Condition 24 (Pre-completion testing commercial noise)

CONDITION

Prior to first occupation of the development, a pre-completion testing report must be submitted to and approved in writing by the local planning authority. This report must show compliance with the following:

- Noise testing showing that indoor ambient noise levels in living rooms and bedrooms from commercial noise sources are 10dB below the standards within BS 8233:2014 and LAmax levels do not to exceed 40dB internally with windows closed.

Testing must take place in the properties that would be worst affected by the commercial noise sources, as in the closest property to the noise source. Testing must also take place for a suitable period of time to ensure that the commercial units are in fact operating so representative noise levels can be recorded.

Non-compliance with these levels will require additional mitigation measures to be incorporated into the development prior to the occupation of the development. Such measures must be submitted to and approved in writing by the Local Planning Authority before the development is occupied.

All approved mitigation measures which secure compliance with the terms of this condition must be implemented and retained. If any approved mitigation measure requires replacing, the replacement must perform to at least the same sound protection level as previously approved.

REASON

To ensure that intended occupiers of the development are not subject to unacceptable levels of noise due to transport sources, in accordance with Policy R19 of the Welwyn Hatfield District Plan 2005, Policy SADM 18 of the Welwyn Hatfield Borough Council Draft Local Plan Proposed Submission August 2016, and the National Planning Policy Framework.

RESPONSE

Based on our observations, the worst-case commercial noise source was found to be the A UKPN compound is located immediately to the north-western boundary of the site and comprises two transformers.

An assessment has been undertaken to predict the internal ambient noise levels inside the proposed dwellings that are closest to the UKPN transformers (northern facing property at 1st floor level).

During our noise survey on site, additional attended noise measurements were undertaken close to the substations to capture their noise emissions. The locations of these measurements are indicated on Figure 2 (marked up as A1 and A2), which were taken approximately 3m from the substation. These measurements are presented in Table 1 below.

Figure 2: Unattended (MP) and attended (A) monitoring locations, site boundary (red) and surrounding businesses (Google Maps ®)

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RESPONSE

Table 2: Attended Noise measurements – UKPN substation source measurements

Measurement position	Frequency, Hz																							
	50	63	80	100	125	160	200	250	315	400	500	630	800	1 k	1.25 k	1.6 k	2 k	2.5 k	3.15 k	4 k	5 k	6.3 k	8 k	10 k
A1 – 3.5m from substation	64	60	56	54	52	53	54	49	47	45	44	43	45	44	42	39	36	34	32	31	28	24	20	15
A2 – 2m from substation	67	62	61	66	55	53	57	51	52	52	48	52	48	46	45	44	42	41	39	37	33	30	27	23

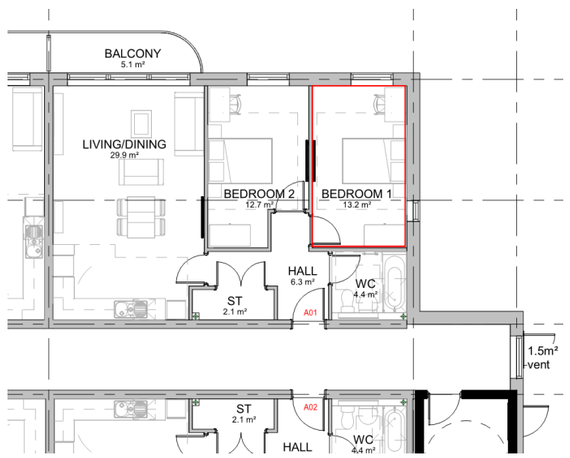
Indicative calculations have been undertaken following the general method set out in BS EN 12354-3:2017. These calculations have been carried out in 1/3 octave band levels to account for the substation related sources (given there are dominant low frequency noise tones).

As mentioned above, internal ambient noise calculations have been undertaken in the most exposed apartment overlooking UKPN's substation compound. These calculations have been based on the worst-case attended measurements (which have been corrected to account for noise attenuation due to distance in accordance with ISO 9613 prediction methodologies) and the proposed external building fabric construction (e.g., external wall, glazing and ventilation configurations).

The worst-case room selected for our calculations is the small bedroom at first floor level on the northern elevation of the building, which has the following floor and façade areas:
Small bedroom:

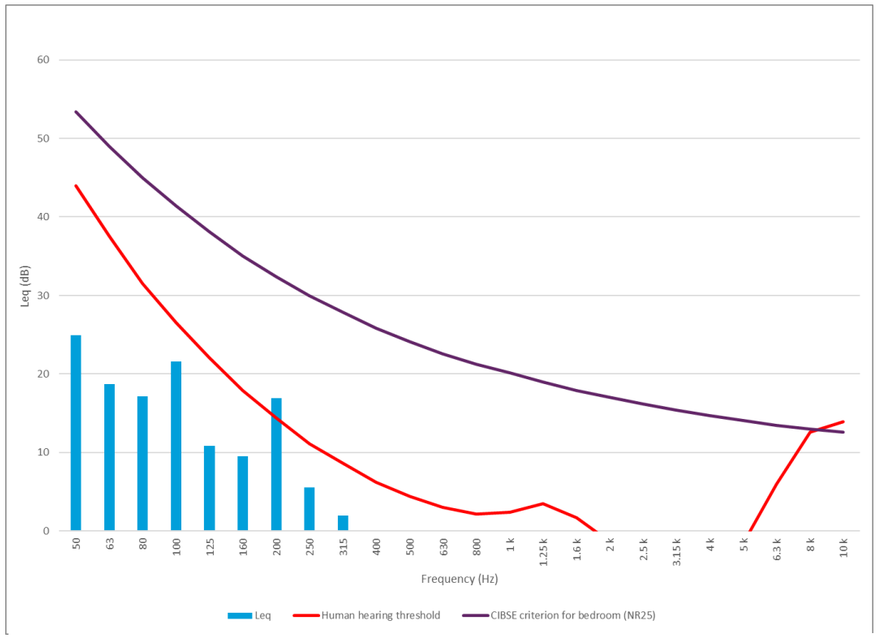
- Floor area: 13.2m2
- Wall area: 17.5m2
- Glazing area: 2.5m2

Figure 2: Worst-case bedroom at 1st floor level overlooking existing substation



It should be noted that these calculations have been carried out assuming windows are closed. The result of the assessment is expressed in Figure 3 below, which presents the predicted internal noise level against the CIBSE criterion for bedrooms and the human hearing threshold.

Figure 3: Predicted Internal Ambient Noise Level (North elevation – worst-case bedroom, windows assumed closed)



The results indicate that when accounting for the worst-case scenario, noise emissions from the UKPN compound will be negligible in the closest proposed dwelling. Figure 3 indicates that in the 200Hz 1/3 octave band, substation emissions fall within the human hearing range (by 3dB), however it is very unlikely that the prevailing internal ambient noise level in apartments will in any circumstance be low enough for it to be audible (due to noise masking from ingress of environmental noise via the façade; MVHR noise; residents noise inside the flat e.g. TV, music, washing machine, etc.).

Pre-completion testing required to discharge condition 23 will inherently measure cumulative noise from both local road traffic (dominant noise source) and surrounding commercial activities, which have been captured during our long-term unattended noise survey. Given it is not feasible to isolate the noise emissions from all commercial noise sources, we consider the data captured during the long-term survey to be suitable to inform the external building fabric design, which should sufficiently safeguard the amenity of dwellings from external commercial noise intrusion.