



Acoustics Environment

Correspondence address:

Acoustics Environment Ltd.
Dairy House
Orton Hall Farm
Orton Lane
Orton
Wolverhampton
WV4 4XA

T. 07769 707248

Email:
acousticsenvironment@gmail.com



Maelor Foods Ltd. Pickhill Lane, Wrexham LL13 0UE

Planning Application P/2022/0820
Wrexham Borough Council

Noise Impact Assessment: Night-time HGV movements on Pickhill Lane

Ver 1.2 26 June 2024

Prepared by:

J E Grant	Acoustics & Environmental Consultant		 Acoustics Environment
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Checked & approved by:

J E Grant	Acoustics & Environmental Consultant		 Acoustics Environment
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Issue 1. 26 June 2024

Client:

Maelor Foods Ltd. Pickhill Lane Cross Lanes Wrexham LL13 0UE	
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1.0 SUMMARY

- 1.1 Night-time noise assessment has been carried in regard to HGV movements on Pickhill Lane serving the Maelor Foods Ltd. poultry processing plant. This has been carried out in respect to a doubling in production capacity and related increases in lorry traffic serving the site. The increase in production is subject to a planning application.
- 1.2 For the purposes of determining the extent of impacts, and to meet requirements of the Wrexham Borough Council as the local planning authority, reference is made to World Health Organisation guidelines on noise.
- 1.3 For a worst case of doubling in HGV numbers, the increase in $L_{Aeq\ 8\ Hours}$ is approximately 1 dB(A). This amounts to a negligible impact, and in general terms is a change margin that is generally taken to be below the minimum perceptible under normal conditions.
- 1.4 The L_{den} for Pickhill Lane area is less than 53 dB(A). The World Health Organisation recommends for average noise exposure, reducing noise levels produced by road traffic below this level as road traffic noise above this level is associated with adverse health effects.
- 1.5 The World Health Organisation also recommends reducing noise levels produced by road traffic during night-time to below 45 dB L_{night} . Noise mapping for Wales is not resolved to values less than 50 dB(A), with Pickhill Lane depicted as below this level. This accords with measured traffic noise levels.
- 1.6 Measured night-time sound levels at Pickhill Lane, after correction, have been established at 47 to 49 dB L_{night} . This comprises overall sounds incorporating existing industrial activities, localised road traffic, distant road traffic, aircraft fly-overs, incidental natural sounds (such as bird song) that comprise the soundscape. The worst case contribution to this, occasioned though an increase (doubling) in HGV movements, is similarly 1 dB(A).
- 1.7 Mitigation in terms of HGV movements is possible in terms of effecting repairs to the road wearing course (resurfacing over a limited area), and Maelor Foods is instigating a policy of reducing traffic noise with future vehicle and trailer purchases.

1.8 Impact Synopsis

Night-time (23:00 – 07:00)	Ambient Sound Level <i>L_{Aeq} 8 hours</i> 14-15 June & 19-20 June 2024	HGV only disaggregated <i>L_{Aeq} 8 hours</i> 14-15 June & 19- 20 June 2024 combined	WHO Guidelines <i>recommended</i> Inside bedroom <i>L_{Aeq} 8 hours</i>	WHO Guidelines <i>recommended</i> Outside bedroom <i>L_{Aeq} 8 hours</i>	HGV only compared to WHO <i>recommended</i> Inside bedroom <i>L_{Aeq} 8 hours</i>	HGV only compared to WHO <i>recommended</i> Outside bedroom <i>L_{Aeq} 8 hours</i>	Existing Ambient Sound Level compared to WHO <i>recommended</i> Inside bedroom <i>L_{Aeq} 8 hours</i>	Existing Ambient Sound Level compared to WHO <i>recommended</i> Outside bedroom <i>L_{Aeq} 8 hours</i>
Current Position (1 million birds) (log average of surveys) Façade (front) corrected	48	43	30	45	-2	-2	+3	+3
							Future Ambient Sound Level compared to WHO <i>recommended</i> Inside bedroom <i>L_{Aeq} 8 hours</i>	Future Ambient Sound Level compared to WHO <i>recommended</i> Outside bedroom <i>L_{Aeq} 8 hours</i>
Proposed Position (2 million birds) Worst case scenario = doubling HGV movements	50	46	30	45	+1	+1	+5	+5

Minimum perceptible change under clinical conditions = +1 Minimum perceptible change under normal conditions = +3



Proposal is within acceptable perceptible change under normal conditions. Significance of Impact = LOW to NONE.



Proposal for a worst case Significance of Impact = LOW to MODERATE

2.0 INTRODUCTION

- 2.1 This assessment has been prepared on behalf of Maelor Foods Ltd. in support of a planning application submitted to Wrexham Borough Council, seeking permission to increase production at its poultry processing plant located at Pickhill Lane, Wrexham. Currently the plant processes 1 million chickens per week; it is proposed to double this via a series of phased increases in production.
- 2.2 The installation at Pickhill Lane is subject to an Integrated Pollution Prevention and Control (IPPC) A1 Environmental Permit, administered by Natural Resources Wales (NRW). NRW have accepted noise impact assessments on behalf of Maelor Foods Ltd. as part of an application seeking a variation to their IPPC Permit to accommodate proposed increases in production. These assessments have addressed required changes to the installation, along with substantive noise mitigation measures which are not factored into any expected noise levels within this assessment.
- 2.3 For the purposes of preparing this assessment, prior discussion has taken place with representatives of Wrexham Borough Council's planning and public protection services. This established that on the council's part, night-time amenity in respect to noise was the key outstanding consideration, not least given that HGV movements off-site had not formed part of assessments for the purposes of the Permit variation. Implications for residential premises on Pickhill Lane are therefore now required to be quantified in this respect.
- 2.4 The council advised that specific attention should be paid to using World Health Organisation (WHO) noise guidelines for assessing amenity impacts.
- 2.5 This report is to be read in conjunction with the following:-
- i) Environoise - Noise Impact Assessment, 15 February 2023, 6th issue
 - ii) Acoustics Environment Ltd. – Supplementary Noise Assessment: Environmental Permit EPR/AB3591ZQ Application for Variation, 27 October 2023)
 - iii) Acoustics Environment Ltd. – Response to Natural Resources Wales: Schedule 5 Notice 15 November 2023 Ref. PAN-020892. Updated Noise Impact Assessment 29 January 2024

[NOTE: These above reports have been submitted to the council in support of the planning application.]

- 2.6 Night-time in this case is by default taken as nominal period of 11.00 pm until 07.00 am. This is extensively used in established legislative provisions, British Standards, codes of practice and noise guidance.
- 2.7 Attended sound level measurements for this period have been conducted utilising microphone positions to represent first floor level at a stand-off distance of c. 1m from the noise-exposed front façade of a residential premises on Pickhill Lane. The property used is known as Marlbrook House, and was judged to be in a position to experience the worst impact on account of its location almost opposite to the Maelor Foods site entrance. In this regard, HGV are braking prior to entry, and accelerating on their exit. There are two other properties further along Pickhill Lane adjacent to Marlbrook House that are closer to the A525 Wrexham Road, however HGVs are generally coasting as they approach Maelor Foods at this point, and after exiting the site, HGVs have by then accelerated and short-shifted gear changes as they progress toward the A525. For completeness, there is a pair of semi-detached houses further along Pickhill Lane more or less opposite to the chilling plant. HGVs do not progress along Pickhill Lane to this point.

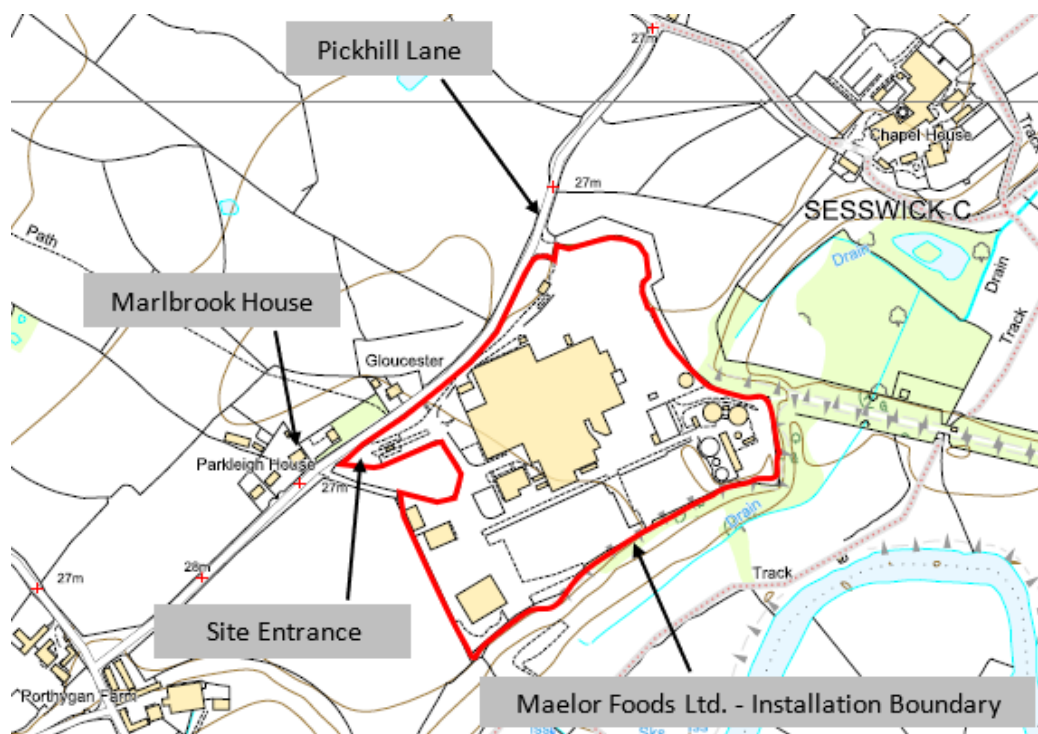


Figure 2.1 Monitoring Position – Marlbrook House, Pickhill Lane

Façade Effects

- 2.8 As a point of reference, Marlbrook House was used as an assessment position for reports submitted to Natural Resources Wales ('Site A') as qualified in 2.5
- 2.9 Comment is merited on protocols used for the placement of measuring microphones. Where these are located more than several metres from acoustically reflecting surfaces, this provides for an unbiased indication of the incident sound pressure level. At the other extreme, when a measuring microphone is mounted at the plane of a sound-reflecting surface, for example a building façade, sound pressure levels are increased by 6 dB as direct and reflected sounds coincide.
- 2.10 According to the WHO, the effects of façade reflections must be accounted for to represent a true level of the incident sound. While locating measuring microphones close to the point of reception is desirable, WHO state it leads to other issues that must be considered to accurately interpret measurement results.
- 2.11 To account for facade effects, a -3 dB correction factor is applied to broad-band measurements results in accordance with accepted acoustic practice and technical guidance.

3.1 The broad area immediately surrounding the Maelor Foods installation and Pickhill Lane is generally classed as rural. The company has operated a family-run business at Pickhill Lane since 2017 and has the benefit of planning permissions granted by Wrexham Borough Council from 2015 onwards. It undertakes activities and operations that have subsequently formed part of the local noise-climate over the past 6+ years. In practice, the locality for the purposes of this report given the presence of residential premises and the history of the site is categorised as a mixed residential and industrial area.

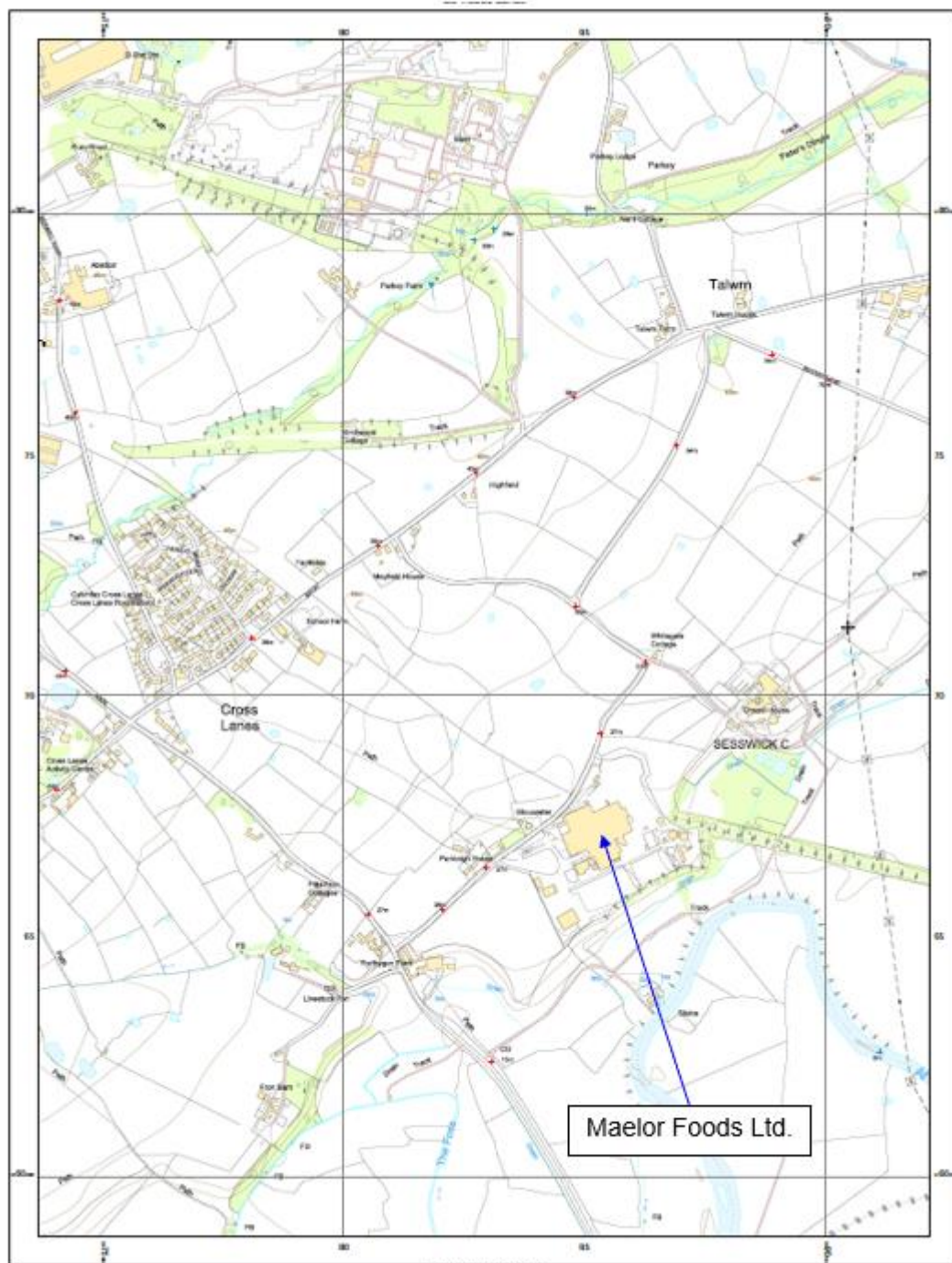


Figure 3.1 Maelor Foods Ltd. General Locality

- 3.2 Maelor Foods operates on a 24 hours basis, save for a limitation on HGV vehicle movements imposed under a curfew operating between midnight Saturday, through to midnight on Sunday. During this curfew, a range of activities associated with processing operations, including but not limited to storage and chilling, necessary maintenance, general housekeeping, effluent treatment, chilling, and waste handling takes place. A host of equipment and plant consequently remains operational, incorporating compressors, pumps and aeration blowers, boilers, refrigerators and extraction fans units. Further processing lines and environmental control plant (e.g. waste water treatment and air scrubber) can be functioning within the curfew period.

Historical Perspective

- 3.3 The site of Maelor Foods Ltd. is a former (rail-served) creamery built in 1936 by Cadbury's. Prior to this it was a greenfield site. The site was bought by the Milk Marketing Board and opened in 1973 to provide butter and skimmed milk powder and, from 1976 to 1992, cheese manufacturing took place. In 1993 the site was converted into a pre-packing site by the owners Dairy Crest as one of the most advanced cheese packaging plants in the UK, storing up to 2000 tonnes of cheese under temperature-controlled conditions. Alongside this, Dairy Crest also manufactured a range of dairy ingredients from whey, for use by major food manufacturers.
- 3.4 In 2006 the site was acquired by First Milk. The site supplied one of the largest retailers in the UK employing up to 500 staff working in partnership with Lloyd Fraser transport company. The site produced and distributed over 30,000 tonnes of produce annually, with c.182 vehicle movements per day across 24 hrs a day, 7 days per week.
- 3.5 Mr Raj Mehta (MD and Founder of Salisbury Poultry & Maelor Foods) acquired the site in 2014, and via planning permission granted in 2015 and a subsequent series of permissions for supplemental buildings / plant / machinery over 2-3 years thereafter, a substantial redevelopment has provided a modern, state-of-the-art poultry processing facility, affording significant employment to people in the area since 23 November 2017. The Mehta Family have invested c.£20m and subsequently obtained a grant of c.£3m from the Welsh Government to develop the Wrexham business.

Rationale for Increased Production

- 3.6 Maelor Foods has grown and expanded substantially since 2016. The business group now requires the supply of a higher number of birds, necessitating an increase in processing capacity to meet

demands of the food sector.

- 3.7 More than 2.2 million chickens are consumed daily in the UK, accounting for nearly 50% of all meat consumption. The number of poultry processing facilities in the UK is relatively limited, and proportionately there are fewer facilities in Wales, with a number of site closures over recent years.
- 3.8 In order to grow in the poultry industry, processors are required to be self-sufficient. This can only be achieved by increasing the number of slaughtered birds to then further process and distribute to different market sectors to meet increasing demand. Therefore, the proposed increase in the number of birds processed per week at Maelor Foods is set to provide future security and benefits to the local economy.

4.0 NOISE ASSESSMENT METHODOLOGY

- 4.1 The principal assessment technique acquired contiguous 1 second data to examine the ambient sound profile, allowing the ability to categorise events occurring during the night-time as necessary. This allowed for the passage of HGVs to be isolated from ambient sounds and their contribution to the overall ambient sound level determined in the form of $L_{Aeq, T}$.
- 4.2 For each night-time assessment period the $L_{Aeq, 8 \text{ hours}}$ has been derived. Passage of HGVs (in and out of Maelor Foods) have then been isolated, and a series of contiguous values of $L_{Aeq, 1 \text{ second}}$ summated where they exceed the $L_{Aeq, 8 \text{ hours}}$ period value.
- 4.3 The summated $L_{Aeq, 1 \text{ second}}$ values attributable to HGVs therefore represents the acoustic energy contribution to the ambient night-time sound profile. The effects of future increases in HGV movements can then be proportionally determined as required according to the number vehicles deployed.

[NOTE: Along with L_{Aeq} , a series of other metrics were attained. Measurement data can be made available in the form of Brüel & Kjaer Evaluator *.RLP files.]

5.0 WORLD HEALTH ORGANISATION (WHO) NOISE GUIDANCE

Overview

- 5.1 Current WHO guidelines concerning environmental noise were published in 2018, entitled Environmental Noise Guidelines for the European Region, available at:
<https://www.who.int/europe/publications/i/item/9789289053563>
- 5.2 These represent an evolution and update to WHO Community Noise Guidelines, published in 1999. Whilst current Environmental Noise Guidelines supersede the 1999 publication, the WHO Guideline Development Group (GDG) *recommends* that 1999 Community Noise Guidelines for indoor values, and any values not covered in the current guidelines, should remain valid.

Present Status of WHO Guidelines and Policy Guidance

- 5.3 It is worth noting that WHO guidelines are not binding in England and Wales and have no formal standing in terms of UK policy. The criteria has never been formally adopted or implemented as policy in England or Wales, so are not seen as fixed, immutable standards that must be achieved in all circumstances.
- 5.4 This approach has been borne out in planning appeal cases to the extent that threshold noise values contained in British Standards and WHO guidelines act only as guidance, and that guidance is not national policy, nor has it been produced as such. Further consideration on WHO Guidelines is provided at Appendix 5.
- 5.5 The Secretary of State has noted that thresholds in relevant guidance are guideline values only, and that there are no European or national noise limits which have to be met.
- 5.6 Policy guidance relating to planning and noise in Wales presently rests with Planning Guidance (Wales) Technical Advice Note (Wales) 11 Noise – October 1997 (as amended), available at:
<https://www.gov.wales/technical-advice-note-tan-11-noise>

Internal and External WHO Recommendations for Bedrooms

- 5.7 It is accepted that a 15 dB transmission loss from external to internal is applied to allow for a corresponding internal value. The latest WHO guidelines now offers that the differences between indoor and outdoor levels are usually estimated at around 10 dB for open, 15 dB for tilted or half-

open, and about 25 dB for closed windows (the latter of which is typical of single-glazed units).

- 5.8 Allowing for closed windows as a means of mitigation - with suitable qualification - is however a well-recognised and established technique used in the UK to facilitate planning development proposals where external noise may be deemed problematic.

$L_{AF\ Max}$ Criteria

- 5.9 From measurement data and first-hand observations, it was apparent that light-duty vehicle pass-bys, birdsong etc. readily produce sound levels exceeding WHO guidelines and can be comparable to HGVs. The implications and limitation of application are discussed in Appendix 5. Figures 5.1 illustrate a time series of environmental sound sources as $L_{AF\ Max}$ values for 20 June 2024 from midnight to 07.00, with step-change depicted at around 3.53 am due to the dawn chorus.

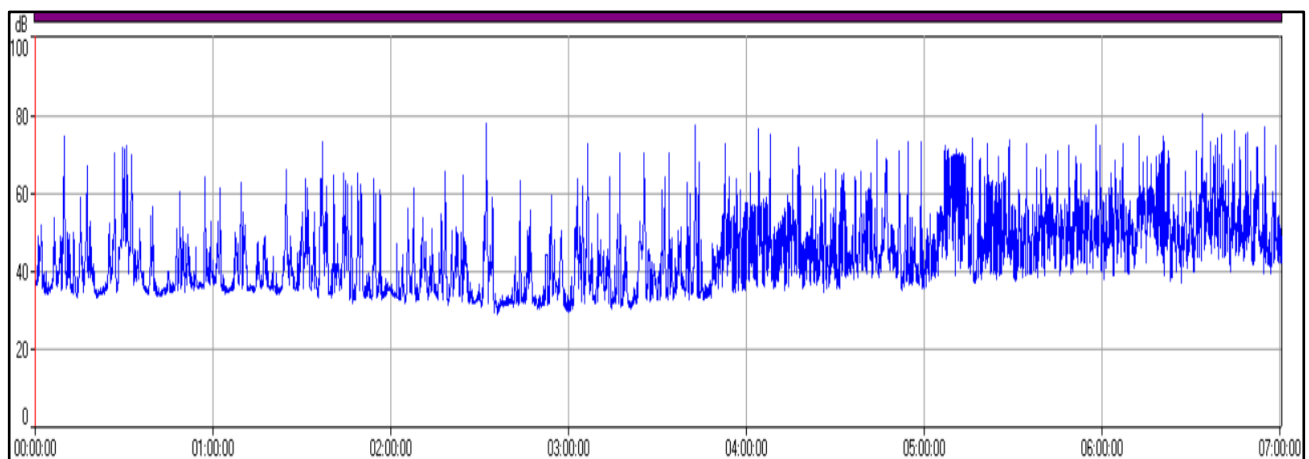


Figure 5.1 $L_{AF\ Max}$ dB Marlbrook House Front Façade 20 June 2024

6.0 MEASUREMENT RESULTS AND OBSERVATIONS

- 6.1 Attended night-time field measurements (11.00 pm on) were carried out in two phases:
- Thursday 14 June into Friday 15 June 2024; and
 - Wednesday 19 June into Thursday 20 June 2024.
- 6.2 During the measurement periods there were no evident abnormal traffic conditions or anomalous events that could otherwise compromise or skew measurements. Furthermore, Maelor Foods Ltd. have confirmed that production operations and activities on-site were representative of normal night-time working.
- 6.3 Prior to commencement and following completion of each set of measurements, instrumentation was calibrated having all microphone extension cables and associated fitments in place, with no untoward variability recorded (Appendix 1).
- 6.4 At the start and end of measurements, and throughout the measurement periods, weather conditions were noted and recorded. Throughout each night-time period ideal measurement conditions prevailed. Wind-speeds were sustained at negligible to zero, representing extremely calm, stable conditions at the measurement position. Other than a very brief interlude as described in 6.5, conditions remained dry (Appendix 2).
- 6.5 Over the course of 15 June 2024, continuous measurements were halted for a period of 5 minutes 13 seconds to allow fitment of all-weather outdoor microphone protection systems as a precautionary measure due to rain spots, albeit rain did not prevail. Measurements continued and were completed to allow for an 8 hour total sampling period.
- 6.6 Each data set includes 28,800 $L_{Aeq, 1 \text{ second}}$ periods, from which night-time period 8 hour values have been derived. Over each period, HGV movements in and out of the Maelor Foods site were observed, numbering 31 vehicles on 14-15 June, and 32 vehicles on 19-20 June, on average 4 or less per hour.
- 6.7 HGV movements comprised laden and unladen waste carriers – liquids/solids (in and out); bird transports (in); laden produce despatches (out); unladen product collections (in); unladen bird transports (out); periodic cleaning services vehicles (in and out).

2024 Marlbrook 14 – 15 June House, Pickhill Lane – Front Facade	19 – 20 June 2024 Marlbrook House, Pickhill Lane – Front Facade
<i>L</i> _{Aeq} , 8 hours, dB Night-time	<i>L</i> _{Aeq} , 8 hours, dB Night-time
50.3 dB	52.0 dB
<i>L</i> _{Aeq} , 8 hours, dB Night-time (façade corrected)	<i>L</i> _{Aeq} , 8 hours, dB Night-time (façade corrected)
47.3 dB	49.0 dB

Table 6.1 Ambient Night-time *L*_{Aeq} 8 hours, dB

Site Observations

6.8 Ambient sounds experienced at Marlbrook House comprised:

- i. distant broad-band and periodic fan-type tonal signatures emanating from the north, and presumed to be from Wrexham Industrial Estate, with a modulating tone identified at nominally 250 Hz. The extent of the tone was considered liable to generate complaint from persons residing in the neighbouring vicinity to the source.
- ii. Light duty vehicle pass-bys (van, cars etc.)
- iii. HGV entering and departing Maelor Foods Ltd.
- iv. Distant road traffic, for example arising from the A525 Wrexham Road
- v. Low-level, broad-band residual factory sound arising from Maelor Foods Ltd. and occasional audible tones from the chiller plant area.
- vi. Occasional animal sounds e.g. cattle
- vii. Substantial bird sounds with the on-set of the dawn chorus (songbirds, corvids, wood pigeon being of note), providing for a step-change in sound levels.
- viii. Regular aircraft flyovers.

6.9 As HGVs approach the entrance to Maelor Foods, they were observed to be running at a low

speed, with tractor units on minimal duty as they effectively coast into the site entrance. Vehicles exiting the site accelerate onto Pickhill Lane and short-shift at low speed as they make their way to the A525 Wrexham Road. Driver behaviour was noted as being to a very high standard in regards to minimising environmental noise impacts.

- 6.10 It is apparent that the road surface in Pickhill Lane is in poor condition, degrading in the area around the site entrance. These discontinuities and unevenness can contribute to additional HGV chassis/trailer and axle noise from certain vehicles, and has been highlighted as a mitigation measure by Maelor Foods and would seek to include this in improvement plans.

7.0 COMMENTARY AND DISCUSSION

HGV Night-time Noise Components

- 7.1. Whilst on Pickhill Lane night-time HGV movements that contribute to the ambient sound profile amounted to 627 seconds over 14 to 15 June, and 632 seconds over 19 to 20 June. Allowing for a - 3 dB façade correction, the disaggregated components values calculated to 8 hours provides:

$L_{Aeq, 8 \text{ hours HGVs}}$ 42.5 dB 14-15 June 2024

$L_{Aeq, 8 \text{ hours HGVs}}$ 43.6 dB 19-20 June 2024

Night-time Ambient Sound Levels

- 7.2 In the absence of Maelor Foods HGV traffic, calculated ambient $L_{Aeq, 8 \text{ hours}}$ are:

$L_{Aeq, 8 \text{ hours (façade corrected)}}$ 47.3 dB - $L_{Aeq, 8 \text{ hours HGV}}$ 42.5 dB = 45.6 dB 14-15 June 2024

$L_{Aeq, 8 \text{ hours (façade corrected)}}$ 49.0 dB - $L_{Aeq, 8 \text{ hours HGV}}$ 43.6 dB = 47.5 dB 19-20 June 2024

- 7.3 Allowing for a worst case, in that the proportional additional night-time noise components equate to values provided at 7.1 i.e. double the number of vehicles, overall ambient sound levels based on the measured night-time periods result in an increase of nominally 1 dB. To clarify this:

14-15 June

Ambient Sound Level = 47.3 dB $L_{Aeq, 8 \text{ hours (façade corrected)}}$ + additional new HGVs 42.5 dB $L_{Aeq, 8 \text{ hours (façade corrected)}}$ = 48.5 dB $L_{Aeq, 8 \text{ hours (increased production)}}$

Increase in ambient sound level = +1.2 dB

19-20 June

Ambient Sound Level = 49.0 dB $L_{Aeq, 8 \text{ hours (façade corrected)}}$ + additional HGV 43.6 dB $L_{Aeq, 8 \text{ hours (façade corrected)}}$ = 50.1 dB $L_{Aeq, 8 \text{ hours (increased production)}}$

Increase in ambient sound level = +1.1 dB

- 7.4 In summarising impacts, the ambient sound levels have been amalgamated to provide a representative value of 48 dB(A), to which is added new HGV component of 43 dB(A) to present a

doubling in the number of vehicles as a worst case.

Planning Technical Advice Notes and WHO Guidelines

- 7.5 TAN 11 comments that a change of 3 dB(A) is the minimum perceptible under normal conditions.
- 7.6 Technical Advice Notes may be material to decisions on individual planning applications, and as necessary are taken into account by the Secretary of State and (planning) Inspectors. From a planning perspective, it is appreciated there is a need to ensure that noise generating development does not cause an unacceptable degree of disturbance, and that any intensification or change of use could potentially result in greater intrusion.
- 7.7 Recognition is necessary of the importance of balancing the need to manage the impacts of noise with the need to safeguard the ability to meet social and economic needs, and whether the aim to achieve WHO recommendations outweighs negative economic and social consequences. The guidelines do not appear to recognise such a balance, or provide a mechanism for weighing such a balance.
- 7.8 It was offered that to meet L_{night} 45 dB for road traffic, noise at night would in certain cases be likely to require consideration of:
- i. No cars or lorries to be operated at night
 - ii. No overnight holiday / business travel
 - iii. No fresh foods in the morning
 - iv. No next day post or courier deliveries
 - v. Most pubs, clubs, theatres and concerts to close early

[Limitations of this nature were deemed unlikely to be popular and have serious economic consequences.]

8.0 CONCLUSIONS

- 8.1. Traffic noise for a calculated worst case scenario of increased HGV movements produces 45.5 to 46.6 dB(A). There are however, other vehicle pass-bys on Pickhill Lane that contribute to the ambient sound levels and produce equally comparable pass-by sound levels, together with contributory noise from distant traffic and existing industrial noise sources.
- 8.2. Noting the WHO recommendation for reducing noise levels produced by road traffic to below 53 dB(A) L_{den} , consideration has been given to government noise mapping carried out in respect of Wales. This shows the L_{den} for Pickhill Lane area is less than 53 dB(A). Figure 8.1 depicts.
- 8.3. For night-time noise exposure, WHO recommends reducing noise levels produced by road traffic during night time below 45 dB L_{night} . Noise mapping for Wales is not resolved to values less than 50 dB(A), with Pickhill Lane indicated to be below this level. Figure 8.2 depicts.
- 8.4. The omission of Maelor Foods HGVs from the ambient sound does not mean 45 dB L_{night} is then achieved, with exceedances remaining of c. 1 to 3 dB(A).
- 8.5. For a worst case scenario, doubling the number of HGVs during night hours produces a change of nominally +1 dB(A) in night-time $L_{Aeq\ 8\ hours}$. This amounts to what can be understood as a *low probability of adverse impact*. A +1 dB(A) margin of change is below what policy guidance refers to as “the minimum perceptible under normal conditions”, and can therefore represent a change in level that does not cause an unacceptable degree of disturbance.
- 8.6. In considering the planning proposal and assessment of noise impacts, it is relevant to have regard to matters of context. Whilst these have been fully addressed in submissions to NRW as part of the application to vary the Environmental Permit, pertinent points are set out in Appendix 3.

8.7

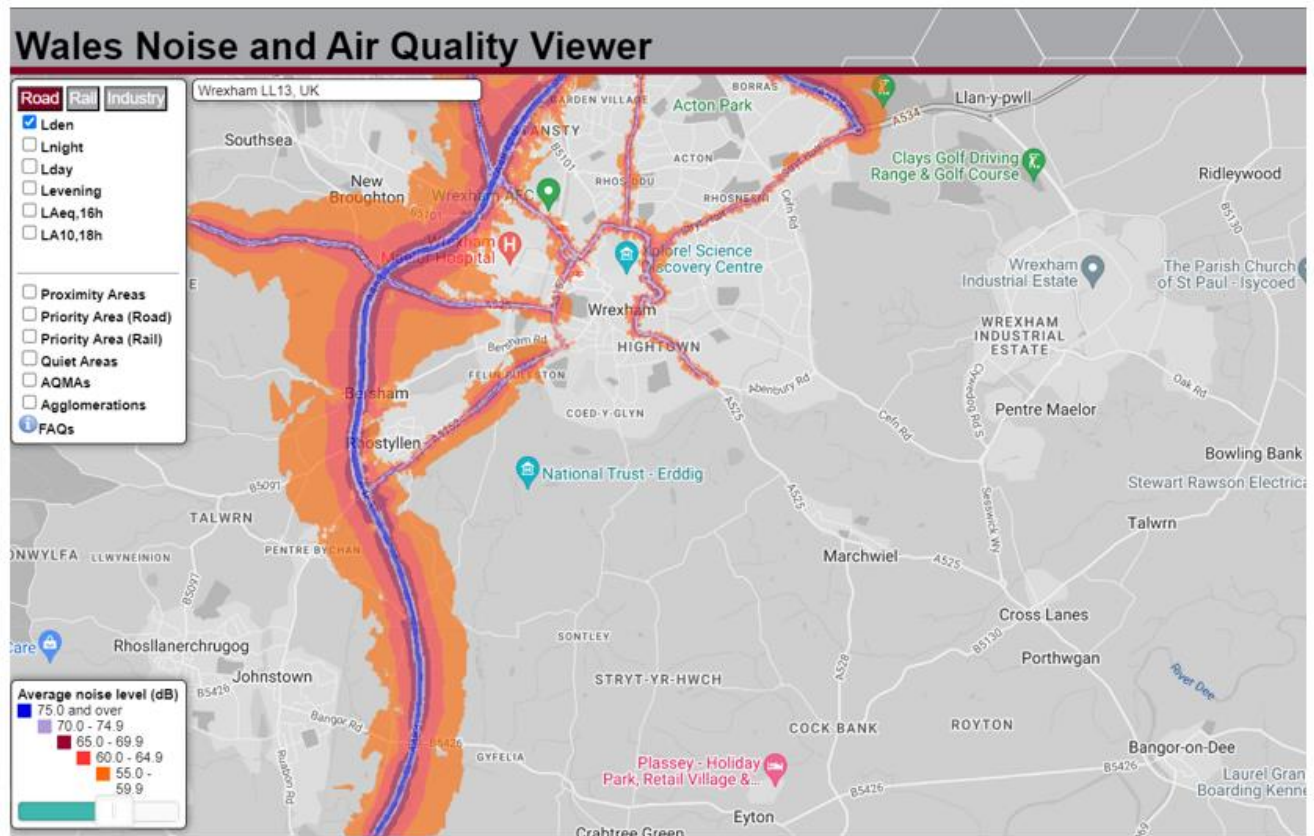


Figure 8.1 *L*_{den} Noise Mapping for Wrexham Maelor Area

8.8

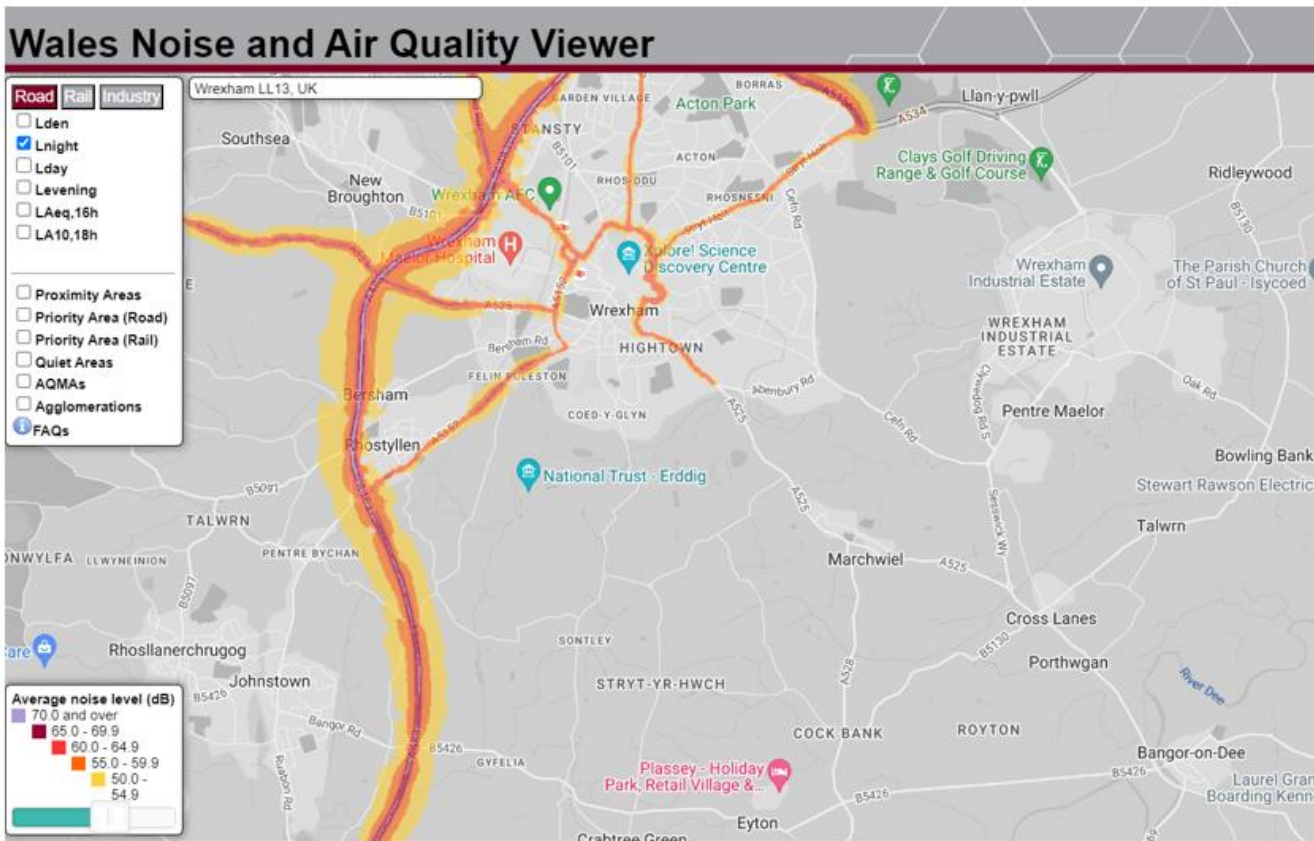


Figure 8.2 *L*_{Night} Noise Mapping for Wrexham Maelor Area