BURO HAPPOLD

Turing House

Plant Noise Assessment

0042896

18 August 2021

Revision P01

Revision	Description	Issued by	Date	Checked
P01	Noise Impact Assessment for Planning Submission	DB/SW	18.08.2021	PL

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Glossary

Term	Definition
Ambient noise (as defined in BS 4142)	Totally encompassing noise in a given situation at a given time; it is usually composed of noise from many sources, near and far.
Background Noise (as defined in BS 4142)	A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90 % of a given time interval, T, measured using time weighting, F, and quoted to the nearest whole number of decibels.
Rating Noise Level (as defined in BS 4142	The specific noise level plus any adjustment for the characteristic features of the noise.
Specific Noise Level (as defined in BS 4142)	The equivalent continuous A-weighted sound pressure level at the assessment position produced by the specific noise source over a given reference time interval.
$L_{Aeq,T}$	Equivalent continuous sound pressure level (A-weighted) over a period of time, T. (Ambient noise level)
$L_{A90,T}$	Sound pressure level (A-weighted) exceeded for 90% of the measurement period. Referred to as background noise level.
Decibel, dB	Commonly used unit used for the comparison of the powers of levels sound. Abbreviation dB. For sound pressure level (L_p) the reference quantity is 2x10-5 N/m2. The sound pressure level existing when microphone measured pressure is 2x10-5 N/m2 is 0 dB, the threshold of hearing.
L_{eq} (& L_{Aeq})- Equivalent continuous noise level of a time-varying noise	Steady noise level (usually in dB(A)) which, over the period of time under consideration, contains the same amount of sound energy as the time-varying noise over the same period of time.
L_p - sound pressure level	Sound pressure level, in decibels, of a sound is 20 times the logarithm to the base of 10 of the ratio of the sound pressure to the reference pressure. The reference pressure shall be explicitly stated and is defined by standard.
$L_{Fmax,T}$ (& $L_{AFmax,T}$)	The maximum sound pressure level measured during the measurement period T using the fast time constant.
Frequency	Number of cycles per second, measured in hertz (Hz), related to sound pitch.
C_{tr}	Spectrum adaptation term calculated using traffic noise as described in ISO 717-1:1996. This term is provided with weighted single values such as $D_{nT,w}$ or R_w to match with particular requirements (building acoustic or traffic noise spectrum).
Statistical noise levels	Noise levels that vary greatly over time are usually expressed using statistical values of the level exceeded for a stated percentage of the time. These are denoted Lx, showing the level that is exceeded x% of the time. L_{A90} is considered to be the (A-weighted) background noise level with unusually loud events being excluded. L_{A10} is usually used for the measurement of traffic noise.
Weightings (as defined in IEC 61672:2003):	A-Weighting: Frequency weighting devised to attempt to take into account the fact that human response to sound is not equally sensitive to all frequencies; it consists of an electronic filter in a sound level meter, which attempts to build in this variability into the indicated noise level reading so that it will correlate, approximately, with human response.). C-Weighting: One of the frequency weightings corresponding to the 100-phon contour and the closest to the linear or un-weighted value.

1 Introduction

1.1 Overview

Buro Happold have been appointed by Bowmer and Kirkland to carry out a plant noise assessment to discharge Planning Condition NS41 of the planning approval for Turing House School (hereafter referred to as "the proposed development", or "the development") as shown in Figure 1—1. The Proposed Development is located on Hospital Bridge Road (B358), Twickenham.

It is understood that proposed plant items will be situated on the roof of the development, as seen in Figure 1—2.

The purpose of this report is to demonstrate that the noise emissions associated with plant installation at the school will not unduly impact the amenity at nearby noise-sensitive receptors.

Site visits and surveys were carried out by SRL in June 2017, to identify the nearest noise sensitive receptors that could be adversely affected by the proposed new sources of noise at the site. Background noise levels were captured at the site and subsequently used to inform design noise limits for the plant items. This desk-based assessment has been undertaken to demonstrate that plant noise limits can be achieved.

The assessment undertaken is based on:

- Manufacturer sound level data for the proposed plant items
- The measurement background sound level - $L_{90,T}$ dB(A)
- Planning Condition NS41

A 3D acoustic model has also been created to demonstrate compliance with the requirements of Planning Condition NS41.

1.2 Content

In summary, the assessment includes the following:

- Description of the proposed development and site
- Acoustic criteria and planning conditions
- Existing baseline conditions at the site and surrounding area
- Potential noise impact upon existing NSRs
- Conclusions

1.3 Reference Code & Standards

The acoustic design report refers to the following list of codes and standards

- **British Standard (BS) 4142: 2014+A1:2019** – Methods for rating and assessing industrial and commercial noise is a standard used primarily for assessing the likelihood of complaints from residents caused by industrial/commercial noise
- **British Standard (BS) 7445: 2003** - Description and Measurement of Environmental Noise
- **Local council –** London Borough of Richmond upon Thames, Hillingdon and Hounslow.

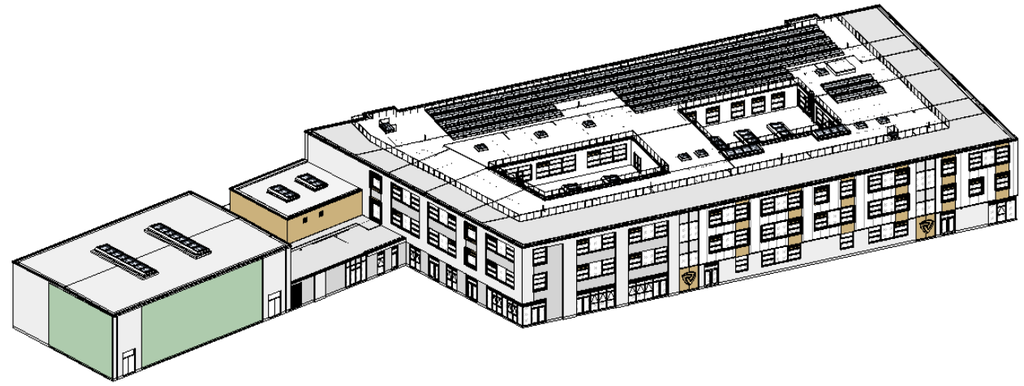

Figure 1—1 3D render of Turing House School

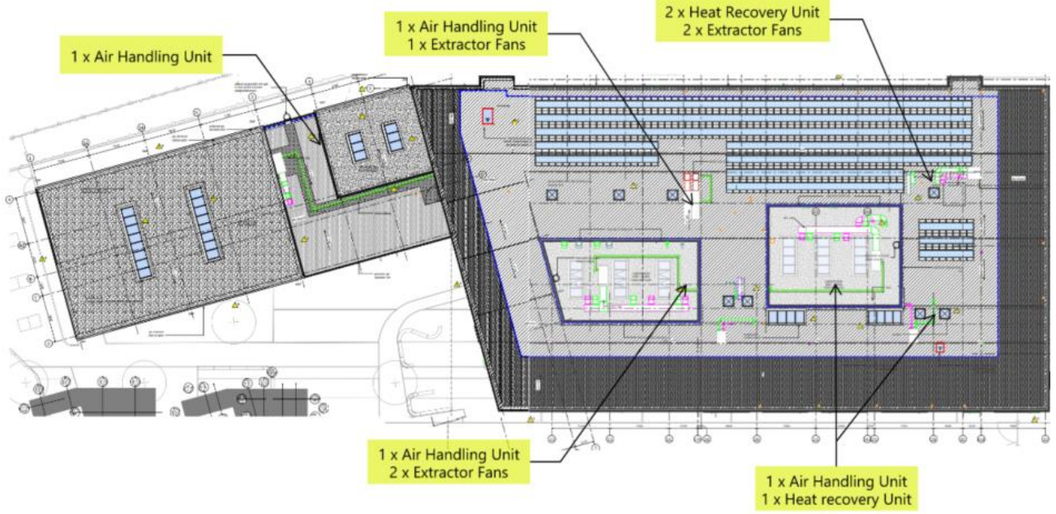

Figure 1—2 Turing House School Roof GA annotated to show approximate location of roof plant items.

2 Noise Assessment Criteria

2.1 Planning Condition

Planning Condition NS41 is reproduced below and describes the noise limits at nearby noise sensitive receptors that must be achieved when plant items at the development are operating.

NS41 Planning Condition

"a) Before any mechanical services plant including heating, ventilation and air conditioning (HVAC) and kitchen extraction plant to which the application refers is used at the premises, a scheme shall be submitted to and approved in writing by the local planning authority which demonstrates that the following noise design requirements can be complied with and shall thereafter be retained as approved

b) The cumulative measured or calculated rating level of noise emitted from the mechanical services plant including heating, ventilation and air conditioning (HVAC) and kitchen extraction plant to which the application refers, ***shall be 5dB(A) below the existing background noise level****, at all times that the mechanical system etc operates. The measured or calculated noise levels shall be determined at the boundary of the nearest ground floor noise sensitive premises or 1 meter form the facade of the nearest first floor (or higher) noise sensitive premises, and in accordance to the latest British Standard 4142. An alternative position for assessment /measurement may be used to allow ease of access, this must be shown on a map and noise propagation calculations detailed to show how the design criteria is achieved.*

c) The plant shall be isolated on adequate proprietary anti-vibration mounts to prevent the structural transmission of vibration and regenerated noise within adjacent or adjoining premises, and these shall be so maintained thereafter.

d) A commissioning acoustic test and report shall be undertaken within 2 weeks of mechanical services commissioning, in order to demonstrate that condition 1(b&c) above has been achieved. The results of the test shall be submitted to and approved in writing by the Local Planning Authority."

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

The BS 4142:2014 provides methods for rating and assessing sound of an industrial and / or commercial nature, which includes sound from industrial and manufacturing processes, fixed services plant, sound generated by the loading / unloading of goods and sound from mobile plant / vehicles associated with industrial / commercial premises (e.g. fork-lift trucks).

The standard utilises various descriptors to assess complaints, the impact of sound associated with proposed industrial / commercial activities on existing noise-sensitive receivers, or the impact and likely suitability of siting new noise-sensitive receivers in the vicinity of existing industrial / commercial noise sources.

The standard is specifically precluded from being used to determine likely internal sound levels arising from external noise, or from the assessment of various sound sources for which other (more relevant) guidance exists, including music / entertainment noise, person noise and construction noise.

The magnitude of impact is assessed by subtracting the measured background sound level at a location representative of the nearest noise-sensitive receiver (NSR), from the 'rating level' (the specific sound source to be introduced into the locality, corrected for acoustically distinguishing characteristics which may make it more subjectively prominent).

Typically, the greater the difference between the background and rating level, the greater the magnitude of impact, although BS 4142:2014 emphasises that this is highly context specific.

Above all, BS 4142:2014 requires qualified engineering consultants and technical planning professionals (e.g. Environmental Health Officers) to use a combination of quantitative assessment techniques and rational qualitative judgements to come to a sensible and reasonable conclusion.

2.2.1 Definitions

The basis of BS 4142 is a comparison between the background sound level in the vicinity of residential locations and the rating level of the sound 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 time interval, T
- **Residual Sound Level** – $L_{Aeq,T}$ - the equivalent continuous 'A' weighted sound pressure level at the assessment location in the absence of the specific sound source under consideration, over a given time interval, T
- **Rating Level** – $L_{Ar,Tr}$ – the specific sound level plus any adjustment made for the characteristic features of the noise.

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, 4 dB where it is clearly perceptible and 6 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 but are readily distinctive against the residual acoustic environment.

It should be noted that where one feature is clearly perceived as dominant, it may be applicable to correct for that feature only. Where multiple features are likely to affect perception and response, each should be added arithmetically.

3 Noise Survey Results and Specific / Rating Sound

The following details have been extracted with reference to SRL Noise Impact Assessment report (see Appendix A) issued in July 2017.

3.1 Noise sensitive receivers

The following noise-sensitive receptors (NSRs), as previously identified in the SRL report, are annotated in Figure 3—1.

3.2 Plant Noise Limits

From the results obtained during the noise survey, the lowest measured daytime background noise level at the nearest noise sensitive receivers was $L_{90,T}$ 41 dB(A) (at MP3). The highest permissible average noise level from services plant associated with the proposed development should therefore be no greater than $L_{Ar,Tr}$ 36 dB(A) during the daytime, when assessed at the nearest noise-sensitive (i.e. residential) dwelling.

Table 3—1 shows the broad-band noise levels not to be exceeded at 1 m from an NSR façade due to plant noise associated with the proposed school.

Table 3—1 Limiting plant noise levels during Daytime (07:00 – 23:00 hours)

NSR	Lowest measured existing background noise level L_{A90} - dB	Max. SPL (dB) @ 1 m from affected Façade – $L_{Ar,Tr}$ - dB
NSR 1	47	42
NSR 2	43	38
NSR 3	47	42
NSR 4	42	37

NOTE — It is assumed that plant only operates during daytime hours, 07:00 to 23:00 hours.

The above limits should be met with all plant operating simultaneously at design load. In line with the guidance within BS 4142, penalties apply if the fixed plant items produce any unusual acoustic features such as tonality, impulsivity, intermittency, or other sound characteristics at any noise-sensitive façade.

Figure 3—1 Image of the existing site and surrounding NSRs

4 Plant Items

It is understood that plant is proposed to be situated at the rooftop level of the development. These comprise:

- Air Handling Units (AHU)
- Extract Fans (EF)
- Heat Recovery Units (HRU)
- Attenuators

Plant items are understood to operate only during school hours (07:00 – 19:00).

4.1 Air Handling Units (AHUs)

It is proposed to install 4 AHUs on the rooftop of the development. The noise data for these units are presented in Table 4—1.

Table 4—1 Sound Power levels of Air Handling Units

AHU description		Sound pressure level at 1 metre - dB re 20 µPa at the octave-band centre frequency - Hz							
		63	125	250	500	1000	2000	4000	8000
AHU R-01	(Supply) Inlet	63	61	59	55	49	46	40	30
	(Extract) Outlet	71	69	71	66	69	65	61	56
	Case radiated at 3m	45	41	44	22	18	15	12	7
AHU R-03 Dining room	(Supply) Inlet	54	50	55	54	47	47	38	24
	(Extract) Outlet	59	59	64	63	68	66	60	54
	Case radiated at 3m	35	33	39	20	19	17	12	7
AHU R-04 Main Hall	(Supply) Inlet	64	62	61	59	50	48	40	28
	(Extract) Outlet	73	70	75	73	75	72	68	64
	Case radiated at 3m	47	42	48	28	24	21	17	13
AHU R-05 Kitchen Supply	(Supply) Inlet	61	68	68	63	62	54	49	41
	(Extract) Outlet	39	44	48	28	22	17	15	12
	Case radiated at 3m	39	44	48	28	22	17	15	12

4.2 Heat Recovery Units (HRUs)

It is proposed to install 3 HRUs on the rooftop of the development. The noise data for these units are presented in Table 4—2.

Table 4—2 Heat Recovery Units sound power levels

HRU description		Sound power level - dB re 10-12 W at the octave-band centre frequency - Hz							
		63	125	250	500	1000	2000	4000	8000
HRU R-02	Case radiated	72	67	56	43	41	39	35	32
	Outlet	77	59	54	45	56	52	41	27
HRU R-03 & 04	Case radiated	76	70	61	61	52	51	45	41
	Outlet	77	62	67	68	64	59	47	35

4.3 Extract Fans

It is proposed to install 4 extract fans on the rooftop of the development. The noise data for these units are presented in Table 4—3.

Table 4—3 Sound Power levels of extract fans

EF description		Sound power level - dB re 10-12 W at the octave-band centre frequency - Hz							
		63	125	250	500	1000	2000	4000	8000
EF 01 & 02	Outlet	-	69	80	79	78	74	70	65
EF 03	Outlet	-	59	63	69	66	65	82	68
EF 04	Outlet	-	59	63	69	66	65	82	68

4.4 Attenuators

All plant items are proposed to have attenuators. The insertion loss associated with the attenuators is detailed in the following tables.

Table 4—4 Insertion loss of Attenuators for Air Handling Units

Attenuator description		Insertion Loss - dB at the octave-band centre frequency - Hz							
		63	125	250	500	1000	2000	4000	8000
Attenuators for AHU R-01									
ATTR-19	AHU R-01 INTAKE Atmosphere side	2	4	5	9	14	12	8	6
ATTR-20	AHU R-01 DISCHARGE Atmosphere side	2	4	5	9	14	12	8	6
ATTR-21	AHU R-01 EXTRACT Room side	4	6	12	20	22	20	13	7
ATTR-22	AHU R-01 SUPPLY Room side	4	8	13	23	26	24	14	10
Attenuators for AHU R-02									
ATTR-23	AHU R-02 INTAKE Atmosphere side	2	4	6	12	20	18	12	9
ATTR-24	AHU R-02 DISCHARGE Atmosphere side	2	4	6	12	20	18	12	9
ATTR-25	AHU R-02 EXTRACT Room side	4	7	13	22	27	27	18	10
ATTR-26	AHU R-02 SUPPLY Room side	3	8	12	19	30	31	24	15
Attenuators for AHU R-03									
ATTR-27	AHU R-03 INTAKE Atmosphere side	2	3	5	10	15	11	7	5
ATTR-28	AHU R-03 DISCHARGE Atmosphere side	2	4	6	11	18	13	8	6
ATTR-29	AHU R-03 EXTRACT Room side	5	11	18	33	37	28	16	10
ATTR-30	AHU R-03 SUPPLY Room side	4	9	15	27	31	27	16	11
Attenuators for AHU R-04									
ATTR-31	AHU R-04 INTAKE Atmosphere side	1	3	4	6	9	7	5	3
ATTR-32	AHU R-04 DISCHARGE Atmosphere side	3	5	10	17	17	12	8	5
ATTR-33	AHU R-04 EXTRACT Room side	4	6	14	29	30	23	18	15
ATTR-34	AHU R-04 SUPPLY Room side	4	6	14	29	30	23	18	15

Table 4—5 Insertion loss of Attenuators for Heat Recovery Units

Attenuator description		Insertion Loss - dB at the octave-band centre frequency - Hz							
		63	125	250	500	1000	2000	4000	8000
Attenuators for HRU 0-04									
ATT0-13	HRU 0-04 INTAKE Atmosphere side	-	-	-	-	-	-	-	-
ATT0-14	HRU 0-04 DISCHARGE Atmosphere side	1	2	4	9	19	13	11	10
ATT0-15	HRU 0-04 EXTRACT Room side	1	2	5	11	23	14	12	11
ATT0-16	HRU 0-04 SUPPLY Room side	3	8	12	19	30	31	24	15
Attenuators for HRU 0-03									
ATTR-05	HRU 0-03 INTAKE Atmosphere side	-	-	-	-	-	-	-	-
ATTR-06	HRU 0-03 DISCHARGE Atmosphere side	-	-	-	-	-	-	-	-
ATTR-07	HRU 0-03 EXTRACT Room side	1	2	5	9	21	14	13	13
ATTR-08	HRU 0-03 SUPPLY Room side	1	2	6	12	25	17	15	14
Attenuators for HRU 0-02									
ATTR-09	HRU 0-02 INTAKE Atmosphere side	-	-	-	-	-	-	-	-
ATTR-10	HRU 0-02 DISCHARGE Atmosphere side	-	-	-	-	-	-	-	-
ATTR-11	HRU 0-02 EXTRACT	1	2	5	9	21	14	13	13
ATTR-12	HRU 0-02 SUPPLY	1	2	6	12	25	17	15	14

Table 4—6 Insertion loss of Attenuators for Extract Fans 1,4,3,2,

Attenuator description		Insertion Loss - dB at the octave-band centre frequency - Hz							
		63	125	250	500	1000	2000	4000	8000
Attenuators for EF R-01									
ATTR-13	EF R-01 EXTRACT	2	4	6	11	18	13	8	6
ATTR-14	EF R-01 EXHAUST Atmosphere side	3	6	10	17	24	19	12	8
Attenuators for EF R-02									
ATTR-15	EF R-02 EXTRACT	2	4	6	12	21	17	11	7
ATTR-16	EF R-02 EXHAUST Atmosphere side	4	6	9	18	32	24	15	9
Attenuators for EF R-03									
ATTR-17	EF R-03 EXTRACT	1	3	7	12	22	21	13	10
ATTR-18	EF R-03 EXHAUST Atmosphere side	2	4	7	12	21	30	25	22

5 3D Environmental Noise Modelling

5.1 Introduction

A 3D acoustic model of the site has been created to simulate potential noise break-out from the proposed rooftop plant using CadnaA® (2019 version). The purpose of this section is to demonstrate the level of noise impact on the NSRs surrounding the site and allow an assessment to be made against the target criteria.

5.2 Noise Modelling and prediction methodology

CadnaA® is a sophisticated noise modelling software package that predicts noise levels based on the appropriate input data e.g. location and orientation of equipment and sound power data. The software package can take into account a variety of information about the site, including topography, buildings, and potential noise sources.

Inputs and assumptions used in the noise model include:

- The ground conditions have been modelled as hard, with a ground absorption of 0 representing hard ground
- Air temperature was assumed to be 10 degrees and humidity 70%
- It is assumed that all building façades are reflective, and therefore they have been given an absorption coefficient of 0
- Five orders of reflection have been modelled
- The L_w of each plant item has been taken from the manufacturer's data sheet (data table shown in Section 4), and modelled as a point source at each location
- All mechanical plant and equipment operating at full capacity.
- Assessed for school hours between 07:00 – 19:00

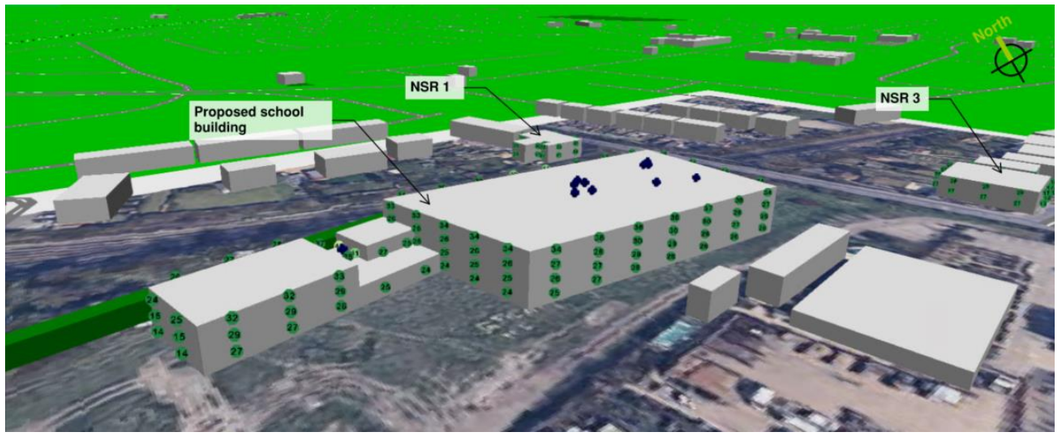

Figure 5—1 Image of model showing highest predicted $L_{Aeq,T}$ (dB) noise levels at the proposed façades and NSR 1 and NSR 3 façades from proposed plant during school hours (07:00 to 19:00 hours)

Figure 5—2 Highest predicted $L_{Aeq,T}$ (dB) noise levels at the proposed façades and NSR 1 and NSR façades from proposed plant during school hours (07:00 to 19:00 hours)

Figure 5—3 Highest predicted $L_{Aeq,T}$ (dB) noise levels at the proposed façades and NSR 3 and NSR 4 façades from proposed plant during school hours (07:00 to 19:00 hours)

5.3 Noise Modelling Results – Specific Sound Level

The noise levels presented are at one metre from the façades.

As evidenced in Figure 5—2 and Figure 5—3, with rooftop plants in operation under typical conditions, the highest noise levels are predicted to be

- $L_{eq,T}$ 27 dB(A) at NSR 1 (Northern)
- $L_{eq,T}$ 33 dB(A) at NSR 2 (North western)
- $L_{eq,T}$ 29 dB(A) at NSR 3 (Eastern)
- $L_{eq,T}$ 29 dB(A) at NSR 4 (Southern)

These levels will be corrected for acoustic features to obtain a rating level, which will then be compared to the typical background level to generate the BS 4142 assessment.

5.4 Rating level

As discussed in Section 2, it is a requirement of BS 4142 that the subjective prominence of the specific sound is considered when assessing the likely impact at nearby noise sensitive receivers, based on the likelihood of any acoustically distinguishing characteristics of the specific sound which may attract attention (whilst considering the existing residual sound climate).

Buro Happold has considerable experience in mechanical plant, and all Buro Happold staff are (minimum) degree-qualified engineering consultants in acoustics or a related discipline. All (acoustics) staff members involved in this scheme are corporate members of the Institute of Acoustics and are therefore considered suitably qualified to make the following assessments.

5.4.1 Tonality

Noise associated with ventilation units is not typically tonal, given that the sound generation is typically associated with air movement and therefore includes sound associated with the motor, air displacement and turbulence. Therefore, no corrections for tonality are considered to be required.

5.4.2 Impulsivity

Neither the ventilation system nor cooling towers are considered to have particularly steep ‘ramp up’ levels, nor do either have any features which rapidly interrupt the sound generation. On this basis, no corrections for impulsivity are considered to be required.

5.4.3 Intermittency

The ventilation systems have a tendency of ramping up when more cooling is required during the day and then ramp down as the ambient temperature reduces. However, it is understood that the ramping in fan speed is a gradual process and is highly likely to be unnoticeable throughout the day. On this basis, no correction has been applied for intermittency.

5.4.4 Summary table – rating level

The tables below show the specific sound level, corrected for the various features given above to obtain the rating level required in BS 4142.

Table 5—1 Calculated rating level – NSR 1

Value	Correction dB	Specific sound level, $L_{eq,Tr}$ dB(A)
Baseline specific sound level	-	≤ 42
Tonality correction	+ 0	≤ 42
Impulsivity correction	+ 0	≤ 42
Intermittency correction	+ 0	≤ 42
Rating level, $L_{r,Tr}$ dB(A)		**≤** 42

Table 5—2 Calculated rating level – NSR 2

Value	Correction dB	Specific sound level, $L_{eq,Tr}$ dB(A)
Baseline specific sound level	-	≤ 38
Tonality correction	+ 0	≤ 38
Impulsivity correction	+ 0	≤ 38
Intermittency correction	+ 0	≤ 38
Rating level, $L_{r,Tr}$ dB(A)		**≤ 38**

Table 5—3 Calculated rating level – NSR 3

Value	Correction dB	Specific sound level, $L_{eq,Tr}$ dB(A)
Baseline specific sound level	-	≤ 42
Tonality correction	+ 0	≤ 42
Impulsivity correction	+ 0	≤ 42
Intermittency correction	+ 0	≤ 42
Rating level, $L_{r,Tr}$ dB(A)		**≤ 42**

Table 5—4 Calculated rating level – NSR 4

Value	Correction dB	Specific sound level, $L_{eq,Tr}$ dB(A)
Baseline specific sound level	-	≤ 37
Tonality correction	+ 0	≤ 37
Impulsivity correction	+ 0	≤ 37
Intermittency correction	+ 0	≤ 37
Rating level, $L_{r,Tr}$ dB(A)		**≤ 37**

As can be seen in the tables above and in Section 5.3, the proposed plant is expected to comply with the target criteria of $L_{r,Tr}$ 36 dB(A) as determined by Planning Condition NS41.

6 Conclusion

6.1 Council Requirements

To meet NS41 planning requirements, London Borough of Richmond upon Thames has advised that:

> *b) The cumulative measured or calculated rating level of noise emitted from the mechanical services plant including heating, ventilation and air conditioning (HVAC) and kitchen extraction plant to which the application refers, shall be 5dB(A) below the existing background noise level, at all times that the mechanical system etc operates.*

Therefore, the plant rating level shall not exceed 5 dB below the typical background sound level.

In-line with the noise survey conducted by SRL around the proposed site from the 15 to 21 June 2017 by SRL plant noise levels should be limited to $L_{r,Tr}$ 36 dB(A) at the nearest NSR to comply with the NS41 Planning Condition.

6.2 Findings

On the basis of the above, it is considered that the NS41 Planning Conditions can be achieved with the proposed plant selection and attenuation measures outlined in Section 4 of this report. The school is therefore considered to be suitable in terms of noise and planning, and acoustic concerns are not considered to represent any barrier to development.

Appendix A SRL Noise Survey

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