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Our Ref: IR/ACO/BMP2054/L001
Contact: Mike Barrett, Service Manager - Acoustics
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Date: 13 July 2021

Dear William

PAN-010745: feedback on Noise impact assessment

I write further to your e-mail of 23 June 2021 to Michael Knott regarding comments from the Air Quality Modelling and Risk Assessment Team (AQMRAT) relating to the installation at Lamby Way, following the submission of BWB's Noise Assessment report (dated 09 April 2021).

AQMRAT Comments

It is understood that AQMRAT is mostly satisfied with the conclusions of the assessment. However there appear to be three points that are being queried.

- Acoustic correction - This is in regards that acoustic correction have not been applied (section 4.15 in the NIA specifically). The main concern and the disagreement with the justification with not having acoustic corrections and acoustic penalties this is that this could have underestimated the noise impact at the nearest receptor.

- Comparison with the correct acoustic parameter – The AQMRAT team has commented, "*when carrying out an impact assessment, the specific sound level (plus any relevant acoustic penalty) should be compared against the measured background level (LA90) and not the ambient sound level, as outlined in BS4142.*"

- Weather conditions - weather conditions were only stated at the start and end of the set up and not throughout the survey period as outlined in BS4142.

The comments are in response to our letter submission dated 23 June 2021.

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Acoustic Correction

Paragraph 4.15 states that, "As the specific noise levels are significantly below the ambient measured noise levels at ML1 and given the intervening distance between the nearest receptors and installation boundary, no character corrections have been applied. Furthermore, the bay areas are screened from nearby receptors, with a small number of receptors only having a direct line of sight to the internal road."

Section 9.1 of BS4142:2014+A1:2019 relates to the determination of a Rating level and states (BWB emphasis):

> *"Certain acoustic features can increase the significance of impact over that expected from a basic comparison between the specific sound level and the background sound level. Where such features are present at the assessment location, add a character correction to the specific sound level to obtain the rating level."*

Therefore, corresponding acoustic character corrections should not be prejudged by the nature of the source itself, but rather how it is perceived at the appropriate distance and with the acoustic screening that will be present. There is a reasonable set back distance from the sources to the receiver and significant acoustic screening, both of which are likely to have a significant effect on the perceived character of the noise from the Site.

Section 9.2 relates specifically to the Subjective Method and states:

> *"Where appropriate, establish a rating penalty for sound based on a subjective assessment of its characteristics. This would also be appropriate where a new source cannot be measured because it is only proposed at that time but the characteristics of similar sources can subjectively be assessed."*
>
> *[…]*
>
> *"NOTE 1 The prominence of tonal or impulsive sound from a source can be masked by residual sound."*

Residual sound is defined in BS4142 as ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound, whilst the residual sound level, $L_r = L_{Aeq,T}$ is defined as the equivalent continuous A-weighted sound pressure level of the residual sound at the assessment location over a given time interval, T.

The daytime observations from the survey set out in the BWB report include:

- intermittent noise from rail traffic, including occasional freight movements,
- noise from regular vehicle movements along the business park roads,
- noise from road traffic on New Road and
- noise from fixed plant associated with shop units on New Road.

These differing noise sources of mixed transportation, haulage and fixed plant/commercial nature are also likely to mask any acoustic character.

It is considered that the measured noise climate is representative of the proposed hours of use being applied for. Given that this residual noise level fluctuated between 59 and 63 dB $L_{Aeq,1h}$, and the predicted specific noise levels from the Site are 51 dB L_s within the assessment, i.e. at least 8dB lower, it is considered that any acoustic character is highly likely to be masked to a level whereby a character correction is unjustified.

Comparison with the correct acoustic parameter

Paragraphs 4.16 and 4.17 present the results of the comparison of the Rating level (which is equal to the Specific level in the assessment) against the established background sound level of 49 dB $L_{A90,1h}$, in accordance with BS4142. The ambient sound level (or residual sound level in this case) has only been used to support the argument for the decision over acoustic character corrections, in line with Section 9.2 of BS4142.

Weather conditions

Appendix A presents outputs of historical weather reporting from Cardiff from World Weather Online. This shows that the weather conditions were conducive to noise measurement, with winds at or below 5m/s, temperatures between 5 and 10 degrees Celsius, and negligible levels or precipitation.

I trust that the above is acceptable to your department, however if you have any questions, please do not hesitate to contact me.

Best regards

Mike Barrett
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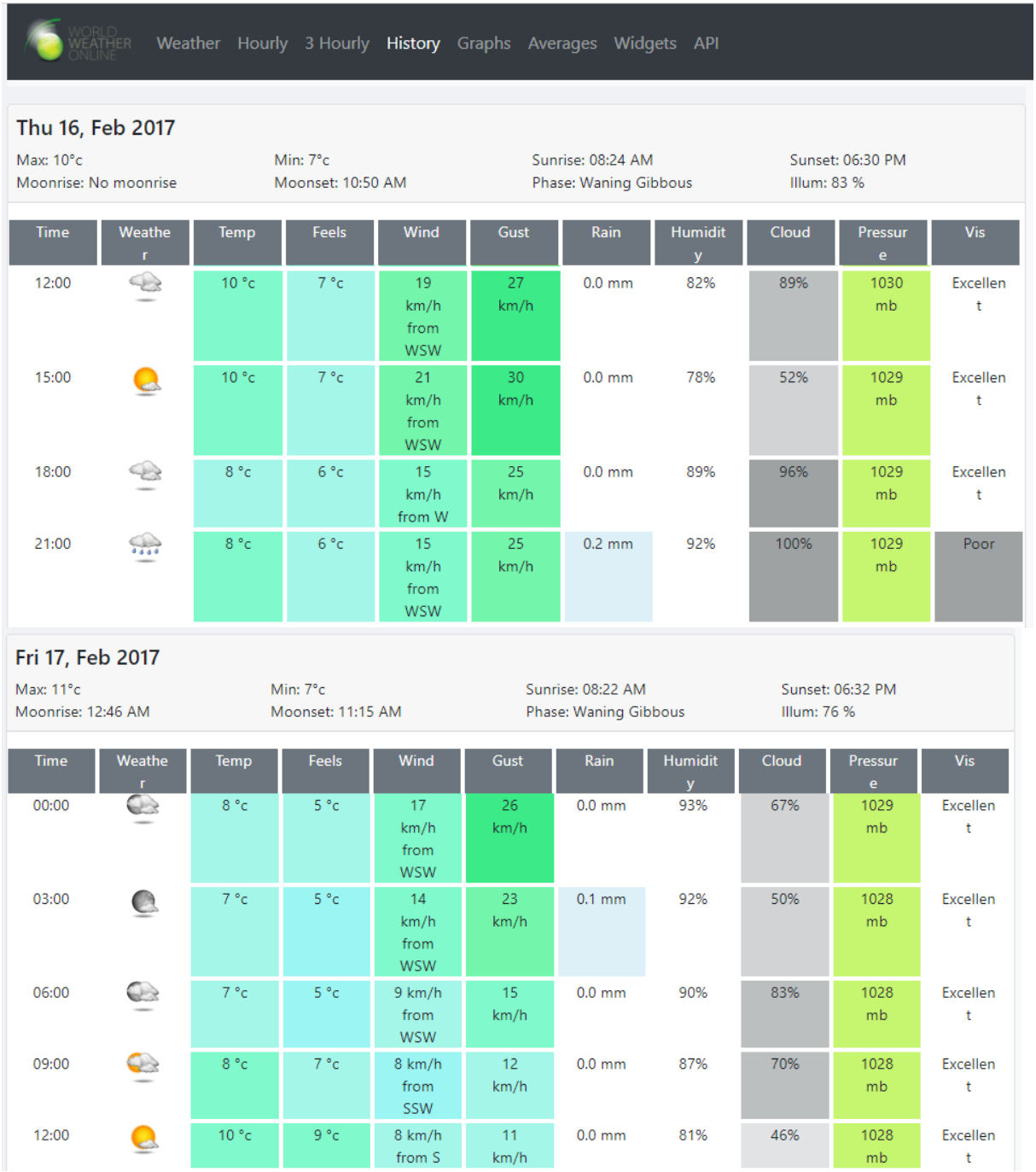
Enc. **Appendix A** Historic weather report from the noise monitoring period.

Appendix A Historic weather report from the noise monitoring period



WORLD WEATHER ONLINE Weather Hourly 3 Hourly History Graphs Averages Widgets API

Thu 16, Feb 2017

Max: 10°c | Min: 7°c | Sunrise: 08:24 AM | Sunset: 06:30 PM
Moonrise: No moonrise | Moonset: 10:50 AM | Phase: Waning Gibbous | Illum: 83 %

Time	Weather	Temp	Feels	Wind	Gust	Rain	Humidity	Cloud	Pressure	Vis
12:00		10 °c	7 °c	19 km/h from WSW	27 km/h	0.0 mm	82%	89%	1030 mb	Excellent
15:00		10 °c	7 °c	21 km/h from WSW	30 km/h	0.0 mm	78%	52%	1029 mb	Excellent
18:00		8 °c	6 °c	15 km/h from W	25 km/h	0.0 mm	89%	96%	1029 mb	Excellent
21:00		8 °c	6 °c	15 km/h from WSW	25 km/h	0.2 mm	92%	100%	1029 mb	Poor

Fri 17, Feb 2017

Max: 11°c | Min: 7°c | Sunrise: 08:22 AM | Sunset: 06:32 PM
Moonrise: 12:46 AM | Moonset: 11:15 AM | Phase: Waning Gibbous | Illum: 76 %

Time	Weather	Temp	Feels	Wind	Gust	Rain	Humidity	Cloud	Pressure	Vis
00:00		8 °c	5 °c	17 km/h from WSW	26 km/h	0.0 mm	93%	67%	1029 mb	Excellent
03:00		7 °c	5 °c	14 km/h from WSW	23 km/h	0.1 mm	92%	50%	1028 mb	Excellent
06:00		7 °c	5 °c	9 km/h from WSW	15 km/h	0.0 mm	90%	83%	1028 mb	Excellent
09:00		8 °c	7 °c	8 km/h from SSW	12 km/h	0.0 mm	87%	70%	1028 mb	Excellent
12:00		10 °c	9 °c	8 km/h from S	11 km/h	0.0 mm	81%	46%	1028 mb	Excellent