

Validation Testing Assessment

Site Address:	Bridon-Bekaert at Willington Quay, Western Road, Wallsend, NE28 6TU
Project Reference No:	NP-010861
Subject:	Assessment of noise emissions from site alterations
Client:	Adelphi Consulting Engineers
Reported By:	P Soler, BEng, MIOA, MIET
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Date:	27/03/2024

1. Introduction

Planning permission has been granted by North Tyneside Council relating to alterations to the Bridon-Bekaert site in Wallsend. The application is titled as follows:

'22/02024/FUL – Extension to the existing building and the erection of no. 2 ancillary lean storage'.

The following conditions relating to noise from the site have been imposed by the Council:

"Condition 5: Prior to operational activities occurring within the building a scheme shall be submitted to and approved in writing by the Local Planning Authority which specifies the provisions to be made for the control of noise emanating from the site. The rating level for all plant must not exceed the existing background noise level of 41 dB L_{Aeq} during the operational period of 0600 – 2240 hours by more than 3 dB at boundary of the nearest sensitive residential receptor on Quay View and Cawfields Close. The approved scheme shall be carried out in full prior to operational activities occurring.

Reason: To safeguard the amenity of nearby residents having regard to policy DM5.19 of the North Tyneside Local Plan (2017) and National Planning Policy Framework."

"Condition 6: Within one month of the plant and equipment being installed acoustic testing must be undertaken to verify compliance with condition 5 and a report of the findings submitted to and approved in writing by the Local Planning Authority.

Reason: To safeguard the amenity of nearby residents having regard to policy DM5.19 of the North Tyneside Local Plan (2017) and National Planning Policy Framework."

NOVA Acoustics provided an acoustic assessment for the proposals in July 2022. The proposals included the installation of 2no. new machines within a new extension to an existing site building. The exact specifications for the machines were not available at the report was written, however, the applicant stated that they would be similar in nature to existing machines located on site. Given this, noise levels were measured within the existing building, and the measurements were used to inform the extension noise breakout calculations.

The development has been now fully completed. The purpose of this assessment is to measure the noise emissions from the site at the surrounding NSRs and calculate whether the criteria shown in Condition 5 have been achieved.

2. Environmental Noise Survey

2.1 Measurement Methodology

The following table outlines the measurement dates and particulars. In all instances, a 130mm diameter windshield was fitted to the microphone. The equipment was field calibrated before and after the survey, and negligible drift was noted.

Location	Survey Dates	Measurement Particulars
MP1	19/03/2024	Equipment mounted on a tripod at 1.5m from the ground within the western section of the new extension.
MP2		Equipment mounted on a tripod at 1.5m from the ground within the eastern section of the new extension.
MP3		Equipment mounted on a tripod at 1.5m from the ground and 5m from the façade of 5 Quay View.

Table 1 – Measurement Methodology

The figure below outlines the site surroundings and measurement locations:



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Figure 1 – Measurement Locations and Site Surroundings

2.2 Context & Subjective Impression

The area surrounding the site is mixed in nature with both industrial and residential properties. The noise profile at the NSRs (Noise Sensitive Receptors) is dominated by traffic noise from Rosehill Road, with noise from Western Road presenting as secondary in nature.

To the west of the site are several commercial and industrial businesses such as Britannia Banners, Mineral Chemical Services Ltd, and 'Two by Two' Brewing. The A187 and Wallsend Burn run between these premises and the development site.

During the site visit, the roller shutter door to the east of the extension was fully closed, which was a mitigation measure recommended in the initial acoustic report (ref. 8167AC) and the noise management plan provided by NOVA Acoustics (ref. NP-009458). Subjectively, it was noted that noise breakout from the new extension was inaudible above the noise from HGV movements within the site.

3. BS4142 Noise Impact Assessment

3.1 Noise Levels at the Closest NSR

Attended monitoring was carried out at the closest NSR at Quay View (shown as MP3 in Figure 1). Ambient measurements were taken with the plant equipment operating at the maximum permitted capacity. Residual measurements were then taken with the plant equipment switched off. The measured levels are presented in the following table.

Location	Description	Octave Band (Hz, L_{eq} dB)								Overall (dBA)
		63	125	250	500	1k	2k	4k	8k	
MP3	Ambient Sound Level	63	57	53	51	53	49	39	29	56
	Residual Sound Level	68	57	54	53	54	49	38	29	57

Table 2 – Measured Sound Levels at the NSR

As can be seen, the measurement when the machines in the extension were not in operation was actually louder than when they were in operation. This means that a specific noise level of the machines operating in isolation cannot be calculated. This suggests that the machine noise is likely to be inaudible at the closest NSRs, which is corroborated by the subjective impression of the on-site engineer. The engineer also noted that whilst noise from vehicle movements within the Bridon-Bekaert site was audible at times, this was considered secondary in nature when viewed in the context of the existing road noise.

Further to the above, the L_{Aeq} time history for the measurement at the NSR shown on the overleaf indicates no significant change in level during operational and non-operational periods.

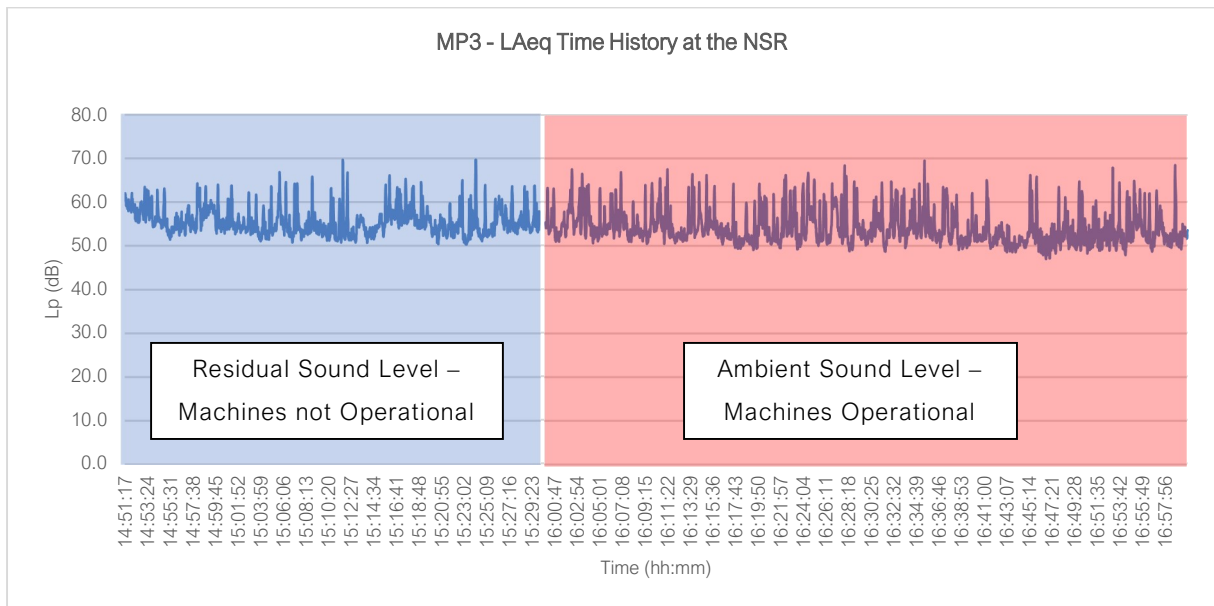


Figure 2 – L_{Aeq} Time History Graph

3.2 Internal Noise Levels

In situations where ambient and residual noise levels are within 3 dB of each other, or a specific sound level is otherwise incalculable, it is stated in BS4142 that impact levels should instead be defined using propagation calculations and noise measurements taken at source. For this reason, internal noise measurements were taken within the new extension on 19/03/2024. The following parameters were used for the measurements:

- Measurements were taken in 2no. locations, MP1 and MP2.
- All internal ambient noise measurements were taken at 1.5m above the ground.
- Ambient measurements were taken with the plant equipment operating at the maximum permitted capacity.
- Residual measurements were taken with the plant equipment switched off.
- The specific internal noise level is calculated by logarithmically subtracting the measured residual sound levels from the measured ambient sound levels.
- All measurements were taken using a fast time-weighting and the sound level meter was set to log every second.

The table overleaf shows the calculated specific sound levels compared with the predicted internal noise level used in the original acoustic assessment (ref. 8167AC).

Description	Octave Band (Hz, L _{eq} , dB)							Overall (dBA)
	63	125	250	500	1k	2k	4k	
Measured Specific Sound Level	75	80	87	86	82	78	69	87
Noise Level Used in Report Ref. 8167AC	[1]							87

Notes:

[1] Octave band noise levels were not included in original assessment, however, as there is a comparatively small contribution from the lower frequencies, this is not thought to have affected the results of the assessment.

Table 3 – Calculated Specific Sound Levels within the New Extension

As can be seen, the measured internal noise level within the new extension is the same as the level used for the original assessment. This indicates that the assumptions used in the report were correct, and as such, the outcome of the BS4142 assessment is thought to be accurate.

Given the above, providing the recommendations specified in the noise management plan (ref. NP-009458) continue to be followed, the rating noise level should not exceed the existing background noise level of 41 dB, as specified in Conditions 5 and 6. This is deemed to cause 'low impact' when assessed with BS4142, and 'No Observed Effect Level' ('NOEL') when assessed with the NPSE and NPPF.

In summary, it is thought that Condition 5 and 6 should be discharged.

Document End

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