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Maelor Foods Ltd. Pickhill Lane, Wrexham LL13 0UE

Response to Natural Resources Wales:
Schedule 5 Notice 15 November 2023
Ref. PAN-020892

Environmental Permitting Regulations (England and Wales) Regulations 2016 (as amended) Part 1 Schedule 5
Environmental Permit EPR/AB3591ZQ Application for Variation

Updated Noise Impact Assessment

29 January 2024

Prepared by:

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Issue 1.3 29 January 2024

Client:

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

- 1.1 Responses are provided to a Schedule 5 Notice issued by Natural Resources Wales (NRW) seeking further information relating to noise impacts. The context to this concerns an application by Maelor Foods Ltd. to double its production capacity at its Wrexham poultry slaughter and processing plant, and to amend its Environmental Permit to cater for required changes.
- 1.2 Relevant matters to be addressed for NRW are summarised in Appendix 1, along with references to the content of this document that provide responses.
- 1.3 In addressing the requirements of NRW, and as a part of a strategy for overall installation improvements, proposed additional noise mitigation is intended as an off-set to predicted increases in noise generated by additional site activities. This has been examined having regard to Best Available Techniques (BAT). Maelor Foods therefore proposes to invest in a very substantial scheme of acoustic mitigation as specified in Appendix 2, which is intended to improve noise impacts comparative to the present position. The effects of implementing this in terms of BS4142 assessments of impacts for whole-site noise (adding the existing installation to the proposed changes to increase production, including rating penalties) are graded below.

Key:

	Significant impact, depending on the context
	Adverse Impact, depending on the context
	Less than adverse, depending on the context
	Low to no impact, depending on the context

FUTURE MAELOR FOODS OPERATIONS		
ALL NOISE MITIGATION IMPLEMENTED		
Noise Receptor Site	Daytime	Night-time
Site A: Marlbrook House Pickhill Lane	-8 to -3	+1 to +6 [#]
Site B: Pickhill Old Farm / Equestrian Complex, off Pickhill Lane	-10 to -7	0 to +3
Site C: White Gate Cottage, Pickhill Lane	-10 to -7	-4 to -1
Site D: Mayfield House, Talwrn Lane	-19 to -16	-12 to -9
Estimated Range of BS4142 Ratings for whole-site: EXCESS ABOVE BACKGROUND SOUND LEVELS, dB(A,) WHEN SITE CLOSED		

- 1.4 In order to provide the improvements regarding impacts relative to the existing operations, the comprehensive programme of noise mitigation measures are designed to extend beyond BAT in managing future noise impacts.

- 1.5 The opportunity to increase production, whilst providing for additional employment, enables substantive noise control measures to be implemented which benefits neighbouring residential developments.

2.0 INTRODUCTION & OVERVIEW

- 2.1 This response has been prepared on behalf of Maelor Food's Ltd., following receipt of a Schedule 5 '*Notice of request for more information*', 15 November 2023. The Notice seeks further details concerning noise impacts in support of an application to vary the company's environmental permit.
- 2.2 Previous noise impact assessments that are relevant to this response comprise: i) Environoise (Noise Impact Assessment, 15 February 2023, 6th issue); and ii) Acoustics Environment (Supplementary Noise Assessment: Environmental Permit EPR/AB3591ZQ Application for Variation, 27 October 2023). These impact assessments were prepared as part of the company's application to vary the permit that seeks to allow for a doubling of production capacity.
- 2.3 The Acoustics Environment report of 27 October 2023 provided updated Background Sound Levels, revised noise ratings, and updated noise impact assessments. This used British Standard BS4142 along with a general consideration of absolute sound levels in regard to World Health Organisation (WHO) noise criteria. Noise modelling predictions as provided by Environoise have been applied.
- 2.4 Ratings and assessments of noise have now been extended to account for using Background Sound Levels in the absence of the existing installation (i.e. Maelor Foods shutdown), set against noise from the existing operations in addition to the proposed changes sought by a variation to the permit (a 'whole plant' assessment).
- 2.5 For clarity, in assessing noise impacts, all sound (noise) sources, both existing and proposed, have been combined. Background Sound Levels are also considered with the installation operating as it is at present, against which proposed changes alone are assessed. To simplify comparisons, impacts are graded in relative severity as red, through to yellow and then green, with red indicating a predicted significant impact. Where graded blue, this indicates no exceedance of Background Sound Levels. Descriptions of impacts are adapted from BS4142.
- 2.6 Noise sensitive receptors are as agreed with NRW. These are illustrated, relative to the Maelor Foods installation boundary, in Figure 1.

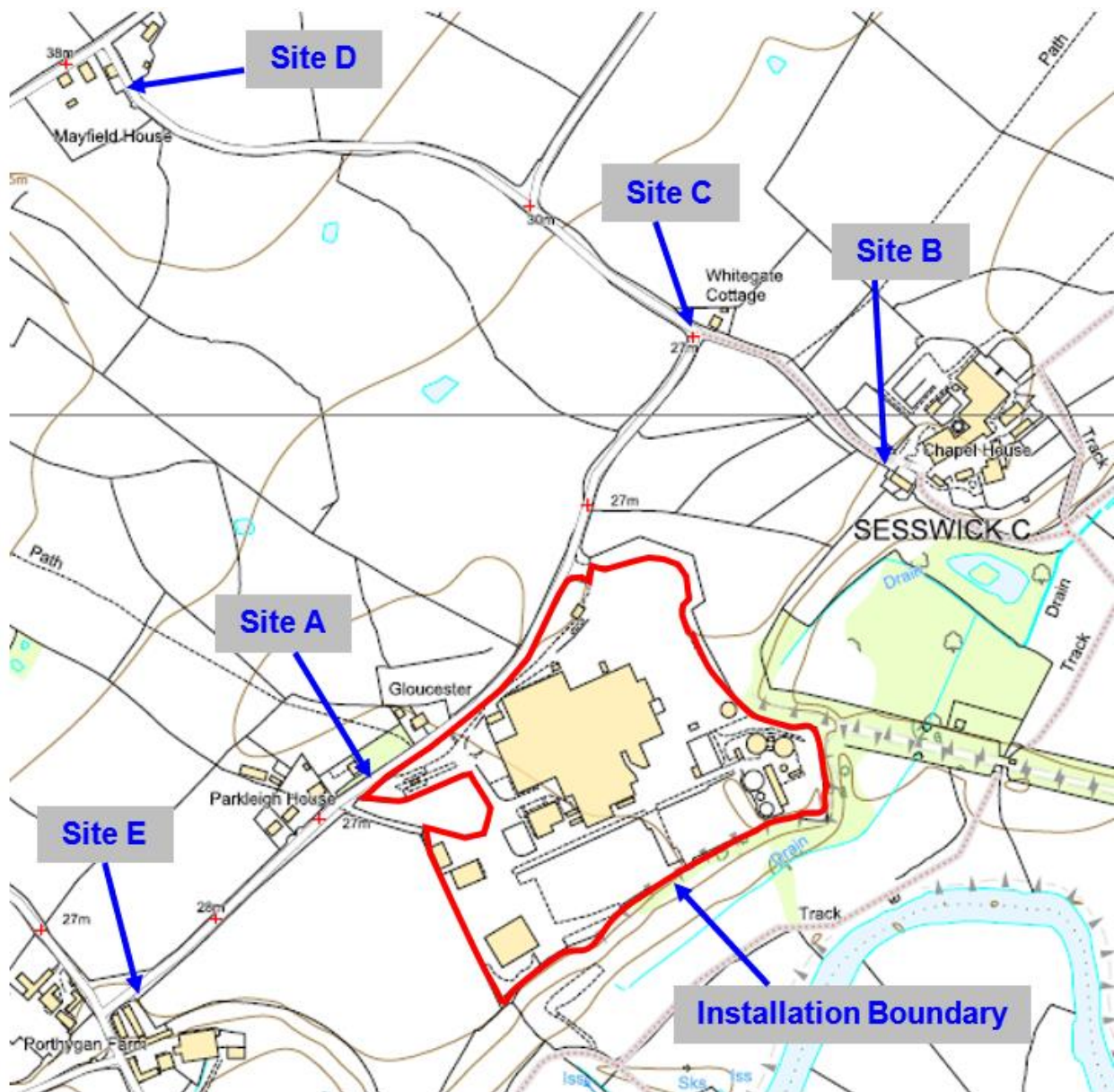


Figure 1

Key:

Site A: Marlbrook House Pickhill Lane

Site B: Pickhill Old Farm / Equestrian Complex, off Pickhill Lane

Site C: White Gate Cottage, Pickhill Lane

Site D: Mayfield House, Talwrn Lane

Site E: Porthygan Farm, Wrexham Road A525*

* This site was subsequently discounted following site visits and assessments, as qualified in the Acoustics Environment report, October 2023

Site Description & Background

- 2.7 Set in a predominantly rural location, Maelor Foods Ltd. is a family-run business that has operated its Pickhill Lane site since 2017. It has the benefit of planning permissions granted by Wrexham Borough Council from 2015 onwards, and undertakes activities and operations that have formed part of the local noise-climate over the past 6+ years. The locality is shown in Figure 2.

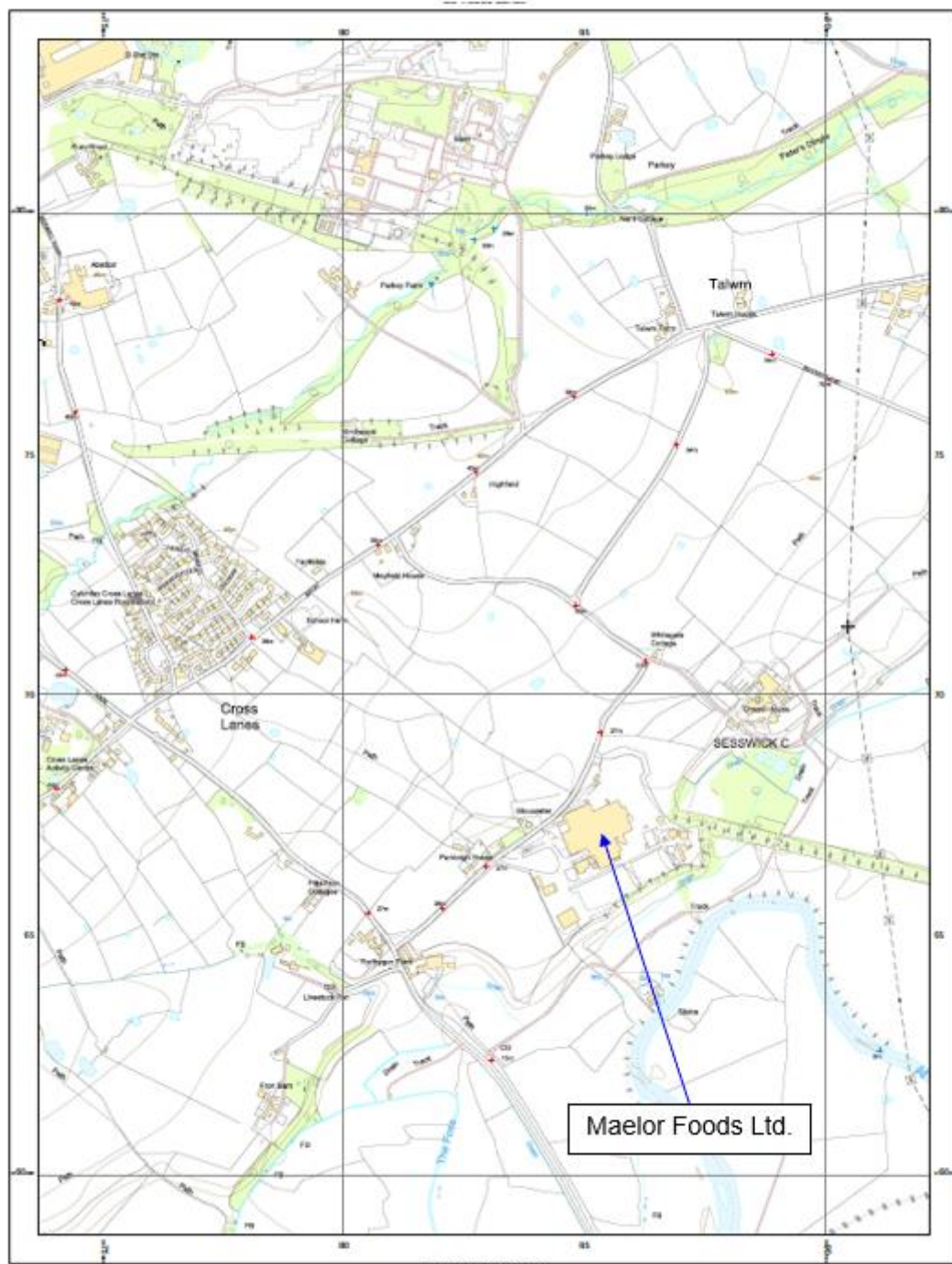


Figure 2

- 2.8 The Maelor installation operates on a 24 hours basis, save for a limitation on HGV vehicle movements imposed under a planning curfew between midnight Saturday, through to midnight on Sunday. During this curfew, processing operations, including storage and freezing, along with necessary maintenance, general housekeeping and effluent treatment continues. A host of equipment and plant thus remains in operation, which includes (but is not limited to): compressors; pumps and aeration blowers; boilers; refrigeration and chilling units; processing lines and environmental control plant (e.g. waste water treatment and air scrubber).

Historical Perspective

- 2.9 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.
- 2.10 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.
- 2.11 Mr Raj Mehta (MD and Founder of Salisbury Poultry & Maelor Foods) acquired the site in 2014, and through 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, that has afforded significant employment to people in the area since 23 November 2017. The Mehta Family invested £20m and subsequently obtained a grant of c.£3m from the Welsh Government to develop the Wrexham business.

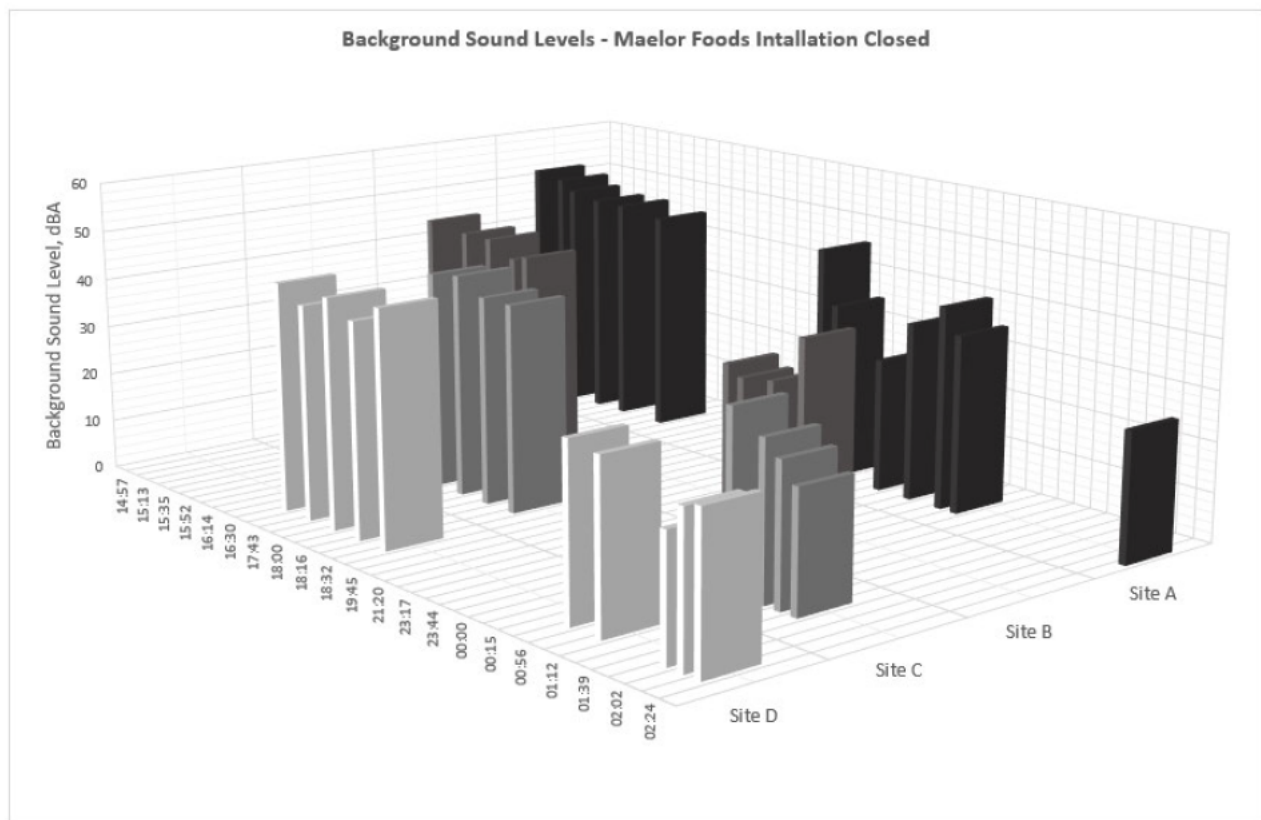
Rationale for Increased Production

- 2.12 Maelor Foods has grown and expanded substantially since 2016. The business group now requires the supply of a higher number of birds, necessitating a doubling of processing at the Wrexham site to meet demands from the food sector.
- 2.13 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.
- 2.14 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. Therefore, the proposed increase to 2 million birds per week at Maelor Foods will provide future security and benefits to the local economy.

3.0 BACKGROUND SOUND LEVELS

3.1 Section 5.0 ('Background Sound Levels') of the Acoustics Environment report of October 2023 sets out Background Sound Levels as $L_{A90,T}$ values using 15 minute periods. All measurements were attended to corroborate site conditions and noise sources, as distinct from using unattended remote data-logging. Measurement data is reproduced in Appendix 3, tabulated in time-order for each measurement site.

3.2 The Acoustics Environment Report, October 2023, it is qualified that measurements were disaggregated to accord with clause 8.1.3 of British Standard BS4142 (for note, clauses 2.9, 5.5, 8.8 and 8.9 thereof). A sequential time-line of Background Sound Levels is presented below.



3.3 Clause 8.1.4 of BS4142 states that there is no 'single' Background Sound Level, and that it should not automatically be assumed to be the minimum or modal value. This is taken into account by means of using averaged levels of disaggregated data sets which are limited for each receptor site. This also considers the middle of the night (which can be distinctly different and potentially of lesser importance) compared to the start or end of the night-time period for sleep purposes.

3.4 Background Sound Levels with total plant shutdown for all values are provided as follows:

Background Sound Levels, $L_{A90,T}$ Maelor Foods Installation Shutdown[#]		
	Daytime	Night-time
Site A	47 dB	32 dB [#]
Site B	42 dB	31 dB
Site C	43 dB	29 dB
Site D	45 dB	30 dB

[#] Excludes HGVs on Pickhill Lane that would not be subject to Environmental Permit controls, and which therefore affect Background Sound Levels and noise rating.

3.5 Data used to produce the above values is included in Appendix 3. As data sets are limited for a temporary pre-arranged shutdown, mean levels of measured values for each receptor are applied to daytime and night-time, initially without exclusion of lower value outliers (which can have the effect of lowering values of Background Sound Levels used in noise ratings).

3.6 As is typical, Background Sound Level data shows a spread of values presented over the course of daytime and night-time periods, differing between measurement sites according to prevailing sound sources. This among other considerations leads to different noise ratings.

4.0 CONTEXT

4.1 Further considerations has been given to context. To assist interpretation of this, Environment Agency information is drawn upon which sets out what context needs to consider:

What does BS4142 say?		Elements of Context	
So context needs to consider: - Weekdays vs weekends - What the sound 'means' - Time of day - The absolute level sound - Where the sound occurs - New industry or new residences - Intrinsic links between the source and receptor - Local attitudes - The residual acoustic environment - The land use at the receptor (e.g. gardens vs yards) - The exceedance (traditional BS4142) - Plus whatever else might be particular to that individual situation		<u>More sensitive</u> - More houses - Antisocial hours - Weekends - Well used amenity area (private rear gardens) - Natural soundscape	<u>Less sensitive</u> - More industry 9 to 5 - Weekdays only - Rarely used amenity area (open front gardens) - Polluted soundscape

Continued

Elements of Context		Elements of Context	
<u>More sensitive</u> - High absolute levels of pollution - Meaningful sound* - New industry - Highly sensitive receptor	<u>Less sensitive</u> - Low absolute levels of pollution - Bland sound - Long-standing industry - Less sensitive receptor	Try to experience the noise in the same way that the receptor would. It goes beyond simple data analysis and decibels. Where and how would the potential impact occur? Listen and form a subjective view of the noise from the perspective of the receptor. Use your experience and professional judgement and let that inform your interpretation of the raw numbers.	

*The sound conveys an unpleasant meaning beyond it's acoustic content

[Permitting Guidance on noise and vibration management for environmental permits sets out how context affects an assessment. This is included in Appendix 4 along with comments on context issues.]

4.2 Context, as explained in BS 4142, has been considered as follows:

Context Parameter	Positive	Negative	Neutral	Commentary
Weekdays vs Weekends		x		Operations mainly take place on a 24 hour basis 6 days per week
What the sound means			x	The sound is indicative of a commercial / industrial operation. The installation site has been used for such operations stemming from 1936.
Time of day		x		For the majority of the week the installation is fully operational on a 24 hours basis.
Absolute sound level		x		For a limited number of residential premises closest to the installation, strategic amenity standards can at times be exceeded. Absolute sound levels are not consistently high.
Where the sound occurs		x		Sound emissions from the installation are audible at neighbouring residential premises
New industry or new residences	x			There are no new residential premises. Proposed installation changes replicate existing plant/operations
Intrinsic links between the source and receptor	x			There are no intrinsic links.
Local attitudes			x	The current installation has co-existed since 2017. Periodic complaints arise.
The residual acoustic environment	x			Residual sound comprises an amalgam of road traffic, aircraft, agricultural activities, natural sounds, human activities and installation sounds.
Land use at the receptor		x		This comprises gardens associated with dwellings.
Exceedance (BS 4142)		x		For dwellings closest to the installation, higher exceedances arise.

4.3 Further assessment using the Environment Agency guidance is used to build on this:.

Context Parameter – Environment Agency	Positive	Negative	Neutral	Commentary
More houses vs More Industry			x	Additional industry is not being introduced. Proposed changes only relate to additional current activity.
Anti-social hours vs 9-5			x	24 hour operations already take place.
Weekends vs Week-days only			x	Operations already take place on weekdays and at weekends.
Well used amenity area (private gardens) vs rarely used amenity area (open front gardens)				There are very few residential premises in the immediate vicinity of the installation.
Natural Soundscape vs Polluted Soundscape			x	The soundscape in the locality is not natural, though it contains natural elements such as wildlife. For the main part, the soundscape is populated with transport signatures (vehicles and aircrafts), human activities and installation sounds. These are intersperse with periods of relative quiet. It is not designated as an AONB, SSSI, SLINC, SAC, SPA, NNR etc.
High absolute levels of pollution vs Low absolute levels of pollution	x			Noise levels in the locality are not persistently high, neither do they consistently exceed strategic amenity standards.
Meaningful sound vs Bland Sound			x	Installation sounds have formed a legitimate part of the soundscape, comprising a mixture of bland sounds occasionally punctuated by specific, identifiable, transient sounds. The association of installation sounds is a facet of business operations that have been carried out since 2017.
New industry vs Longstanding industry			x	The installation has an operational provenance dating to 2017, under planning permission. Prior to this, there is an extensive history of commercial site operations since 1936 encompassing a creamery; cheese manufacturing; and transport logistics.
Highly sensitive receptor vs less sensitive receptor			x	Sensitive receptors comprise neighbouring dwellings. These will have been subject to various sounds (noise) prior to Maelor Foods occupying the site, and the sensitive development in itself is not new. Some habituation to sounds emanating from the installation site can therefore be reasonably expected to exist. The respective positions of the installation and neighbouring dwelling represents competing needs, which is commonplace.

- 4.4 The above context appraisal considers the existing installation, accounting for proposed changes across the whole site. The subjective impression from numerous observations is that existing noise from the site does not present as a markedly incongruous feature. The use of professional judgement has been highlighted by the Environmental Agency as a consideration to be used when interpreting 'raw numbers'.
- 4.5 There are relatively few complaints concerning installation noise, the make-up of which is neither consistent or significant. The additional production capacity being sought, along with the intended mitigation set out below, would not change this position, as it replicates the existing operation. The mitigation serves to provide notable benefits in terms of noise impacts at residential receptors.

5.0 REVISED NOISE IMPACTS

Key:

	Significant impact, depending on the context
	Adverse Impact, depending on the context
	Less than adverse, depending on the context
	Low to no impact, depending on the context

FUTURE MAELOR FOODS OPERATION		
NO ADDITIONAL MITIGATION		
	Daytime	Night-time
Noise Receptor Site A Marlbrook House Pickhill Lane	Adverse impact, depending on the context. WHO Serious annoyance criteria is indicated to be met.	Significant Adverse impact, depending on the context. WHO criteria for sleep interference (open window) at exposed façade is indicated to be exceeded.
Noise Receptor Site B Pickhill Old Farm / Equestrian Centre	Less than an adverse impact, depending on the context. WHO Serious and moderate annoyance criteria indicated to be met.	Significant adverse impact, depending on the context. WHO criteria for sleep interference (open window) at exposed façades indicated to be met.
Noise Receptor Site C White Gate Cottage, Pickhill Lane	Less than an adverse impact, depending on the context. WHO Serious and moderate annoyance criteria indicated to be met	Significant adverse impact, depending on the context. WHO criteria for sleep interference (open window) at exposed façade indicated to be met.
Noise Receptor Site D House, Talwrn Lane	Low impact, depending on the context (not exceeding Background Sound Level). WHO Serious and moderate annoyance criteria indicated to be met.	Less than adverse impact, depending on the context. Threshold of WHO criteria for sleep interference (open window) at exposed façade indicated to be met.
WHOLE SITE – EXISTING INSTALLATION OPERATIONS & PROPOSED CHANGES COMBINED BACKGROUND SOUND LEVEL EXCLUDES EXISTING INSTALLATION NOISE		

5.5 A synopsis of (numerical) classification of noise ratings using BS 4142 is set out below. For comparison purposes, these provide ratings for two Background Sound Level situations:

- i) installation closed, with noise from the existing operations in conjunction with proposed changes to production; and
- ii) installation operating as at present, then assessed with proposed changes.

5.6

Noise Receptor Site	MAELOR FOODS FUTURE OPERATIONS: NO ADDITIONAL MITIGATION EXISTING & PROPOSED OPERATIONS (PLANT & HGVs) COMBINED		MAELOR FOODS FUTURE OPERATIONS: NO ADDITIONAL MITIGATION ADDITIONAL PROPOSED OPERATIONS (PLANT & HGVs) COMBINED	
	Daytime	Night-time	Daytime	Night-time
Site A	+ 8 [#]	+ 20 [#]	+ 7	+ 11
Site B	+1	+12	-12	-10
Site C	+1	+13	- 10	-10
Site D [§]	- 8	+ 3	- 14	-8
BS4142 Ratings: Excess above Background Sound Level, dB(A) BACKGROUND SOUND LEVEL EXCLUDES EXISTING INSTALLATION NOISE (MAELOR SITE CLOSED)		BS4142 Ratings: Excess above Background Sound Level, dB(A) BACKGROUND SOUND LEVEL INCLUDES EXISTING INSTALLATION NOISE (MAELOR SITE OPEN)		

[#] Background Sound Level Excludes HGVs on Pickhill Lane during the period of installation shutdown

[§] Now adjusted for distance correction from Site C noise modelling

Technical derivations of numerical noise ratings are set out in Appendix 5

5.7 Acoustic modelling of HGV movements and plant noise carried out by Environoise (February 2023) have been combined as a single noise source in the assessments and a distinguishable-feature correction (penalty) applied:

	MAELOR FOODS FUTURE OPERATIONS NOISE RATING LEVELS FROM PROPOSED CHANGES, dB(A)	
	Daytime	Night-time
Site A	49	49
Site B*	32	32
Site C	32	32
Site D [§]	26	26

Combined HGV & Plant Noise. +3 dB penalty included

* Comparable to Site C for noise modelling

[§] Now adjusted for distance correction from Site C noise modelling

5.8 For noise rating purposes in accordance with the requirements of NRW and permitting guidance (formulated on British Standard BS4142:2014+A1:2019), it was required to add the above predicted values for combined new plant and HGV noise components to that of the existing installation as a whole to provide a rating assessment against Background Sound Levels when the installation is closed. This has been applied as an addition of sound levels.

5.9 Consideration of existing installation noise is based on assessments in Appendix 5. 'Whole site noise' combining existing and proposed sound levels provides:

MAELOR FOODS FUTURE OPERATIONS WHOLE-SITE BS4142 RATING LEVELS dB(A)		
	Daytime	Night-time
Site A	55	51
Site B [#]	43	43
Site C	44	42
Site D [§]	37	33
For combined existing site and proposed changes		

[#] Comparable to Site C for noise modelling

[§] Adjusted for distance from Site C noise modelling and assumed residual level, as ambient sound measurements higher than calculated residual round level

5.10 Rating Levels minus Background Sound Levels for whole-site noise combined:

MAELOR FOODS FUTURE OPERATIONS CALCULATED BS4142 RATING LEVELS NO MITIGATION		MAELOR FOODS FUTURE OPERATIONS CALCULATED BS4142 RATING LEVELS NO MITIGATION	
Daytime	Night-time	Daytime	Night-time
Site A	55 – 47 = +8 [#]	49 – 42 = +7	49 – 38 = +11 [#]
Site B	43 – 42 = +1	32 – 44 = -12	32 – 42 = -10
Site C	44 – 43 = +1	32 – 42 = -10	32 – 42 = -10
Site D	37 – 45 = -8	26 – 40 = -14	26 – 34 = -8
BACKGROUND SOUND LEVELS WHEN INSTALLATION CLOSED [#] Excludes HGVs on Pickhill Lane that would not be subject to Environmental Permit controls and which can therefore decrease noise rating.		BACKGROUND SOUND LEVELS WHEN INSTALLATION OPEN [#] Excludes HGVs on Pickhill Lane that would not be subject to Environmental Permit controls and which can therefore decrease noise rating.	

5.11 Considering BS4142, in a general context it can also be necessary to assess weekends and weekday periods separately, and that the middle of the night can be distinctly different (and potentially of lesser importance) compared to the start or end of the night-time period for sleep purposes. This has notable relevance for Site A, which experiences traffic on Pickhill Lane associated with Maelor Foods that is beyond the installation boundary.

5.12 Accounting specifically for the start/end of the night-time period, this has direct relevance to whole-site noise ratings (Specific Sound Level minus Background Sound Level when the site is closed). These are corrected to:

MAELOR FOODS FUTURE OPERATIONS CALCULATED BS4142 RATING LEVELS NO MITIGATION		
	Daytime	Night-time
Site A	55 – 47 = +8	52 – 35 = +17 [#]
Site B	43 – 42 = +1	43 – 32 = +11 [#]
Site C	44 – 43 = +1	42 – 35 = +7 [#]
Site D	37 – 45 = -8	33 – 34 = -1 [#]
BACKGROUND SOUND LEVELS WHEN INSTALLATION CLOSED		

6.0 TONAL PENALTIES

- 6.1 An objective re-appraisal of tonal sound impacts and the need to apply penalties has been carried out using a method detailed in BS4142 (section 9.3.1), applying comparisons of one-third octave band spectra. A correction for impulsivity was not evident.
- 6.2 Using the stated criteria in BS4142 it is concluded that there are no prominent tones. Predicted impacts have nonetheless included a +3 dB correction to allow for distinguishable features, which is otherwise the same as applying a correction for intermittency.
- 6.3 Spectral details for each measurement site that have been used to verify this are included in the Appendix 6. The procedure in BS4142 is that for a prominent, discrete tone to be identified as present, time-averaged sound pressure level in a one-third octave band of interest is required to exceed the levels in adjacent bands by -
- 15 dB in the low frequency one-third octave bands 25 Hz to 125 Hz
 - 8 dB in the middle-frequency one-third octave bands (160 Hz to 400 Hz)
 - 5 dB in the high-frequency one-third octave bands (500 Hz to 10,000 Hz)

7.0 ADDITIONAL NOISE MITIGATION

7.1. Messrs Jacobs Bond Pascoe on behalf of Maelor Foods Ltd. have advised on noise mitigation measures to:

- ensure on-going compliance with BAT;
- to accommodate existing and proposed changes; and
- to mitigate and reduce off-site impacts that improve the noise climate to a better standard than currently afforded.

As may be necessary in certain cases, planning approval may be required. These are summarised below and details are provided in Appendix 2.

Mitigation Measure	Description	Indicative attenuation
Cooling System Exhausts	Acoustic cladding/shielding of chiller plant. Option to install acoustic silencing to existing fans to be evaluated.	- 6 dB(A) minimum (on maximum duty)
Exhaust Louvres	Horizontal outlets from the production plant shall be subject to terminal attenuation using splitter-type attenuators. These shall be installed behind each louver/grille and shall be fully sealed. The size of the attenuators shall be selected to reduce the breakout noise to ambient minimum off-site. Splitters and side linings shall contain sound-absorbent infill encapsulated with glass cloth and plain perforated steel. Splitters shall feature aerodynamic profiled fairings at each end.	20 dB insertion loss
HVAC Units	All HVAC plant that is installed within the plant deck within the building that is subject to either extract or supply air from the roof shall be installed with a splitter type attenuator, all as shown in red on data sheet. The installation of attenuators is designed to mitigate fan-noise breakout. Splitters and side linings shall contain sound absorbent infill that is encapsulated with glass cloth and plain perforated steel. Splitters shall be a profiled at each end. The external panelling that surrounds the cooling tower units shall be increased in height so that the attenuators are not visitable from curb side. The panelling shall be sound absorbent.	20 dB minimum insertion loss

Acoustic Screening – Installation Boundary	JBP Ultrasound acoustic reduction barriers are to be installed on the perimeter of the Maelor Foods Ltd site. These barriers shall be of stone wool Construction complete with PE netting and wood panelling. External colour shall be as approved via the local planning authority.	Insertion Loss performance (Sound Insulation) to 21dB according to EN1793-2(B2). Sound absorption 11dB according to EN1793-1(A3) Screening attenuation 5 to 10 dB
Aeration Blowers & Pumps – Effluent Treatment Plant	Existing and new effluent treatment pumps and blowers will be enclosed in suitably vented bespoke acoustically attenuated enclosures constructed from materials including galvanised steel, aluminium, and featuring mineral wool sound-absorbent media.	Sound Reduction Index R_w 34 dB
Scrubber Unit	JBP Ultrasound reduction panels/barriers be installed around the existing scrubber unit to attenuate fan/motor noise. These panels/ barriers shall be of stone wool construction complete with PE netting and wood panelling.	Insertion Loss performance (Sound Insulation) 21dB according to EN1793-2(B2) Sound absorption to 11dB according to EN1793-1(A3)
HGVs (to be finalised)	Review of Maelor-owned vehicles to ensure BAT are implemented in regard to refrigeration trailer units	

7.2 Since the permit application (and under advice), the following measures have been taken as part of continuous improvements to aid noise control:

- Removal of speed control humps (gatehouse)
- Improved electrical hook-up facilities for refrigerated trailers.
- Driver protocols updated for HGV deliveries and dispatches to minimise noise.

7.3. Proposed mitigation associated with an increase in production is predicted to bring about expected improvements in regard to noise impacts. Conservative estimations are detailed below:

MAELOR FOODS FUTURE OPERATIONS EXPECTED NOISE IMPACTS: ALL MITIGATION MEASURES APPLIED (As specified by Jacobs Bond Pascoe)		
Noise Receptor Site	Daytime	Night-time
Site A Marlbrook House Pickhill Lane	Low impact, depending on the context.	Less than adverse to adverse impact, depending on the context.
	WHO Serious annoyance criteria is indicated to be met.	WHO criteria for sleep interference (open window) at exposed façade is indicated to be met.
Site B Pickhill Old Farm	Low impact, depending on the context.	Low impact to less than adverse to adverse impact, depending on the context
	WHO Serious and moderate annoyance criteria indicated to be met.	WHO criteria for sleep interference (open window) at exposed façade is indicated to be met.
Site C White Gate Cottage, Pickhill Lane	Low impact, depending on the context.	Low impact to less than adverse to adverse impact, depending on the context.
	WHO Serious and moderate annoyance criteria indicated to be met.	WHO criteria for sleep interference (open window) at exposed façade indicated to be met.
Site D Mayfield House, Talwrn Lane	Low impact , depending on the context.	Low impact, depending on the context.
	WHO Serious and moderate annoyance criteria indicated to be met.	Threshold of WHO criteria for sleep interference (open window) at exposed façade indicated to be met.
	ASSESSED FOR BACKGROUND SOUND LEVELS EXCLUDING EXISTING INSTALLATION NOISE (MAELOR SITE CLOSED)	

7.4 BS4142 ratings have been re-appraised to factor in a comparison allowing for mitigation as detailed by Jacobs Bond Pascoe, applied to both the current installation and for the installation with increased production activity for future whole-site operations.

Noise Receptor Site	MAELOR FOODS FUTURE OPERATIONS ESTIMATED RANGE OF BS4142 RATINGS ALL MITIGATION MEASURES APPLIED		MAELOR FOODS FUTURE OPERATIONS ESTIMATED RANGE OF BS4142 RATINGS ALL MITIGATION MEASURES APPLIED	
	Daytime	Night-time	Daytime	Night-time
Site A	-8 to -3	+1 to +6	-9 to -4	-6 to -1
Site B	-10 to -7	0 to +3	-23 to -20	-21 to -18
Site C	-10 to -7	-4 to -1	-21 to -18	-21 to -18
Site D ⁵	-19 to -16	-12 to -9	-25 to -22	-19 to -16
BS4142 Ratings: Excess above Background Sound Level, dB(A) BACKGROUND SOUND LEVELS EXCLUDE EXISTING SITE NOISE (MAELOR SITE CLOSED)			BS4142 Ratings: Excess above Background Sound Level, dB(A) BACKGROUND SOUND LEVELS INCLUDE EXISTING SITE NOISE (MAELOR SITE OPEN)	

7.5 The above noise ratings take a conservative approach to mitigation, whereby acoustic screening ranges between -5 to -10 dB(A) insertion loss, and acoustic silencing / shrouding brings about a minimal perceptible change. They notably apply to a Sunday in the case of daytime when HGVs are absent with the plant closed, which is different to weekdays and Saturdays during daytime.

8.0 COMMENTS & CONCLUSIONS

- 8.1. Maelor Foods Ltd. is an extant food processing installation, benefitting from planning permission and an Environmental Permit.
- 8.2. It presents as one of several ambient sound (noise) sources occupying a site that has a long history of commercial/industrial activities and logistics operations; in this regard, it is not an incongruous feature.
- 8.3. Rating of noise impacts has been carried out to assess proposed changes to increase production. This has considered Background Sound Levels for different locations.
- 8.4. Different impacts are predicted, based on assessments with the existing installation closed, or operating in its present form.
- 8.5. Along with numerical noise ratings, professional judgement has been applied based on site observations, in line with requirements for considering context.
- 8.6. It is considered the numerical ratings generally over-predict the actual extent of impacts. This is not borne out relative to existing operations and persistency of complaints, along with considering future improvements in noise control to be provided as part of proposed production changes.
- 8.7. Extensive, additional noise mitigation across the site improves upon the present noise-climate experienced within neighbouring areas. This is a major positive context consideration.
- 8.8. The outstanding requirements set out by NRW are considered to be addressed within this response and its appendices.