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ORIGIN PLANNING SERVICES

Proposed expansion of the existing facilities at Tom Walker & Sons, Thorpe Leazes, Stockton-on-Tees TS21 3HZ

Noise Assessment

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APPENDICES

1 INTRODUCTION

1.1 Context

1.1.1 Origin Planning Services appointed L A Environmental Ltd to carry out a noise assessment on behalf of Tom Walker & Sons Ltd for a proposed expansion of the existing facilities at Tom Walker & Sons, Thorpe Leazes, Stockton-on-Tees TS21 3HZ.

1.1.2 The proposal principally sees the creation of 1 new storage warehouse and offices to the south of the existing farm buildings on site (See Figure 1-1).

1.1.3 As part of a noise assessment for industrial/commercial activity the methodology is based on British Standard 4142:2014 + A1:2019 and considers the current background noise level without the noise source in operation then considers the rating level generated by the overall noise from the proposed plant and activity.

1.1.4 Compliance with a rating level not exceeding the background noise level during the day by 5dB and during the night no exceedance of background.

1.1.5 The assessment is therefore based on noise measurements undertaken at the nearest potentially noise sensitive receptors to the proposed location of the facility to establish the background noise climate. The impact of any future industrial activity has then been compared against the criteria outlined in BS 4142:2014+A1:2019 “Methods for rating and assessing industrial and commercial sound”.

1.1.6 Guidelines values on the acceptability of community noise are based on the World Health Organisations (WHO) “Guidelines for Community Noise” (1999).

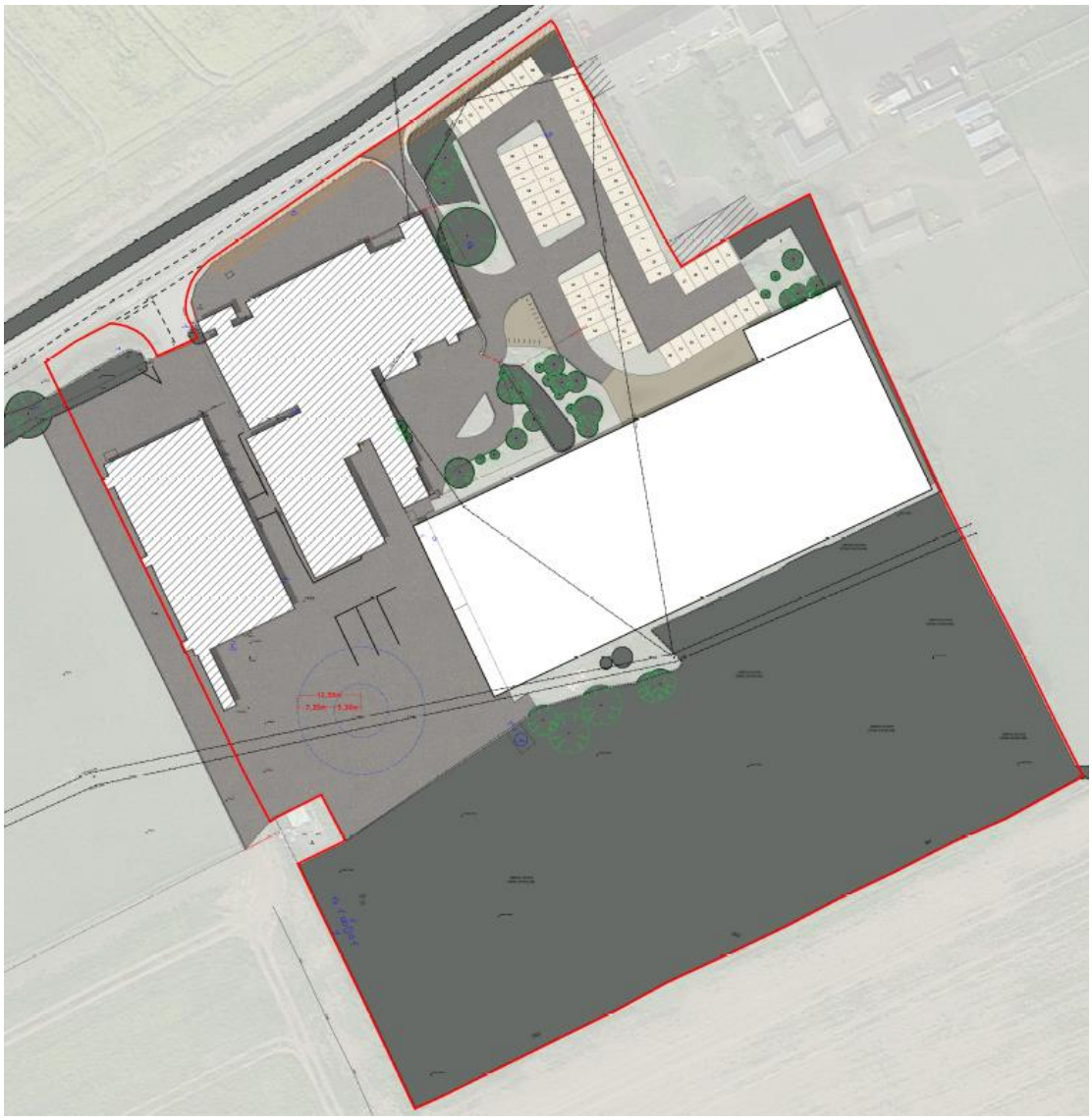
1.1.7 A glossary of terminology is included in Appendix A to assist the reader.

1.2 Proposed Development

1.2.1 The proposed works comprise of the demolition of an existing cottage to allow for the erection of 37 x 95 m two-storey storage warehouse with an additional reception area to the north east of the building: 20 x 7m. To facilitate the expansion of this business and the storage warehouses an additional 42 car parking bays are proposed on the northern part of the site. In addition to this it is proposed that a number of temporary structures at the site are to be removed.

1.2.2 The HGV entrance is to remain in its existing position to the west and therefore continues to be screened from the nearest residential premises and a HGV turning circle is proposed to ensure the site can accommodate the expansion of the business and additional vehicular movement associated with this.

Figure 1-1: Proposed Site Layout



1.2.3 In terms of hours of operation, the business currently operates between 7am and 7pm, however, to facilitate the growth of this business the operators are now looking to be open 24 hours with production being extended from 6am to 10am (with possible hygiene operations at nights, if needed).

1.2.4 The application site is within the open countryside and accessed via Thorpe Leazes Lane to the north. To the east of the site are Thorpe Leazes Cottages. To the south of the site are fields designated as open countryside. To the immediate west of the site is industrial use, currently occupied by Tom Walker & Sons.

1.2.5 Figure 1-2 overleaf shows a 3-D visual of the front (north elevation) of the building, facing towards Thorpe Leazes Lane.

Figure 1-2: 3D visual showing a view of proposed northern elevation of building

2 GUIDANCE & STANDARDS

2.1 Noise Policy Statement for England (NPSE): 2010

2.1.1 NPSE sets out the long term aims of Government noise policy to:

- "Promote good health and good quality of life through the effective management of noise within the context of Government policy on sustainable development".

2.1.2 The main aims of the Noise Policy are:

- Avoid significant adverse impacts on health and quality of life.
- Mitigate and minimise adverse impacts on health and quality of life.
- Where possible contribute to improvements of health and quality of life through the effective management of noise.

2.1.3 The NPSE explanatory Note provides the concept of adverse effects and the relevant definition for the significance of the development.

- NOEL – No Observed Effect Level. This is the level below which no effect can be detected. In simple terms, below this level there is no detectable effect on health and quality of life due to noise.
- LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected.
- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.

2.2 National Planning Policy Framework (NPPF): 2023

2.2.1 Incorporating the aims of the NPSE, the revised National Planning Policy Framework (NPPF), updated on 5 September 2023, sets out the Government's planning policies to achieve sustainable development, including minimising the impacts of noise.

2.2.2 In relation to the potential impacts of noise, paragraph 185 of the NPPF states that planning policies and decisions should:

> *"ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*
> *a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
> *b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason;*

2.3 Planning Practice Guidance: Noise (PPG-N) 2019

2.3.1 Building on the qualitative criteria outlined in the NPSE, the Planning Practice Guidance: Noise (PPG-N) provides a hierarchy of exposure response relationships, qualitative effect levels and associated actions for noise for residential settings.

Table 2-1: Noise Exposure Hierarchy Table

Response	Example of outcomes	Increasing effect level	Action
No Observed Effect Level			
Not present	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level (NOEL)			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level (LOAEL)			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g., turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum

Significant Observed Adverse Effect Level (SOAEL)			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g., avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g., regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

2.4 BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound

2.4.1 BS 4142:2014+A1:2019 describes methods for rating and assessing sound of an industrial and/or commercial nature which includes:

- Manufacturing processes;
- Mechanical and electrical plant and equipment;
- Loading and unloading of goods and materials at industrial and/or commercial premises; and
- Mobile plant and vehicles that are an intrinsic part of the overall sound (i.e. forklift trucks or train or ship movements).

2.4.2 The procedure is based on comparing the measured or predicted noise level from the source in question immediately outside a dwelling with the "background sound level" (L_{A90}) that would otherwise exist in the absence of the specific noise. The “rating level” is derived by adding any feature corrections that are considered necessary, due to certain characteristics of the noise to the “specific sound level”.

2.4.3 The “specific sound level” is the equivalent continuous A-weighted sound pressure level (L_{Aeq}) of the noise associated with the site in question, at the assessment position, over a time period specified in the standard. The assessment position must be outside the dwelling or other noise sensitive building affected by the noise and the measurements must be representative of the specific sound and the background sound level.

2.4.4 The degree of impact is indicated by both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs as detailed in Table 2-2.

Table 2-2: Indoor ambient noise levels for dwellings	
Difference between measured background and rating level in dB(A)	**Significance of impact**
+10	is likely to be an indication of a significant adverse impact, depending on the context
+5	is likely to be an indication of an adverse impact, depending on the context
<0	indication of the specific sound source having a low impact, depending on the context.

2.4.5 The presence of 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. These acoustic characteristics include:

- Tonality
- Impulsivity
- Other sound characteristics
- Intermittency

2.4.6 In addition to the margin by which the Rating Level exceeds the background sound level emphasis is placed upon an appreciation of the context of the impacts:

> *"An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at a decision, therefore, it is essential to place the sound in context.*

2.4.7 In addition to the characteristic penalties applied to provide the rating level of a source, the standard notes that the impact of the source under assessment should also take into account the following:

- Context
  - Absolute levels
  - The existing impact of residual sound levels
  - Character and level of the residual sound
  - Sensitivity of receptor and design measure to ameliorate acoustic conditions
- Uncertainty of the assessment
  - Establishment of residual and specific sound levels
  - Variability of background
  - Calculation and assumptions

2.4.8 The methodology detailed in BS4142 is limited to the assessment of specific sound sources and associated rating levels at external areas of identified receptors. In order to assess the suitability of sound level inside, BS4142 specifies that other guidance and criteria detailed with BS8233 " Guidance on sound insulation and noise reductions for buildings" should be applied.

2.5 BS8233:2014 and WHO 1999 Guidelines for Community Noise

2.5.1 BS8233:2014 'Guidance on sound insulation and noise reduction for buildings' defines a range of ambient noise levels for design criteria, such that suitable conditions are achieved in certain internal and external environments.

2.5.2 BS8233 refers to the World Health Organisation research and recommendations when defining acceptable and upper guidance noise levels within gardens during the day, and within habitable rooms in dwellings during the day and night time periods. The noise levels that normally satisfy these criteria for most people are defined in Table 2-2.

2.5.3 In 1999 the World Health Organisation proposed Guidelines for Community Noise. The scope of the WHO's effort to derive guidelines for community noise was to consolidate actual scientific knowledge on the health impacts of community noise and to provide guidance to environmental health authorities and professionals trying to protect people from the harmful effects of noise in non-industrial environments.

2.5.4 The guidelines suggest that during the daytime, few people are highly annoyed at L_{Aeq} levels below 55 dB(A), and few are moderately annoyed at L_{Aeq} levels below 50 dB(A). Sound levels during the evening and night should be 5–10 dB lower than during the day. For intermittent noise, it is emphasized that it is necessary to take into account both the maximum sound pressure level and the number of noise events.

2.5.5 Table 2-3 presents the various guideline values for community noise in outdoor spaces.

Table 2-3: Indoor: Guideline values for community noise in specific environments

Specific environment	Critical health effect(s)	dB L_{Aeq}	Time period (hours)	L_{Amax}
Outdoor living area	Serious annoyance, daytime and evening	55	16	-
	Moderate annoyance, daytime and evening	50	16	-

3 ENVIRONMENTAL NOISE SURVEY

3.1 Methodology

3.1.1 An environmental noise survey was undertaken in February 2023 to establish the existing background and ambient noise levels at a position considered representative of the closest potentially noise sensitive receptors to the proposed site.

3.1.2 All measurements were carried out in free-field conditions, i.e. more than 3.5m from any reflecting surface (other than the ground) and microphones positioned 1.4m above the ground.

3.1.3 A 24-hour survey was undertaken on the boundary of the north eastern site boundary adjacent to the nearest residential receptor at Thorpe Leazes Cottages.

3.2 Equipment used in noise survey

3.2.1 The equipment used during the survey is detailed in Appendix C and is fully compliant with that specified as Type 1 in British Standard BS EN61672 - 1: 2003: "*Electroacoustics. Sound level meters Specifications*."

3.2.2 The equipment used during the survey was a CK:247 Invictus Portable Noise Monitor with communication for remote download and alerts. Statistical values, L_{A10}, L_{A90} etc and third octave bands, together with time history logging and audio recordings were gathered throughout the survey period. Audio recordings were triggered on the noise level exceeding 60dB(A) for more than 5 seconds.

3.2.3 The equipment holds a current calibration certificate traceable to national standards. An accredited laboratory calibrates the instrumentation used. BS7580 - 1:1997 "Specification for the verification of sound level meters" requires that sound level meters should be verified every 2 years and therefore traceable to national standards.

3.2.4 Automatic calibration occurs at a set time period. In this case it was set at midnight during which time the instrumentation pauses the recording and a 1kHz signal is applied for a fixed period of time to allow for the signal to settle and determine whether an offset is required. This offset is automatically applied and the calibration process is complete.

3.2.5 A wind shield was fitted to the microphone at all times to prevent interference with sound levels.

3.3 Noise monitoring location

3.3.1 Noise monitoring was carried out at one location as follows:

- Approximately 10m from the north eastern site boundary

Photograph 1: Noise Monitoring Location

Figure 3-1: Noise Monitoring Location

3.4 Weather conditions

3.4.1 During the survey period between 8- 9 February 2023 the maximum temperature was 8ºC. It was sunny with clear skies with a moderate southerly breeze, below an average of 5m/s. Measurements were undertaken with a Kestrel 2000, serial no. 1873075.

4 RESULTS

4.1 Existing Noise Levels

4.1.1 The noise climate was influenced predominantly by road traffic on the surrounding road network. Birdsong and localised activity at the existing facility were audible on occasions.

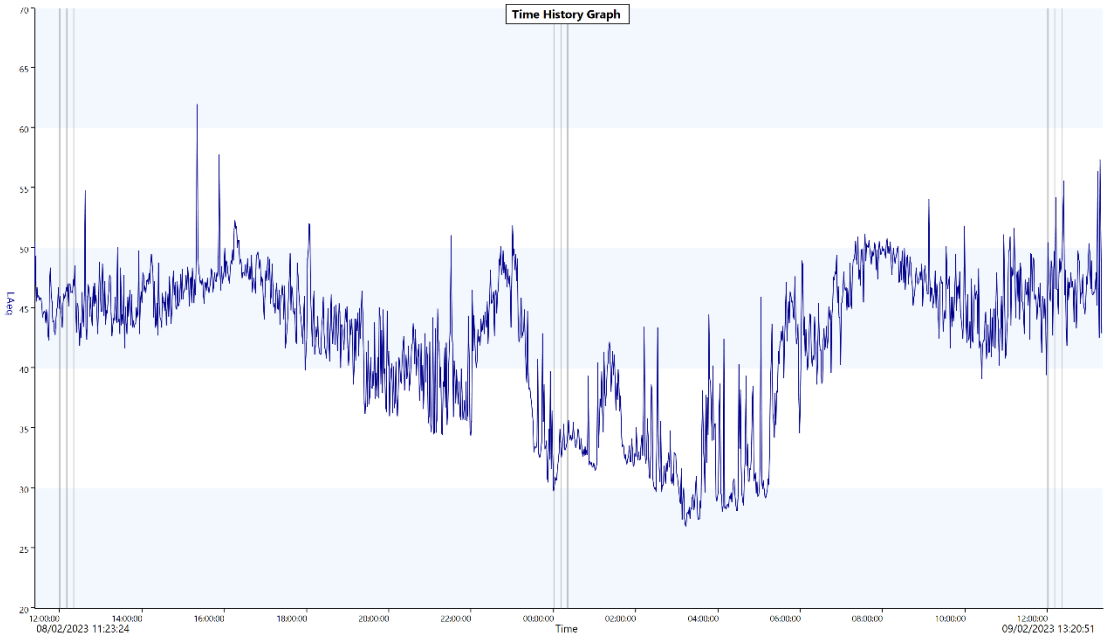
4.1.2 A summary of the results is shown in Table 4-1. Figures have been rounded to the nearest whole number.

Table 4-1: Daytime noise survey results dB(A)

Time Period	L_{Aeq}	L_{AFmax}	L_{AFmin}	L_{AF10}	L_{AF90}
07:00 – 23:00	45	74	32	47	40
23:00 – 07:00	38	67	25	40	31

4.1.3 The noise profile of the results is shown in Chart 4-1 below.

Chart 4-1: Noise Profile (L_{Aeq} levels)



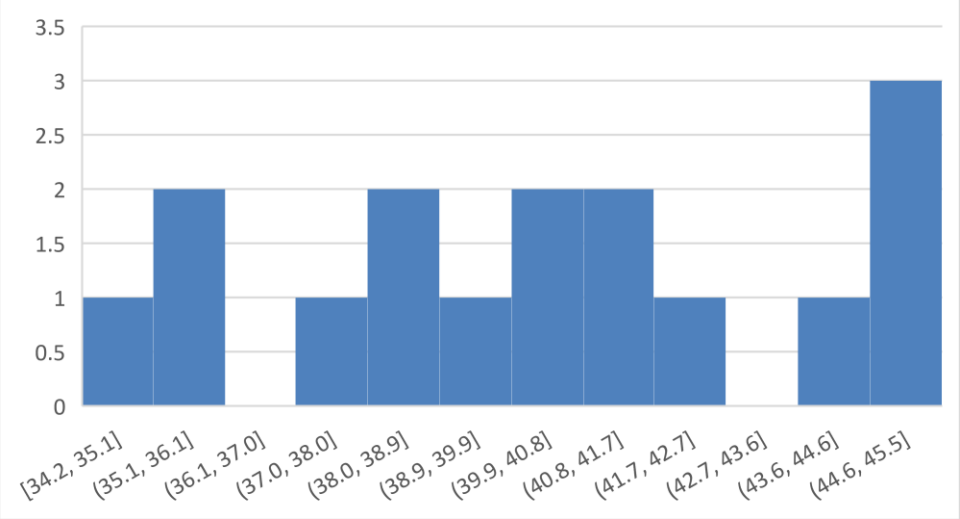
4.2 Background Noise Levels

4.2.1 The measured background noise climate on 8-9th February 2023 was considered representative of the existing noise climate in the vicinity of the nearest potentially noise sensitive properties.

4.2.2 The most commonly used percentile level is the LA90,T, which is the 90th percentile level and is the level exceeded for 90 per cent of the time, T. It is higher than the Lmin and has been adopted as a good indicator of the "background" noise level.

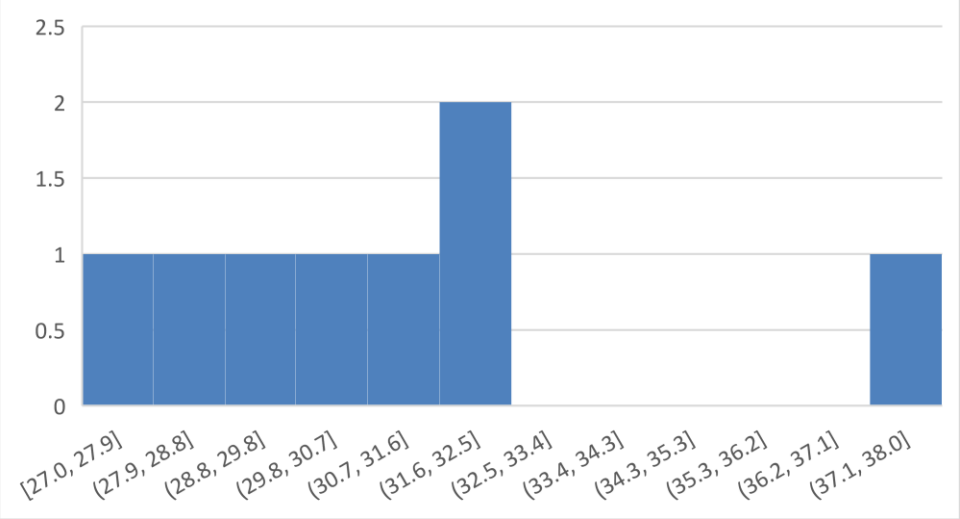
4.2.3 The results presented in Chart 4-2 below demonstrate that the most commonly occurring daytime background noise level in the area is 45dB(A).

Chart 4-2: Statistical Analysis to Determine the Background Sound Level -Daytime



4.2.4 The results presented in Chart 4-3 demonstrate that the most commonly occurring night time background noise level in the area is 32dB(A).

Chart 4-3: Statistical Analysis to Determine the Background Sound Level – Night time



4.2.5 It is considered that the measured levels are representative of the background noise climate in the area and gives a clear indication of the underlying noise level, or the level that is almost always there in between intermittent noisy events.

5 POTENTIAL IMPACTS

5.1 Construction

5.1.1 Noise during construction tends to be fairly localised compared with the more extensive impact from road traffic. Furthermore, it is of a relatively temporary nature. In total, the whole scheme is scheduled to be completed within approximately 39 – 52 weeks.

5.1.2 At this stage in the design of the scheme, precise details of the construction techniques and equipment to be used are not available. Nevertheless, it is anticipated that the following operations would be undertaken:

- Earthworks using excavators and road going lorries;
- Steel erection;
- General building site activity.

5.1.3 The distance of properties from the proposed works is important in determining the likely nuisance from construction operations. One study has shown that at least half the people living within 50 metres either side of a site boundary were seriously bothered by construction nuisance. However, beyond 100 metres, less than 20% of the people were seriously bothered.

5.1.4 There are only 3 residential properties within 100m of the site boundary and the nearest point of the proposed building is approximately 22m to the nearest dwelling and >50m to Thorpe Thewles Cottages.

5.2 Operational noise

5.2.1 Following the construction of the building the processes are described with the Planning Statement and would be similar to those currently undertaken with regard to the nature of goods being processed onsite. The main products are different varieties of cheese from hard cheeses to soft continentals and dairy free. In addition, there will be co-packing a variety of products including cheese, confectionery, novelty packs and hampers (hampers could contain a multitude of food and drink products). Products are likely to be both chilled and ambient,

5.2.2 The business began in 1982 when Tom Walker formed the company which began as a regional cheese wholesaler and is now one of the UK's leading distributors, importers and packers of cheese. The business has, therefore, operated successfully for over 30 years with no known complaints about noise from existing activities.

5.2.3 To facilitate the expansion of the business and the storage warehouses an additional 42 car parking bays are proposed and there may be an increase in noise as a result.

5.3 Road Traffic Noise & Car park use

5.3.1 It is suggested in the "Guidance for the Environmental Assessment of Road Traffic" documented by the Institute of Environmental Assessment that as a general rule of thumb an assessment should be undertaken *where traffic flows will increase by more than 30%, or the number of heavy goods vehicles will increase by more than 30%*.

5.3.2 It is anticipated that there would be a maximum weekly delivery of 25 vehicles January to October, peaking at 50 vehicles in December.

5.3.3 In addition to the above there would be approximately 5 vehicles per day for delivery/collections between January to October, peaking at 10 in December.

5.3.4 Operating hours are currently 07:00 – 19:00 hours. However, to facilitate the growth of this business the operators are now looking to be open 24 hours with production being extended from 06:00 to 22:00 hours (with possible hygiene at nights if needed).

5.3.5 There are no specific criteria or standards within England that relate specifically to noise emitted from car parks, but the close proximity of the proposed car park to the residential dwellings has the potential to increase noise levels during its use.

6 MITIGATION MEASURES

6.1 Maintenance and site operational procedures

6.1.1 Wherever possible the emphasis on noise control should be upon good design, control at source by good operational practices, correct use and maintenance of plant and use of Best Practice to prevent or minimise emissions. Various measures will be undertaken to ensure that, during the operation of the facility, noise levels will be kept to a minimum.

- The day to day operations will all take place within the confines of the building.
- The integrity of the building will be maximised by ensuring that all potential areas for noise leakage are sealed.
- Permanent roadways will be hard surfaced.
- Road surfaces will be maintained to allow efficient use and minimise vehicle noise.
- Revving of engines will be avoided.

6.1.2 Consideration has also been given to the design layout of the facility where the office accommodation is located in the north eastern part of the proposed building, nearest to the residential dwellings to the north east. This will provide screening to the activities within the main areas of activity which has been located at the furthest point from the residential locations.

6.2 Vehicle reversing alarms

6.2.1 Reversing alarms are of very short duration which means that they do not contribute to the overall measurable L_{Aeq} noise levels.

6.2.2 Due to their tonal quality, however, vehicle reversing alarms can give rise to complaints from nearby residents. These are required by the Health & Safety regulations for safety of the workforce and need to generate a certain level of noise to achieve this.

6.2.3 However, there are now more options for vehicle reversing alarms such as directional and adjustable systems, which can help minimise the noise impact at surrounding noise sensitive properties.

6.2.4 The extension to the site has been designed to ensure external activity is at its furthest point from the residential dwellings and is located to the west of the new building as shown in Figure 1-1 and the visual below (Figure 6-1).

Figure 6-1: 3D Visual of the External yard/HGV access

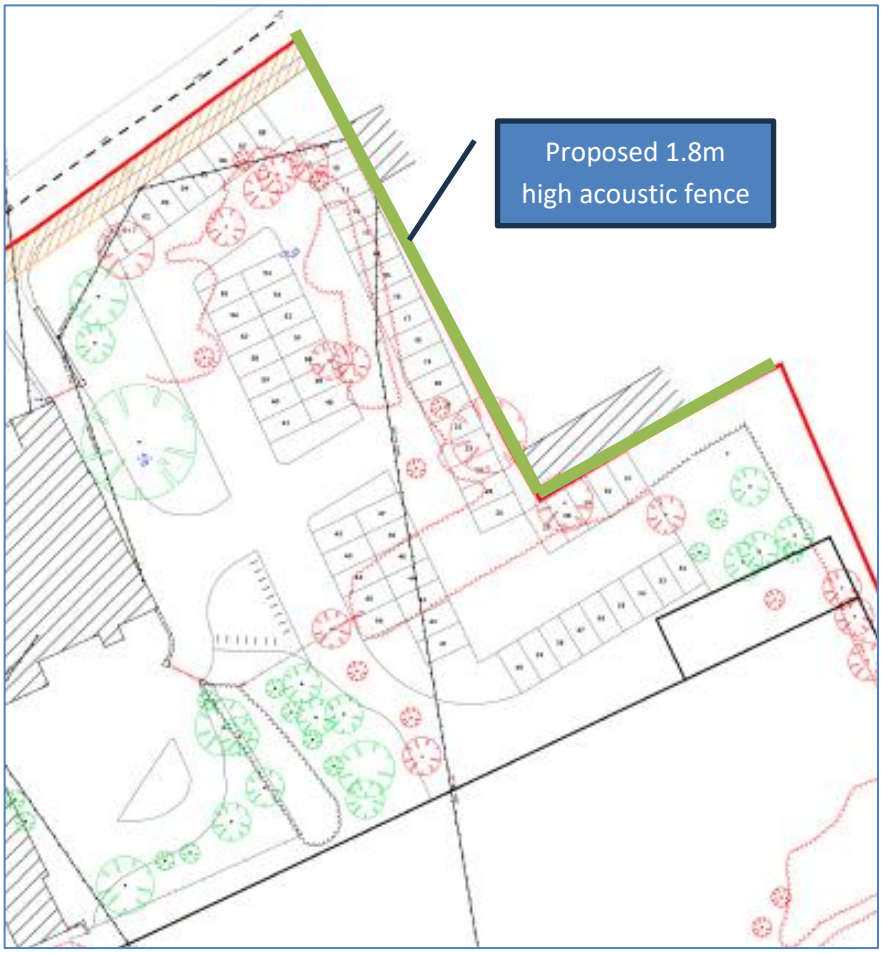
6.3 Carpark use

6.3.1 A purpose-built noise barrier between the residential dwellings and the carpark should be considered to reduce any potential impact from cars arriving and leaving the carpark and door slamming.

6.3.2 A solid timber fence should have a superficial mass of at least 10 kg/m2. The panels should be rigidly mounted and there should be no gaps between adjacent panels, or the barrier and the ground. The barrier should be designed so that gaps do not develop between abutting panels through warping or shrinkage. The fence should have no gaps or holes (cover strips should also be used to prevent gaps forming over time) and be fully sealed at the ground.

6.3.3 Figure 6-2 overleaf shows the recommended position of the fence.

Figure 6-2: Position of proposed acoustic fence



7 RESIDUAL IMPACTS

7.1 Assessment of construction noise

7.1.1 Construction noise is assessed in terms of the A-weighted Equivalent Continuous Noise Level ($L_{Aeq,T}$) over the working day. This refers to that level of continuous noise that would contain the same energy as the time varying noise generated by the various construction activities. The A-weighting denotes a correction applied to the actual sound pressure in accordance with the frequency content of the noise in question and the variation in sensitivity of the human hearing mechanism with frequency.

7.1.2 There are techniques available to predict the likely noise impact from the construction phase of the proposal. Detailed methodology is presented in BS5228:2009 "Noise and vibration control on construction and open sites, Part 1: Noise". However, it is necessary to have quite detailed information on the types and numbers of plant being used, their location in relation to surrounding residential properties and the length of time they will be in operation.

7.1.3 BS5228:2009 gives several examples of acceptable limits for construction or demolition noise. The most simplistic being based upon the exceedance of fixed noise limits and states in paragraph E.2:

- *"Noise from construction and demolition sites should not exceed the level at which conversation in the nearest building would be difficult with the windows shut."*

7.1.4 Paragraph E.2 goes on to state:

- *"Noise levels, between say 07.00 and 19.00 hours, outside the nearest window of the occupied room closest to the site boundary should not exceed:*
  - *70 decibels (dBA) in rural, suburban areas away from main road traffic and industrial noise;*
  - *75 decibels (dBA) in urban areas near main roads in heavy industrial areas.*

7.1.5 These limits are for daytime working outside living rooms and offices.

7.1.6 During the most disruptive phases of the work, noise from construction activity is likely to be audible, on occasions, above the existing road traffic noise and other industrial/commercial activity within the area.

7.1.7 Measures to control the noise to Best Practical Means (BPM) should be employed before and during the construction period. BPM should be met with regard to key legislation such as the Environmental Protection Act 1990.

7.1.8 Document C741 "Environmental Good Practice on Site" produced by Construction Industry Research and Information Association (CIRIA) 2015 contains methods of controlling noise on site and these should be adopted where appropriate to demonstrate BPM.

7.2 Operational noise

7.2.1 All assembly processes would take place within the purpose-built building using modern materials and techniques. It is not considered likely that any adverse impact would arise at the nearest residential premises as a result of this facility, given that existing operations have not given rise to complaints about noise in the past.

7.2.2 Figure 7-1 overleaf shows the proposed internal layout of the operation and demonstrates that the main noise producing activity is within the western part of the building, furthest from the residential dwellings.

7.2.3 The closest areas to Thorpe Thewles Cottages, located on the northern elevation of the building are the reception area, wash room, offices and store rooms.

Figure 7-1: Ground Floor Plan

7.2.4 It is unknown at this time what make and model of extraction units will be utilised at the proposed building, or the exact number. Therefore, in order to minimise the risk of adverse impact on nearby residents, noise associated with the proposed development should not exceed the background noise climate by more than 5dB(A) during the daytime and no exceedance at night time at the nearest sensitive receptors.

Daytime

7.2.5 The most commonly occurring daytime background noise level in the area is 45dB(A) and was determined in Chart 4-2. Therefore, to achieve the criteria of no more than 5dB(A) over background would require the rating level to be no greater than 50dBL_{Aeq} at the nearest residential properties during the operation of the site.

Night time

7.2.6 The most commonly occurring night time background noise level in the area is 32dB(A) and was determined in Chart 4-3. Therefore, to achieve the criteria of no exceedance over background would require the rating level to be no greater than 32dBL_{Aeq} between 23:00 – 07:00 hours.

7.3 Road Traffic Noise & Car parking

7.3.1 It is not envisaged that there will be more than a 30% increase in HGV movements in relation to this scheme and therefore the potential for any impact on the noise climate would be insignificant.

7.3.2 Generally, people cannot perceive a change in noise level of less than 3dB(A) and such a change requires a doubling or halving in the level of traffic.

7.3.3 The use of the car park has the potential to increase noise at the neighbouring residential dwellings. However, the provision of an acoustic fence along the eastern boundary will negate any adverse impact.

8 SUMMARY & CONCLUSIONS

8.1.1 A survey of existing noise levels in the vicinity of the proposed expansion to Tom Walker & Sons facility at Thorpe Leazes Farm has been carried out during the day and at night. The results demonstrate that the noise climate at the nearest potentially noise sensitive receptors to the proposed facility is affected by road traffic on the local road network and existing commercial/industrial activity.

8.1.2 Existing average ambient levels at the site boundary adjacent to the nearest residential dwelling were measured to be less than 45dBL_{Aeq} during the daytime period and are within the WHO guidelines to protect the majority of people from being moderately annoyed.

8.1.3 It is not expected that the proposed activity will increase the ambient noise climate as the proposed expansion has been carefully considered. The main external activity is to be located to the west of the building and therefore noise sources will be screened by the proposed building itself. External extraction units are proposed to be located on the southern elevation of the building and again fully screened from potentially noise sensitive receptors. Therefore, local residents are not likely to be adversely affected by noise from the proposed facility.

8.1.4 It is not envisaged that the development would increase HGV movements in the area by more than 30% and therefore the potential for any impact on the noise climate would be insignificant.

8.1.5 The proposed expansion of the facilities at Thorpe Leazes Farm will operate within current guideline limits and will not exceed the World Health Organisation guideline limit of 55dBL_{Aeq} during the daytime at the nearest noise sensitive receptors.

8.1.6 Best Available Techniques will be applied in order that future activity within the facility will not exceed the existing background noise climate at the nearest potentially noise sensitive receptors. This is therefore a positive indication of low adverse impact when assessed against the criteria detailed in BS4142.

8.1.7 With regards to Planning Policy, it is not likely that noise would give rise to emissions that would seriously impact on amenity through the adoption of BPM.

8.1.8 Noise from the proposed development may be noticeable at the nearest noise sensitive receptors but would not be intrusive and would result in 'no observed adverse effect'. This is defined in the PPG-Noise as '*Noise can be heard but does not cause any change in behaviour or attitude or other physiological response.*" This falls below the 'Lowest Observed Adverse Effect Level' and this therefore complies with the aims of the Noise Policy Statement for England (NPSE) requirements.

8.1.9 This report has been compiled from the results of noise measurements undertaken in February 2023 and the levels measured are considered to be representative of the prevailing noise climate.

Appendix A: Glossary of Acoustic Terminology

Decibel (dB): a unit of level derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure level the reference quantity is 20 Pa, the threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain. A change of 1 dB is only perceptible under controlled conditions.

dB(A): decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people's assessment of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving or doubling the loudness of a sound. The background noise level in a living room may be about 30 dB(A); normal conversation about 60 dB(A) at 1 metre; heavy road traffic about 80 dB(A) at 10 metres; the level near a pneumatic drill about 100 dB(A).

LAeq,T : the equivalent continuous sound level -the sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period (T). LAeq,T is used to describe many types of noise and can be measured directly with an integrating sound level meter. It is written as Leq in connection with aircraft noise.

Maximum and Minimum (L_{Amax} and L_{Amin})
The simplest statistical parameters are the maximum level (L_{Amax}) and the minimum level (L_{Amin}) during the measurement period. The L_{Amax} is often used as a measure of the most obtrusive facet of the noise, even though it may only occur for a very short time and is the level of the maximum Root Mean Square reading. L_{Amin} is rarely used, but can be a useful way of identifying a constant noise amongst other intermittent noises.
Fast Time-weighting: An averaging time used in sound level meters, equivalent to 1/8 second.

Slow Time-weighting: An averaging time used in sound level meters, equivalent to 1 second.

Percentile Parameters ($L_{n,T}$)
Percentile parameters, L_n values, are useful descriptors of noise. The L_n value is the noise level exceeded for n per cent of the measurement period, which must be stated. The L_n value can be anywhere between 0 and 100. The two common ones are discussed below, but sometimes other values will be encountered.

Background Noise ($L_{A90,T}$)
The most commonly used percentile level is the $L_{A90,T}$, which is the 90th percentile level and is the level exceeded for 90 per cent of the time, T. It will be above the L_{min} and has been adopted as a good indicator of the “background” noise level. It is specified in BS 4142:2014 as the parameter to assess background noise levels. Whilst it is not the absolute lowest level measured in any of the short samples, it gives a clear indication of the underlying noise level, or the level that is almost always there in between intermittent noisy events. BS4142:2014 advises that the measurement period should be long enough to obtain a representative sample of the background level.

Level exceeded for 10% of the Time ($L_{A10,T}$)
$L_{A10,t}$ is the 10th percentile, or the level exceeded for 10 per cent of the time, and was used for road traffic noise assessments since it had been shown to give a good indication of people’s subjective response to noise. Although the L_{Aeq} has largely superseded its use for traffic, $L_{A10,T}$ may still be found in acoustic reports discussing road traffic. It is still used to assess traffic noise to determine eligibility for noise-insulation grants where a road is altered or a new one proposed. The $L_{A10,T}$ can be useful in assessing the overall noise climate, for example, if the $L_{A90,T}$, $L_{A10,T}$ and $L_{Aeq,T}$ are all within a few dB, then this indicates that the noise source is fairly constant.

Specific noise source
The noise source under investigation for assessing the likelihood of complaints.

Specific noise level, *L*Aeq,*T*r
The equivalent continuous A-weighted sound pressure level at the assessment position produced by the specific noise source over a given reference time interval.

Rating level, *L*Ar,*T*r

The specific noise level plus any adjustment for the characteristic features of the noise.

Ambient noise

Totally encompassing sound in a given situation at a given time usually composed of sound from many sources near and far.

Residual noise

The ambient noise remaining at a given position in a given situation when the specific noise source is suppressed to a degree such that it does not contribute to the ambient noise.

Residual noise level, $L_{Aeq,T}$

The equivalent continuous A-weighted sound pressure level of the residual noise.

Appendix B: Noise Monitoring Equipment

Instrumentation	Certificate no.	Calibration due
Cirrus Research plc Instrument type: CR:247 Noise Monitoring terminal Serial number V071016	37970	07/02/2025

Appendix B: Noise Monitoring Results

Start Time	End Time	Instrument	LAFMax	LAFMin	LAF10	LAF50	LAF90	LAeq
09/02/2023 07:00	09/02/2023 08:00	V069903	62	40	51	48	43.8	49
09/02/2023 08:00	09/02/2023 09:00	V069903	64	41	51	48	45.3	49
09/02/2023 09:00	09/02/2023 10:00	V069903	67	37	49	45	40.5	47
09/02/2023 10:00	09/02/2023 11:00	V069903	62	36	47	41	38.4	44
09/02/2023 11:00	09/02/2023 12:00	V069903	62	37	50	44	40.5	47
08/02/2023 12:00	08/02/2023 13:00	V069903	66	38	48	44	41.5	46
08/02/2023 13:00	08/02/2023 14:00	V069903	61	38	47	44	41.4	45
08/02/2023 14:00	08/02/2023 15:00	V069903	61	39	49	45	42.3	46
08/02/2023 15:00	08/02/2023 16:00	V069903	74	41	49	47	44.6	50
08/02/2023 16:00	08/02/2023 17:00	V069903	58	41	51	48	45.5	49
08/02/2023 17:00	08/02/2023 18:00	V069903	62	36	49	44	39.6	46
08/02/2023 18:00	08/02/2023 19:00	V069903	65	36	48	41	38.6	45
08/02/2023 19:00	08/02/2023 20:00	V069903	62	33	44	39	35.8	42
08/02/2023 20:00	08/02/2023 21:00	V069903	56	33	43	38	35.5	40
08/02/2023 21:00	08/02/2023 22:00	V069903	68	32	43	36	34.2	41
08/02/2023 22:00	08/02/2023 23:00	V069903	59	33	49	44	37.7	46
	Max/Min/Average		**74**	**32**	**47**	**43**	**39.7**	**45**

Start Time	End Time	Instrument	LAFMax	LAFMin	LAF10	LAF50	LAF90	LAeq
08/02/2023 23:00	09/02/2023 00:00	V069903	60	28	48	38	32.0	43
09/02/2023 00:00	09/02/2023 01:00	V069903	52	28	35	33	30.9	34
09/02/2023 01:00	09/02/2023 02:00	V069903	53	29	40	35	31.6	37
09/02/2023 02:00	09/02/2023 03:00	V069903	58	28	35	32	29.8	34
09/02/2023 03:00	09/02/2023 04:00	V069903	61	25	36	29	27.0	34
09/02/2023 04:00	09/02/2023 05:00	V069903	67	26	34	30	28.0	33
09/02/2023 05:00	09/02/2023 06:00	V069903	60	27	46	38	29.6	42
09/02/2023 06:00	09/02/2023 07:00	V069903	67	34	47	42	38.0	44
	Max/Min/Average		**67**	**25**	**40**	**35**	**30.9**	**38**