:00)	58
NSR4 Blackwall Yard Development Plot 1.1 (North)	Daytime (07:00 – 23:00)	61
	Night-time (23:00 – 07:00)	61

5 Sound Predictions and Assessment

Normal and emergency operating external plant noise emissions are to be controlled to meet the requirements of London Borough of Tower Hamlets when assessed in accordance with BS4142:2014.

The limits would apply to the total noise emission levels from all static plant and processes within the proposed development. Individual plant items will need to be designed to a lower limit such that the overall total level achieves the stated criteria above.

5.1 Proposed Plant Main Building Levels 9, 10 and 11

As presented in Section 3, the re-development of the Main Building includes the removal of existing heat rejection plant and ventilation plant and the installation of new units, which will include mitigation measures and will replace the existing external plant.

The proposals for the heat rejection plant at Level 11 include 14 No Air-Cooled Chillers Flakt 1530kW with attenuation packages.

Additional external plant will be installed, such as three AHUs and 36No outdoor condenser units at Level 10; and two chillers and a Heat Pump at Level 9. As stated above, the proposed AHUs will replace the existing provisions.

The location of the external plant is shown in Figures 2 to 4 in Section 3.

The noise data provided by the manufacturers and used in the assessment are presented in sections below.

5.1.1 Heat rejection Plant Level 11

For the 14 No Air-Cooled Chillers the manufacturer has provided the below sound power levels corresponding to operation at external temperatures of 45°C and 42°C. The second has been used for the night-time operation.

Table 5: Heat Rejection Plant Level 11 – without attenuation

Description	Octave Band Data (dB) at Centre Frequency (Hz) - PWL								Global dB(A)
	63	125	250	500	1000	2000	4000	8000	
Air Cooled Chillers Flakt 1530kW - 45°C operation	113	103	92	96	105	89	84	78	106
Air Cooled Chillers Flakt 1530kW - 42°C operation	109	99	88	92	101	85	80	74	102

The noise data correspond to operation at full fan speed for extreme ambient temperatures of 45°C during the day and at reduced fan speed for ambient temperatures of 42°C during the night, which represent a worst case and the operation with extremely hot ambient conditions. It is therefore very likely that during most of the

year the plant will operate at lower loads with lower ambient temperatures. This reflects the worst-case scenario assessed.

In order to mitigate the noise impact from the chillers, attenuation packages will be used, including attenuators for the air inlet and discharge as shown in the sketch below.

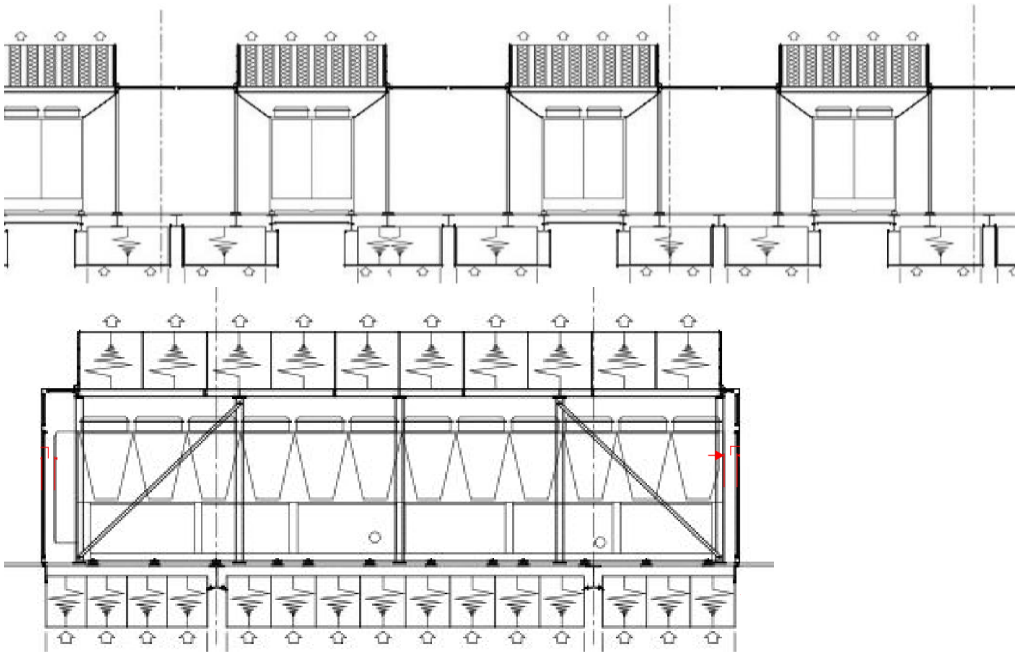


Figure 10: Air-Cooled Chillers Attenuation package sketch - sections

The following table presents the sound power levels for the attenuated air-cooled chillers, based on the data provided by the manufacturer, and used in the assessment.

Table 6: Heat Rejection Plant Level 11 – with attenuation packages

Description	Octave Band Data (dB) at Centre Frequency (Hz) - PWL								Global dB(A)
	63	125	250	500	1000	2000	4000	8000	
Air Cooled Chillers Flakt 1530kW - 45°C operation + attenuation package	104	87	71	69	73	62	62	61	80
Air Cooled Chillers Flakt 1530kW - 42°C operation + attenuation package	100	83	67	65	69	58	58	57	76

5.1.2 Internal Noise Break out

Internal noise levels within the data halls have the potential to be high, and therefore noise breakout through the building envelope must be considered when predicting the total emissions at the nearest noise sensitive receptors.

To undertake this prediction, assumptions must be made at this stage with regards to the internal noise level that will occur. Noise data and frequency spectrums have been based on historical measurements at comparable facilities. The assumed noise levels are presented in Table 7.

Table 7: Data Halls Internal Sound Levels

Description	Octave Band Data (dB) at Centre Frequency (Hz) - PWL								Global dB(A)
	63	125	250	500	1000	2000	4000	8000	
Data Halls Internal Reverberant Levels	68	68	77	77	76	72	70	63	80

The noise breakout from the office block and other minor plant/network rooms is considered negligible.

The existing façade comprises metal panels at the lower levels (up to Level 4) and curtain walling on the upper levels (Levels 5 to 8). For the data halls, in addition to the external wall metal panelling and curtain walling system, the proposals include an internal 150mm white wall system for levels 4 to 8.

Based on the assumed noise data within the data halls minimum sound reduction index for these building elements are presented in Table 8. These sound reduction performances have been considered in the assessment and are understood to be achievable by the proposed constructions.

Table 8: MINIMUM SOUND REDUCTION REQUIREMENT – EXTERNAL WALLS

Element Type	Location	Insertion Loss (dB) at Octave Band Centre Frequency (Hz)								
		63	125	250	500	1k	2k	4k	8k	Total R_w
External Wall	Metal Panel	12	15	19	23	24	22	32	30	24
	Metal Panel & Data Halls Internal Lining	23	27	31	35	35	33	41	40	35
	Curtain Wall & Data Halls Internal Lining	23	25	24	35	46	50	68	60	39

It is understood that data halls internal white wall will be 150mm Euroclad Firemaster Wall or similar. Based on the manufacturer's data provided, this would achieve a sound reduction performance of 33 dB R_w.

The metal panel performances used are typical values assumed at this Stage and will need to be confirmed as the design progresses, although it is deemed to be sufficient for planning purposes.

The minimum sound reduction estimated for the curtain glazing and the white wall lining has been estimated and assumed for this assessment as presented above.

The above sound reduction requirements are based on typical performances for these types of elements and estimations based the information provided at this Stage.

The performance of the above systems has been assessed as capable of controlling noise break-out from the data halls, assuming a maximum internal reverberant noise level of 80 dB $L_{p,rev}$.

5.1.3 External Plant Level 9

The proposals include the installation of two chillers and one Air source Heat Pump at Level 9, to be located in the northwest corner of the building.

Based on the data provided by the manufacturer, each of these units will include compressor acoustic boxes and a level of fan speed reduction. Although, operation at night is likely to be lower, the assessment considers 24/7 operation at full load, to allow for a worst-case scenario.

The sound power levels provided by the plant manufacturer are presented in table below.

Table 9: Chillers Level 9 – with compressors acoustic boxes

Description	Octave Band Data (dB) at Centre Frequency (Hz) - PWL								Global dB(A)
	63	125	250	500	1000	2000	4000	8000	
Chillers Flakt 300kW	64	69	78	80	83	80	72	63	86

5.1.4 External Plant Level 10

As part of the refreshment works undertaken at the building, it is understood that 3No AHUs will be installed at Level 10, to replace existing plant.

These AHUs will have associated 36No external condensers located at the same level, 12 of them associated with each AHU. As advised by the M&E engineers' team, these AHUs are arranged in N+1 operation, and therefore two out of three would operate simultaneously, along with their associated external condenser units.

The noise levels for the selected plant and the attenuators included in the design are presented below, as provided by the manufacturer.

Table 10: Level 10 External Plant										
Element	**Model / Type**		**Octave Band Data (dB) at Centre Frequency (Hz) - PWL**							**Global dB(A)**
			63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
AHU/10/01 & AHU/10/02 & AHU/10/03	Daikin	Exhaust	81	81	91	87	86	81	78	78	91
		Intake	75	84	83	78	80	78	74	71	85
Condenser units	Daikin	RYMQ10U	87	81	79	78	71	71	68	61	79
		RYMQ12U	90	85	83	81	76	74	75	68	83

Table 11: AHUs Attenuator Insertion Losses									
Element	**Model / Type**	**Insertion Loss (dB) at Octave Band Centre Frequency (Hz)**							
		63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
AHUs attenuators	SP2048 / Exhaust	7	14	25	40	51	42	36	22
	SP2048 / Intake	7	14	25	40	51	42	36	22

Noise emissions of each condenser unit will need to be attenuated by 2 dB, based on our calculations, with a maximum sound power level of 77 and 81 respectively.

The above levels for the condenser units are based on the cooling mode which is worst case. The levels reported by the manufacturer in heating mode range between 14 and 18 dB less. Each AHU has associated 12No condenser units, six of each type. It has been considered that the plant will operate 24/7, although it's likely that night-time operation might be lower.

Based on the noise model, the closest receptors will be more affected by condenser units associated with AHU/10/01 and AHU/10/02 located at the south of the building. Therefore, the noise impact assessment assumes the simultaneous operation of these two AHUs, in line with the worst-case approach followed.

5.2 Proposed Generators and Acoustic Mitigations – SSB Plant

The current proposals include 10No 2.9MW generators to be located within acoustic enclosures with sufficient sound reduction. Based on the high-level information provided at this stage, it has been assumed that the following mitigation measures will be applied to the design:

- Each generator enclosure will be designed for a maximum breakout of 65 dBA at 1 metre.
- Each generator exhaust flue will be mitigated using silencers to a maximum sound pressure level of 65 dBA at 1 metre.
- Air intakes will be mitigated using attenuators to a maximum sound pressure level of 75 dBA at 1 metre.

- Air exhausts will be mitigated using attenuators to a maximum sound pressure level of 70 dBA at 1 metre.
- Cooling Units at level 4 will have a maximum sound power level of 85 dBA.

At this stage, there is no available information on the proposed plant noise data and therefore, to undertake the noise predictions, the above mitigation measures have been applied and generator noise data from the Sweco library for comparable plant has been used. Data provided for enclosures and plant dimensions have been used at this stage.

Predictions have been carried out with the information available at this stage. Where information is not available, assumptions have been made based on professional judgement.

The attenuation required to limit noise emissions to the levels above is extensive although feasible based on discussions with the design team. The design and attenuation requirements will need to be confirmed by the gensets' provider.

The generators will be subject to regular testing. A typical test regime for each generator would be monthly.

The emergency condition includes for all generators running at full capacity. This will only occur if there is a power outage is therefore not considered under normal operating conditions.

5.3 Noise Modelling

To assess the impact of noise from the proposals, the likely specific noise level from the most significant sources of noise associated with the SSB at this stage has been predicted at the nearest noise-sensitive receptors. Predictions have been carried out in the noise-modelling suite Cadna/A, in accordance with the ISO 9613 prediction methodology.

The model considers the effects of ground absorption, atmospheric absorption, and acoustic reflections, as well as applying a light downwind correction to consider a typical worst-case downwind situation. In terms of ground absorption, the intervening ground between the sources and receivers has been modelled as hard, which is considered suitable considering the site and surrounding areas. A maximum 2 orders of reflection have been considered in the model.

The current assessment has been carried out based on the information and the assumptions presented above.

Views of the 3D noise model are presented in figures below.

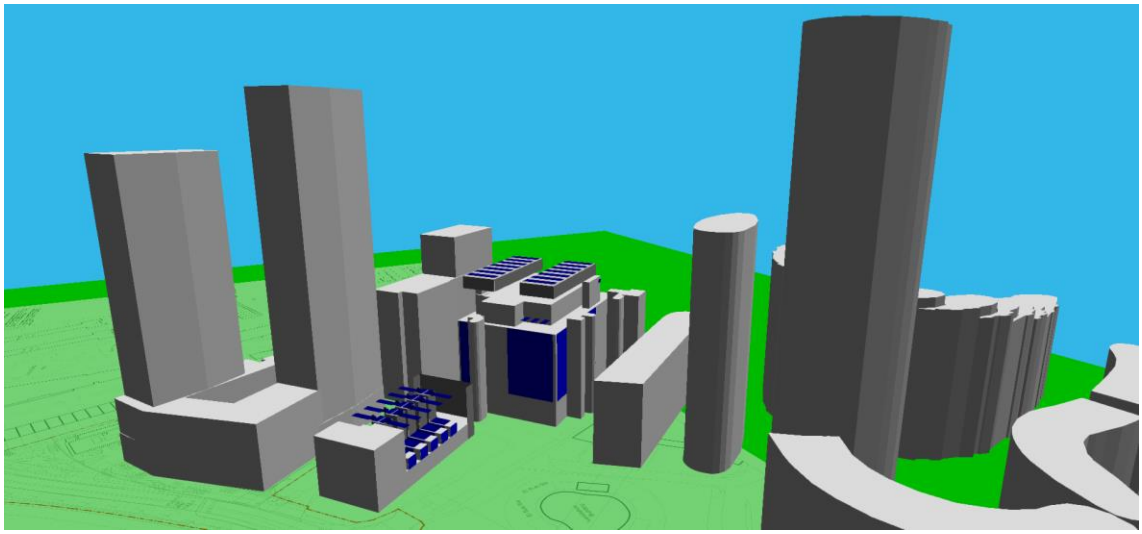


Figure 11: Image of the Nosie model – North-west view

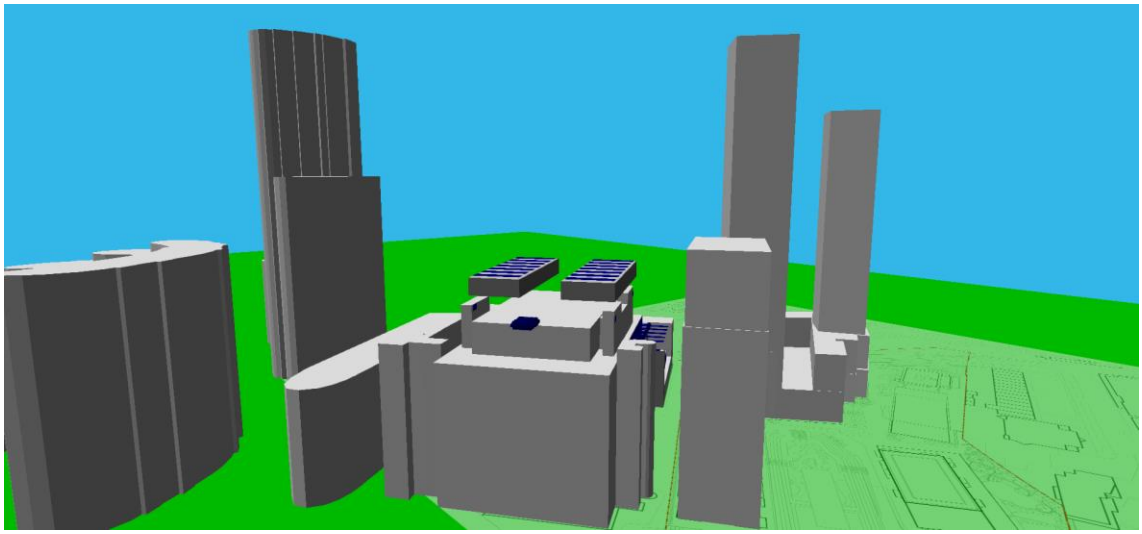


Figure 12: Image of the Nosie model – South-east view

5.4 Main Building Operation

The assessment assumes that all the plant at level 9, 10 and 11 will operate simultaneously during the 24 hours, except for one AHU and associated condensers as explained above. The proposals are assessed operating at 100% load for high external temperatures, which is considered a worst-case approach.

BS4142:2014 advises that when the noise contains a tonality, impulsivity, intermittency and other sound characteristics, then a correction depending on the grade of the aforementioned characteristics of the sound is added to the specific noise level to obtain the $L_{Ar,Tr}$ 'rating noise level'.

Based on the data provided by the manufacturers above, the mitigations included in the design and the continuous operating profile of the site no penalties are considered necessary for intermittency, tonality or impulsivity of the sound arising from the external plant in the Main Building.

At this stage, information in 1/3 octave bands for the plant has not been provided, and therefore a full tonality assessment cannot be undertaken; however, observing the noise data provided and the attenuation included, it is deemed that the plant proposed is not likely to present a tone, and on review of the predicted levels at the receptors locations, which will be well below the background levels in the area, then we can conclude that a tone is very unlikely to be perceptible at the receptors location.

The plant proposed does not have an impulsive noise character and will be operating continuously, and therefore penalties for this character of noise are not deemed necessary.

Noise mitigation measures have been included in the design in form of:

- extensive attenuation packages for the heat rejection plant on level 11,
- Compressor acoustic boxes and a level of fan speed reduction for the chillers at Level 9
- Attenuators for the AHUs and limited maximum sound levels for external condensers,

All the mitigation measures included in the design demonstrate the use of BAT (Best Available Techniques) to minimise polluting noise emissions.

The table below present the predicted sound rating levels at the closest Noise-Sensitive Receptors (NSRs) in the area and compares them against the limits based on the lowest background levels measured during the sound survey, and previous site limits. The assessment has been carried out for the daytime and night-time period.

Table 12: Assessment of Noise Impact on Noise Sensitive Receptors

Location of closest Sensitive Receptor	Period	Rating Sound Level $L_{Ar,Tr}$ (dB)	Background Sound Level $L_{A90,15min}$ (dB	Excess of $L_{Ar,Tr}$ above Target Limit (dB) for planning	Noise Levels Reported in planning application PA/20/02509 Noise Assessment (dBA)	Significance
NSR1 Radisson Blue Hotel	Daytime (07:00-23:00)	48	60	-2	-	No Impact
	Night-time (23:00-07:00)	48	58	+0	-	No Impact
NSR2 Ontario Tower	Daytime (07:00-23:00)	48	60	-2	-	No Impact

	Night-time (23:00-07:00)	47	58	-1	-	No Impact
NSR3 Blackwall Yard Development	Daytime (07:00-23:00)	52	60	+2	-	Low Adverse Noise Impact
	Night-time (23:00-07:00)	51	58	+3	-	Low Adverse Noise Impact
Data Centre Building East Boundary	Daytime (07:00-23:00)	<60	-	-	82	Very Significant reduction in noise impact from the Data Centre to the future residential properties

The rating sound levels from the development are predicted to be well below the average background levels in the area, and therefore is predicted to have no impact or a low adverse noise impact at the nearest receptors to the site.

The plant operation would comply with the limits agreed during consultation with LBTH Environmental Protection Team at existing noise sensitive receptors to the west of the site.

The LBTH limits will be slightly exceeded for the future receptors NSR3. However, this noise impact should be considered in context. A comparison of the noise levels from the current existing plant reported in planning application PA/20/02509, and the predicted level from the proposed development is presented in the table above.

Based on the reviewed information available from Backwall Yard development planning application PA/20/02509 (Buro Happold report ref. 004787 dated 6 October 2020) the operational noise from the existing plant was reported as 82 dBA for full load operation of the existing chillers on the eastern side of the roof, and the impact at future residential receptors was predicted as significant.

It is clear that the re-development of the data centre site will reduce the noise impact at the future residential receptors to the east and therefore will be beneficial in terms of improving the noise conditions in the area.

It is also understood that the consented development was the ‘agent of change’ (as introduced in the National Planning Policy Framework) when the planning application was submitted and that this requires that the new residential development does not place in ‘unreasonable restrictions’ on existing businesses (the existing data centre building) and therefore the proposed new residential development should include ‘suitable mitigation’ for the currently existing external plant.

It should be also considered that the operational noise for the proposed development will be comfortably below the limit of 58 dB L_{Aeq} (free-field) at Blackwall Yard buildings façades, agreed between the applicant and Hadley developments.

In relation to the ambient noise levels measured during the survey, the sound from the new plant operation will be well below the ambient noise levels measured, and therefore is very unlikely to be audible.

Based on all the context above, the predicted impact at the future residential receptors to the east is deemed acceptable from a planning perspective.

In relation to EA guidance on noise, the use of BAT has been demonstrated. The outcome of the assessment at the noise-sensitive receptors shows that the noise impact will be well below the background sound levels in the area, and therefore the level of noise from the building operation will be classified as no noise, barely audible or detectable in terms of the EA guidance.

A noise map at 55 m height above ground (worst-case) for the operation of the external plant is shown in the image below:

Figure 13: Noise Map at 55 metres – Main Building Plant - Daytime

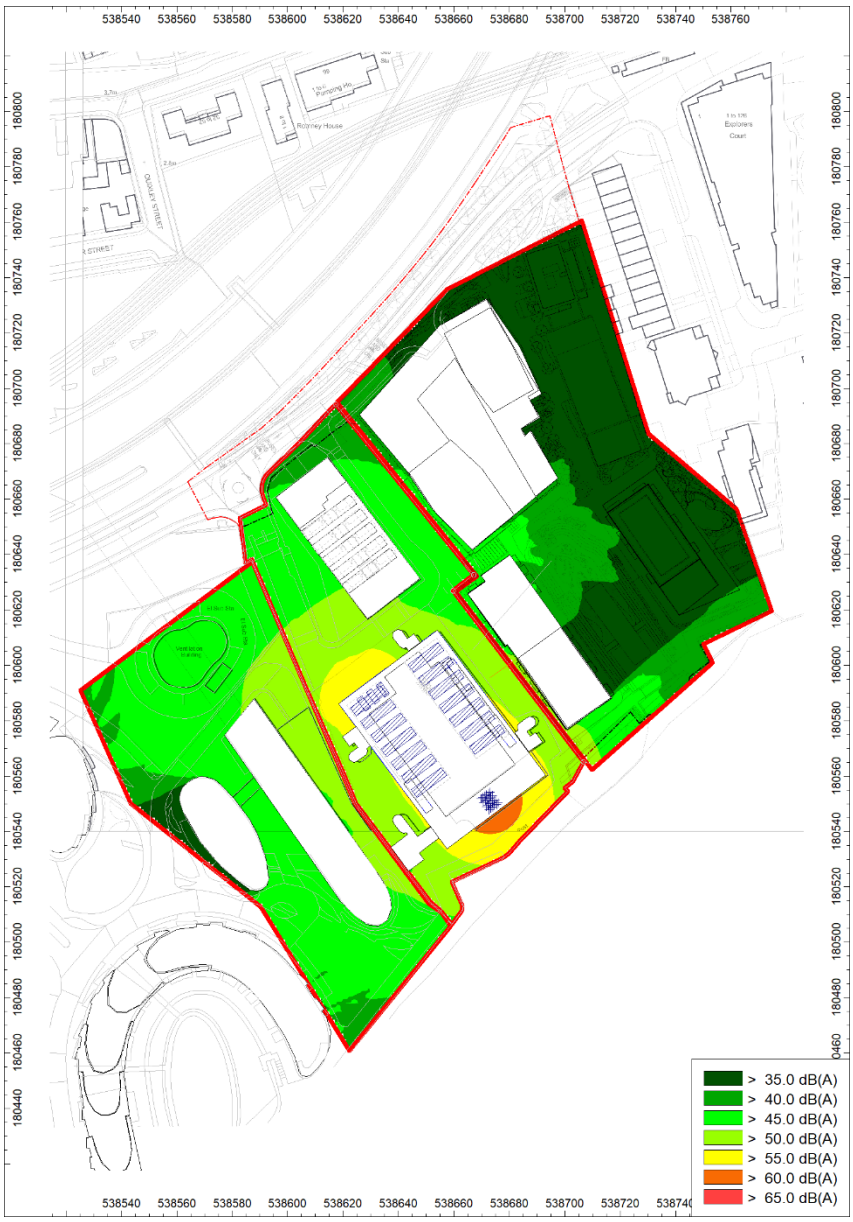


Figure 14: Noise Map at 55 metres – Main Building Plant – Night-time

5.5 SSB Emergency Operation (Power Outage and Testing)

The predictions for the emergency generators have been carried out for the proposed generators in the SSB. It should be noted that the predictions presented below only take into account the SSB plant.

The cumulative operation of the Main building external plant has been considered, and due the low impact of the main building external plant, the cumulative impacts are generally in line with the impact from the SSB generators, and in any case will not exceed the background levels at any receptor.

It has been assumed that all the plant will operate simultaneously during the daytime, as the testing regime will take place during the normal working hours. The night-time impact has also been considered although this scenario will be unlikely or of a short duration.

BS4142:2014 advises that when the noise contains a tonality, impulsivity, intermittency and other sound characteristics, then a correction depending on the grade of the aforementioned characteristics of the sound is added to the specific noise level to obtain the $L_{Ar,Tr}$ 'rating noise level'.

Based on the noise data assumed and the likely short-term operation for this plant, no penalties are considered necessary for intermittency, tonality or impulsivity of the sound arising from the SSB plant at this stage.

The table below presents the predicted sound rating levels at the closest Noise-Sensitive Receptors (NSRs) in the area and compares them against the limits based on the average background levels measured during the sound survey.

Predictions are subject to the supplier meeting the assumed levels in Section 5.2. It must be noted that there is no detailed information available at this stage, and that modelling is advised to be reviewed at further design when the plant has been selected to evaluate the final impact. However, this is considered sufficient for planning stage as the assumptions are based on historical data for comparable facilities

Table 13: Assessment of Noise Impact on Noise Sensitive Receptors – SSB Gensets

Location of closest Sensitive Receptor	Period	Rating Sound Level $L_{Ar,Tr}$ (dB)*	Background Sound Level $L_{A90,15min}$ (dB)	Excess of $L_{Ar,Tr}$ above Target Limit (dB) for planning	Significance
NSR1 Radisson Blue Hotel	Daytime (07:00-23:00)	55	60	-5	Low Adverse Noise Impact
	Night-time (23:00 – 07:00)	55	58	-3	Low Adverse Noise Impact
NSR2 Ontario Tower	Daytime (07:00-23:00)	51	60	-9	Low Adverse Noise Impact
	Night-time (23:00 – 07:00)	51	58	-7	Low Adverse Noise Impact
NSR3 Blackwall Yard Development Plot 4 (South)	Daytime (07:00-23:00)	57	60	-3	Low Adverse Noise Impact
	Night-time (23:00 – 07:00)	57	58	-1	Low Adverse Noise Impact

NSR4 Blackwall Yard Development Plot 1.1 (North)	Daytime (07:00-23:00)	61	>61	<0	Low Adverse Noise Impact
	Night-time (23:00 – 07:00)	61	61	+0	Low Adverse Noise Impact

The rating sound levels from the operation of the generators are not predicted to exceed the background levels in the area, and therefore are predicted to have a low impact at the nearest receptors to the site.

The background levels during the daytime periods at the proposed Blackwall Yard residential building to the north (Plot 1.1) will be higher than the 61 dBA measured during the night, and therefore it is clear that the generator operation will have a low adverse impact at the future residential receptors in the area.

It must be also noted that based on the sound survey results reported in the planning report for Blackwall Yard development (Buro Happold's Noise Impact Assessment report for Blackwall Yard, Doc. Ref 0040787 Revision 00 dated 6 October 2020) and undertaken during maintenance testing of the existing generators, the noise from the generators at 10 metres distance from the exhausts was between 63-64 dBA. The predicted worst case noise levels at the site boundary for the current proposals are 64 dBA and therefore, it can be concluded that the new proposals will not increase the ambient noise levels in relation to the current existing emergency power generation plant.

In relation to EA guidance on noise, the use of BAT for the backup generators has been demonstrated by means of high-performance attenuation packages for the generator enclosures, the ventilation and the silencers for the exhaust stacks. The outcome of the assessment at the noise-sensitive receptors shows that the noise levels will be below the background sound levels in the area, and therefore the level of noise from the proposal's operation will be barely audible or detectable in terms of EA guidance.

A noise map at 21 m height above ground (worst-case) for the operation of the emergency power generation plant is shown in the image below:

Figure 15: Noise Map at 21 metres – SSB Power Generation Plant

6 Conclusion

Sweco UK has been commissioned by Black and White Engineering to undertake a noise assessment at RIBA Stage 3 for the proposed data centre re-development located at 1 Blackwall Way, Paul Julius Cl, London, E14 2EH.

The scheme is being designed to meet the noise limit agreed during consultation with the LBTH Environmental Protection Team, and extensive noise mitigation measures have been included in the design.

Noise predictions have been carried out in the noise-modelling suite Cadna/A, in accordance with the ISO 9613 prediction methodology. The predicted noise levels at the nearest noise-sensitive receptors have then been assessed against the limits proposed by London Borough of Tower Hamlets for a planning application.

The limits are based on baseline sound surveys undertaken for previous assessments in January 2020 and May 2019.

The existing site noise conditions were established by others as part of the due-diligence assessments. The results from the baseline sound survey undertaken in January 2020 are presented in this report.

Noise data available from Backwall Yard development planning application PA/20/02509 has been used to add context to the predicted impacts at the future residential building to the east of the site.

The outcomes of the assessment identify that the proposed development is acceptable from a noise perspective, providing that plant is suitably selected and attenuated as per presented in this report.

The use of BAT has been demonstrated. The outcome of the assessment at the noise-sensitive receptors shows that the plant noise levels will be well below or below the background sound levels at the receptors, and therefore the level of noise from the proposal’s operation will be barely audible or detectable in terms of EA guidance.

Appendix A – Glossary of Acoustic Terminology

Sound is the vibration of particles in a medium, such as air, which may be detected by the human ear. This sound is defined as noise when it is audible and unwanted or undesirable to a listener.

The vibration, or oscillation, of particles about an equilibrium position results in local pressure fluctuations from the normal pressure. These local pressure fluctuations are described as sound pressure, and the number of oscillations per second is described as the frequency.

The human ear responds to an incredibly large range of sound pressure, from 0.00002 Pa to 200 Pa, and the perceived loudness is proportional to the logarithm of the sound pressure squared. For this reason, sound is measured in terms of a logarithmic parameter, the sound pressure level, to approximate the response of the ear. Sound pressure levels are quantified in decibels (dB) relative to the threshold of hearing.

The human ear responds to a wide range of sound frequencies, from the lowest perceptible bass note, around 20 Hz, to the highest perceptible treble note, around 20,000 Hz. The ear does not respond equally to each frequency - the ear is most sensitive to sound within the mid-frequency range of around 600 to 8000 Hz.

The response of the ear to each frequency also varies with the sound pressure level. For very loud sounds the difference in perceived loudness between each frequency is less pronounced than for low level sound.

Acousticians measure sound pressure levels using sound level meters, which incorporate a microphone.

A sound level meter approximates the response of the human ear to sound by using frequency filters. For typical environment sounds, the A-weighting filter is used to approximate the response of the ear at typical sound pressure levels. The sound pressure level, adjusted to approximate the response of the ear, is then quantified in A-weighted decibels, dB(A).

In a typical environment, the A-weighted sound pressure level will vary with time. For this reason, acousticians use statistical measurement parameters to describe the sound environment. The most common measurement parameters are as follows:

- dB $L_{Aeq,T}$: Equivalent continuous A-weighted sound pressure level - This is the energy-average sound pressure level during a measurement period, T.
- dB $L_{AFmax,T}$: Maximum A-weighted sound pressure level - This is the maximum sound pressure level during a measurement period, T, and measured in a way that approximates the time-response of the ear.
- dB $L_{A90,T}$: 90th percentile A-weighted sound pressure level - This is the sound pressure level exceeded for 90% of the measurement period, T, commonly used to quantify the background sound level.

The sound pressure level in typical environments are presented in Table A1.

Further definitions of acoustic parameters are presented in Table A2.

TABLE A1 – TYPICAL SOUND LEVELS FOUND IN THE ENVIRONMENT

Sound Level	Location
0dB(A)	Threshold of hearing
20 to 30dB(A)	Quiet bedroom at night
30 to 40dB(A)	Living room during the day
40 to 50dB(A)	Typical office
50 to 60dB(A)	Inside a car
60 to 70dB(A)	Typical high street
70 to 90dB(A)	Inside factory
100 to 110dB(A)	Burglar alarm at 1m away
110 to 130dB(A)	Jet aircraft on take off
140dB(A)	Threshold of Pain

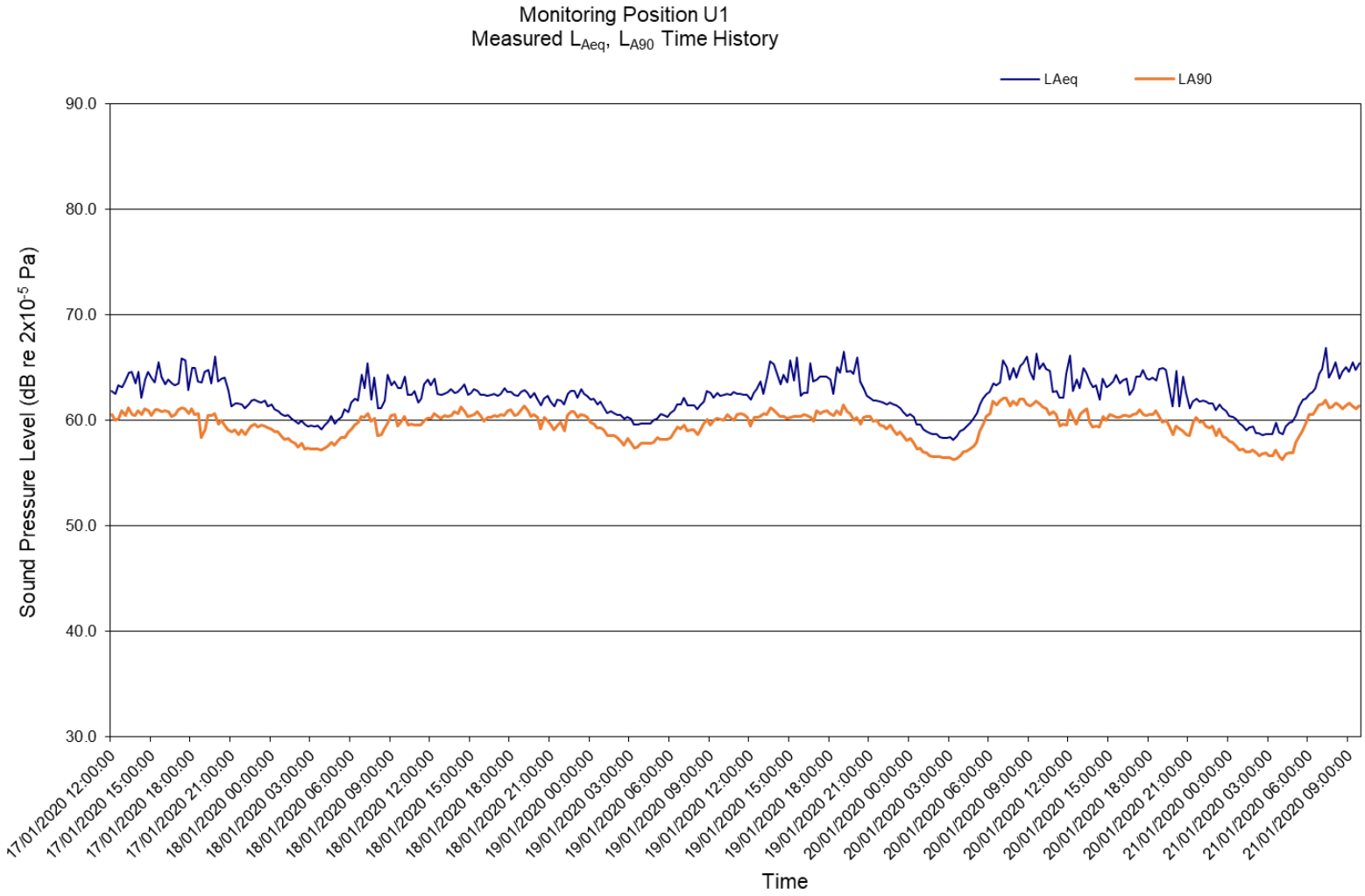
TABLE A2 – GLOASSARY OF ACOUSTIC TERMS

Terminology/Parameter	Definition
Ambient sound level	The total sound pressure level in a given position from all surrounding sources of noise, both near and far. Normally expressed as an equivalent continuous A-weighted sound pressure level, dB $L_{Aeq,T}$.
A-weighting	The process of weighting the observed sound pressure level at each frequency band, to approximate the sensitivity of the human ear to sounds of different frequencies. A-weighted sound pressure levels are expressed as dB(A) or dB L_{Ap}.
C_{tr}	Spectrum adaptation term No. 2 as defined in BS EN ISO 717-1. This term is a correction that applies to the weighted standardised level difference to account for how well a partition insulates against sound which has mainly low and medium frequency content (e.g. road traffic noise, amplified disco music).
Decibel	A logarithmic value quantifying the sound pressure at a specified position or sound power relative to a reference sound pressure or sound power (20 μPa for sound pressure, 10-12 W for sound power).
D	Sound level difference. The difference in energy-average sound pressure levels between a “source” room containing a loudspeaker and an adjacent “receiving” room. D = L(source) – L(receiving).
$D_{ne,w}$	Weighted element normalised sound level difference. The single-figure rating of the difference in sound level between rooms when sound is transmitted only through a small technical element only, such as a vent or grille, and normalised to a reference absorption area A0 of 10 m2. Measured in a laboratory in accordance with BS EN ISO 10140, with single figure rating determined in accordance with BS EN ISO 717-1.
$D_{nF,w}$	Weighted normalised flanking sound level difference. A single-figure rating of the difference in sound level between rooms when sound is transmitted only via a specified flanking path, such a via a flanking curtain wall system. Measured in a laboratory in accordance with BS EN ISO 10848, with single figure rating determined in accordance with BS EN ISO 717-1.
$D_{nT,w}$	Weighted standardised sound level difference. A single-figure rating of the sound insulation between adjacent rooms or spaces in real-world conditions in completed buildings. The rating is determined over a range of frequencies and normalised to a reference reverberation time of 0.5 seconds for dwellings. Measured in-situ in accordance with BS EN ISO 140-4, with single figure rating determined in

	accordance with BS EN ISO 717-1. The measurement includes the effects of sound transmission via flanking routes and weak points at junctions, interfaces, and penetrations.
Façade	A sound monitoring position is a “façade” position when it includes a strong reflection from an adjacent building or structure. This corresponds with a position that is between 1 and 2 metres away from a reflecting building or structure.
Flanking sound transmission	The transmission of sound between two spaces via an indirect path rather than via the separating element. Example would be sound transmission via a flanking corridor, or sound transmission via a flanking curtain wall.
Free-field	A sound monitoring position is a “free-field” position when it is not affected by sound reflections from surrounding buildings and structures. This corresponds with a position at least 3.5 metres away from reflecting buildings or structures.
Frequency	The number of oscillations per second of a vibrating particle in a medium, measured in Hertz (Hz) or cycles per second.
Impact sound	Sound due to impacts on a floor, such as due to footfall, as observed in the room below the floor.
$L_{n,w}$	Weighted normalised impact sound pressure level. A single-figure rating of the impact sound level in a lower room due to a standard impact sound source in laboratory conditions. The rating is determined over a range of frequencies and normalised to a reference absorption area of 10 m2. A single-figure rating of the impact sound insulation provided by the floor construction in idealised conditions over a range of frequencies. Measured in a laboratory in accordance with BS EN ISO 140-6 (or BS EN ISO 10140-3), with single figure rating determined in accordance with BS EN ISO 717-2.
$L'_{nT,w}$	Weighted standardised impact sound pressure level. A single-figure rating of the impact sound level in a lower room due to a standard impact sound source in real-world conditions in completed buildings. The rating is determined over a range of frequencies and normalised to a reference reverberation time of 0.5 seconds for dwellings. Measured in-situ in accordance with BS EN ISO 140-7, with single figure rating determined in accordance with BS EN ISO 717-2. The measurement includes the effects of impact sound transmission via flanking routes and weak points at junctions, interfaces, and penetrations.
$L_{A90,T}$	The A-weighted sound pressure level exceeded during 90% of the time interval, T. Typically used to quantify the background sound level at a specified position.
$L_{Aeq,T}$	The equivalent continuous A-weighted sound pressure level over a time interval, T. This is an energy-average sound pressure level over the specified time period.
$L_{AFmax,T}$	The maximum A-weight sound pressure level during a specified time interval, T. Measured with “fast” time-weighting (which approximates the time-response of the human ear).
Noise	Unwanted or undesirable sounds observed by a listener.
Octave band	A frequency band used in acoustical measurements. An octave is a frequency interval between two sounds where the frequency of the lower sound is half the frequency of the upper sound. The human hearing range is divided into ten logarithmically equal frequency divisions called octave bands, with centre-band frequencies as follows: (16 Hz, 32 Hz,) 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1000 Hz, 2000 Hz, 4000 Hz, 16000 Hz.
Rating level, $L_{Ar,Tr}$	The specific sound level plus a correction accounting for acoustic features such as impulses, tones, intermittent features, or any other characteristics that draw more attention to the sound source.
Residual sound level	The equivalent continuous A-weighted sound pressure level of the ambient sound remaining at a specified position when the specific sound source (the sound source being assessed) does not contribute to the ambient sound.
Reverberation	The reflection of sound from room surfaces, resulting in the prolongation or persistence of a sound in a room.
Reverberation time	Time, in seconds, required for the sound pressure level in a room to decrease by 60 dB after a sound source has stopped. Long reverberation times are present in large empty rooms with hard surfaces (e.g.

	a cathedral); short reverberation times are present in smaller rooms with soft furnishing (e.g. typical living room, a recording studio).
R_w	The weighted sound reduction index of an architectural element. A single-figure rating of the sound insulation provided by the architectural element in idealised conditions over a range of frequencies. Measured in a laboratory in accordance with BS EN ISO 140-3 (or BS EN ISO 10140-2), with single figure rating determined in accordance with BS EN ISO 717-1.
Sound	The vibration, or oscillation, of particles in a medium, such as air, which may be detected by the human ear.
Sound absorption	The reduction of sound energy by transmission through an absorbing medium such an “acoustically soft” material or surface which results in a reduced reflection of incident sound.
Sound absorption class.	A classification system describing the ability of a specified material or surface to absorb sound. Typically measured in a laboratory in accordance with BS EN ISO 354, with class determined in accordance with BS EN ISO 11654.
Sound absorption coefficient, α	A fractional measure of the ability of a material or surface to absorb incident sound. Expressed as a value between 1.0 (total absorption of incident sound, no reflection) and 0.0 (no absorption, 100% reflection).
Sound insulation	The ability of architectural elements or structures to reduce the transmission of sound, predominantly due to the reflection of sound incident on the element or structure. Typically measured as the difference in sound pressure levels between a “source” room containing a loudspeaker and an adjacent “receiving” room.
Sound power level	A logarithmic measurement that quantifies the total sound power of a source emitted in all directions relative to a reference sound power (Wref = 1 pW or 10-12 W). Equal to 10 log10 (W / Wref) and expressed in decibels.
Sound pressure level	A logarithmic measurement that quantifies the sound pressure at a specified position relative to a reference sound pressure (pref = 20 µPa). Equal to 20 log10 (p / pref) and expressed in decibels.
Specific sound level	The equivalent continuous A-weighted sound pressure level at a specified position due to the specific sound source (the sound source being assessed).
Speech transmission index (STI)	The STI is a measurement of the intelligibility of speech content from a sound system or within a speech environment at a defined position and with defined background noise conditions and is a value ranging from 0 to 1. In practice this value varies from around 0.3 (poor intelligibility) to around 0.8 (excellent intelligibility).
STIPA	The STIPA (speech transmission index for public address systems) test method within BS EN 60268-16 is used to assess the speech transmission index within a speech environment. These involves broadcasting a modulated test sound within a space under defined background sound conditions to determine the STI value at defined positions within the space
Third-octave band	A higher-resolution frequency band used in sound measurements. One of three logarithmically equal parts of the corresponding octave frequency band. The upper band edge frequency is equal to the lower band-edge frequency multiplied by 21/3.

Appendix B – Sound Survey Graph


Monitoring Position U1
Measured L_{Aeq}, L_{A90} Time History
LAeq
LA90
Sound Pressure Level (dB re 2x10^{-5} Pa)
90.0
80.0
70.0
60.0
50.0
40.0
30.0
17/01/2020 12:00:00
17/01/2020 15:00:00
17/01/2020 18:00:00
17/01/2020 21:00:00
18/01/2020 00:00:00
18/01/2020 03:00:00
18/01/2020 06:00:00
18/01/2020 09:00:00
18/01/2020 12:00:00
18/01/2020 15:00:00
18/01/2020 18:00:00
18/01/2020 21:00:00
19/01/2020 00:00:00
19/01/2020 03:00:00
19/01/2020 06:00:00
19/01/2020 09:00:00
19/01/2020 12:00:00
19/01/2020 15:00:00
19/01/2020 18:00:00
19/01/2020 21:00:00
20/01/2020 00:00:00
20/01/2020 03:00:00
20/01/2020 06:00:00
20/01/2020 09:00:00
20/01/2020 12:00:00
20/01/2020 15:00:00
20/01/2020 18:00:00
20/01/2020 21:00:00
21/01/2020 00:00:00
21/01/2020 03:00:00
21/01/2020 06:00:00
21/01/2020 09:00:00
Time

Appendix E TW2 Noise Calculations

Noise Impact Assessment

Telehouse West 2 – Environmental Permit Variation

Telehouse International Corporation of Europe Ltd

SLR Project No.: 410.066261.00001

12 March 2026

Generator Room Reverberant SPL	dBA	63	125	250	500	1000	2000	4000	8000
Sound Power Level Lw	126	85	104	107	113	116	118	117	124
Absorption α		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Surface Area S (m^2)		678	678	678	678	678	678	678	678
Room Volume V (m^3)		1188	1188	1188	1188	1188	1188	1188	1188
Total Absorption A -Sabine		136	136	136	136	136	136	136	136
Room Constant R		153	153	153	153	153	153	153	153
Reverberant SPL Lp	**110**	69	88	91	97	100	102	101	108

Air Discharge (north)	dBA	63	125	250	500	1000	2000	4000	8000
Reverberant SPL	110	69	88	91	97	100	102	101	108
Radius Bend x2		-3	-3	-3	-3	-3	-3	-3	-3
Plenum		-3	-3	-3	-3	-3	-3	-3	-3
Attenuator IL		-14	-23	-39	-55	-55	-55	-53	-42
Diffusivity		-6	-6	-6	-6	-6	-6	-6	-6
Louvre Area Correction		23	23	23	23	23	23	23	23
Directivity		3	3	3	3	3	3	3	3
SPL at 1m	**79**	69	79	66	56	59	61	62	80

Air Intake (south)	dBA	63	125	250	500	1000	2000	4000	8000
Reverberant SPL	110	69	88	91	97	100	102	101	108
Diffusivity		-6	-6	-6	-6	-6	-6	-6	-6
Attenuator IL		-14	-23	-39	-55	-55	-55	-53	-42
Louvre Area Correction		5	5	5	5	5	5	5	5
Directivity		6	6	6	6	6	6	6	6
SPL at 1m	**70**	60	70	57	47	50	52	53	71

Exhaust (roof)	dBA	63	125	250	500	1000	2000	4000	8000
Unsilenced exhaust, Lw	126	89	114	118	120	120	119	116	118
Radius Bend x1		-3	-3	-3	-3	-3	-3	-3	-3
Exhaust attenuator		-21	-34	-55	-55	-55	-55	-55	-48
Flue - inline silencer		-2	-3	-7	-14	-12	-8	-8	-6
Sound Power Level	**63**	63	74	53	48	50	53	50	61