

784-B048969: SOVEREIGN INDUSTRIAL PARK, HUYTON, EHO COMMENT RESPONSE

1.1 INTRODUCTION

This response document has been prepared in response to comments raised by Helen Bradshawe (Environmental Health & Consumer Protection, Knowsley Council) on 25th March 2024, in response to a previous Tetra Tech response on 1st March 2024 regarding the following noise assessment:

- 784-B048969 Sovereign Industrial Estate Noise Assessment by Tetra Tech, dated 10th Oct 2023

Comments raised by Environmental Health are reproduced in *italics* below, with Tetra Tech responses presented in [blue](#).

1.2 ENVIRONMENTAL HEALTH COMMENTS

Comment 1

Environmental Health has reviewed the noise assessment submitted with the application, and the recent comments submitted by the noise consultant following our initial comments.

Whilst we still have concerns with the noise assessment, our main concern, which needs addressing before we comment further, is with regards to the proposed site layout (see below).

The photo below shows the satellite view from Google Maps. The plan to the right shows the existing layout plan they submitted with the application. Has the building circled in red been removed? If it has, when was it removed?

Response 1

The above is related to existing site management and layout, so no response is provided within this document.

Comment 2

Ultimately, we do not believe the proposed site layout (see above) is appropriate for the site, given the proximity of the residential properties on Bridgewater Way (around receptor location 09 of their noise report). The main reason being the splitting up of the units and the introduction of a haul road (the purple line on the proposed site plan above).

The current layout offers a robust barrier between the residents of Bridgewater Way and the warehouses.

Response 2

While it is acknowledged that the proposed site layout introduces an additional noise source to the rear of the industrial units, it is considered that the orientation of the proposed site retains the use of buildings to shield sensitive dwellings from unloading and service yard activity.

In addition to the above, the dwellings to the rear of the site benefit from a significant acoustic barrier intended to provide protection from industrial activity. While the presence of this barrier does not allow industrial activity to occur without limit, it is considered that the results of the noise assessment demonstrate that the proposed site activities are adequately weighted against the protection offered by the existing mitigation measures.

Comment 3

The noise consultants state that the worst-case scenario will be 8 vehicle movements per hour using the haul road both of a day and night. That equates to potentially 192 HGV movements of a day passing a residential garden less than 10 metres away. This doesn't account for vans that may be using the site.

Response 3

The scenario assessed is considered to represent a peak-hourly period to represent a worst-case scenario, and as such should not be extrapolated to represent a full daily period. Considering the conclusions of the traffic assessment present an HGV trip generation figure of 225 for the entire development in a 24-hour period (inclusive of unit A which is greater than double the floor area of unit D, and utilizes 1.8x the number of loading bays), it is anticipated that in practice the flows to unit D are significantly lower than those presented within the Noise Assessment, and significantly lower than the figure presented by the Officer in this instance.

Comment 4

The noise report didn't adequately assess the maximum noise levels from the HGVs as they pass the gardens, but they have provided further information on the HGV movements in their recent response, which states a HGV noise level of 83dB at 3 metres resulting in a level of 57dB at the façade and 42dB internally. (The figure used confirms previous reports we have reviewed which has stated a noise level for a HGV pass-by of 84dB at 4 metres.) The figure they have quoted however is assuming a reduction of 15dB for an open window, although this is a window that is barely open. A fully open window (very likely in summer) would only offer around a 5dB reduction.

Response 4

While it is noted that the reduction through an open window is subject to variance based upon the equivalent area and type of window, studies reproduced within the Acoustics Ventilation and Overheating (AVO) Residential Design Guide published in 2020 by the Association of Noise Consultants and Institute of Acoustics indicate that the typical range for sound reduction through an open window is 10-15.8dB, with a 15dB reduction calculated to be representative of a 1.0m x 0.5m window open to 40° (exceeding the Approved Document F 30° opening requirements for **purge** ventilation, therefore significantly exceeding

the required opening size for overheating ventilation) using Equation D.1 of BS 12354-3 'Building Acoustics – Estimation of Acoustic Performance of Buildings from the Performance of Elements Part 3: Airborne Sound Insulation Against Outdoor Sound':

$$D_{n,e} = -10 \lg \frac{S_{open}}{10} = -14.6 \text{ dB}$$

Where:

S_{open} is the area of the opening in m^2 (derived in this instance from reference table D3 of Approved Document O based upon the window dimensions presented previously).

While it is understood and appreciated that the protection of sensitive receptors from new sources of noise should be carefully scrutinized, it is considered that the assessment undertaken is robust and utilizes a reasonable and representative methodology, based upon applicable and substantiated guidance presented within relevant professional guidance documents.

Comment 5

How have they arrived at a level of 57dB at the façade? Based on the figures we have used, given that the nearest garden is less than 10 metres away this would result in a level of 72dB at 16 metres (using the standard reduction of 6dB with the doubling of distance method), take off 10dB for a barrier and it could be approximately 62dB at the façade of the nearest property. In the summer, with bedroom windows open, this could result in an internal level of 47dB, if you assume window is slightly open (15dB reduction) but it could be up to 57dB inside the bedroom if the window is open wide (5 dB reduction).

Given the characteristic of the noise from a HGV accelerating, it is a distinct sound and will be noticeable at night, particularly against a background of 39dB. [It would have been useful if they had done some long-term monitoring in the area behind gardens of the houses in Bridgewater Way (see the area outlined in yellow on the 'Google Maps site plan' above.)]

Using their own figure of 57dB at the façade, with a window fully open, it would still result in a level of 52dB internally.

Response 5

Modelling has been undertaken using CadnaA noise propagation software incorporating ISO 9613-2 noise propagation methodology based upon the model input data and calculation methodology presented within the submitted noise assessment. For clarity, a desk-based calculation has been undertaken to determine absolute maximum internal and external noise levels at first-floor height based upon the assessment data presented within the report. This assessment is presented within Table 1 overleaf.

Table 1: Calculation of Maximum Noise Levels at Sensitive Receptors

Model Inputs	Value
Direct Propagation	
Sound Pressure Level 1 (SPL ₁)	82.6 dB(A)
Distance 1 (R1 – Source to Measurement Position)	3.0m
Distance 2 (R2 – Source to Façade)	24.2m
Equation for Sound Pressure Level 2	$SPL_2 = SPL_1 - 20 \log\left(\frac{R_2}{R_1}\right)$
Calculated Sound Pressure Level 2 (SPL ₂)	64.5 dB(A)
Maekawa Barrier Calculation	
Source to Barrier Crest (a)	13.4m
Barrier Crest to Façade (b)	10.9m
Direct Source-Receiver Path (c)	24.2m
Path Difference (a+b-c)	0.2m
Ground Reflections Included?	Yes (G=20)
Wavelength (λ)	0.68m*
Equation for Barrier Attenuation	$Atten. = -10 \log\left(3 + \left(\frac{G}{\lambda}\right) \times Path\ Difference\right)$
Calculated Barrier Attenuation	-9.6dB
Summary	
External L _{AMax} Noise Level at Façade	64.5 – 9.6 = 54.9 dB
Internal L _{AMax} Noise Level through Open Window	39.9 dB (15dB Reduction)
*Calculation undertaken at 500Hz as per guidance within ISO 9613-2	

As demonstrated above, the desk-based calculation results in an external noise level 2.5dB lower than that predicted using modelling software. It is considered that these two values corroborate when considering the additional effects of hard-surface reflections incorporated in the noise model (which would be anticipated to contribute up to 3dB in this instance).

Comment 6

This would mean the residents could be exposed to 64 HGV movements, at a level around 52dB (their figure) or 57dB (our figure), throughout the night-time period. This goes against WHO guidance, which states that individual noise events more than 45dB(A) should be avoided. Given the frequency that the disturbances could occur if this development goes ahead, it is likely to have a negative effect on some residents in Bridgewater Way.

Given the above Environmental Health are objecting to this application, as we believe the noise from the HGV's (and vans) will negatively impact the resident's enjoyment of their gardens during the daytime and their sleep during the night-time.

Response 6

Based upon the responses contained within this document, it is considered demonstrated that when assessed using reasonable worst-case assumptions, both the maximum internal average and maximum noise levels are within the established criteria at nearby sensitive receptors.

It is also considered to be demonstrated that the submitted noise assessment and supplementary information contained within the initial response document dated 01st March 2024 present a robust, worst-case assessment in terms of both vehicle movements and maximum noise levels.

Comment 7

Environmental Health have concerns over the fumes from the HGV's (and vans) that could enter the properties at the back of Bridgewater Way due to the number of vehicles proposed to use the road and close proximity of the residential properties.

Response 7

The above is related to airborne vehicle emissions, and so no response is provided within this document.

End of Document

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