

NOISE ASSESSMENT

PROPOSED EXTENSION TO EXISTING COMPOSTING FACILITY, WEST LONDON COMPOSTING, NEWYEARS GREEN LANE, HAREFIELD, UXBRIDGE

WEST LONDON COMPOSTING LIMITED

FEBRUARY 2023

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Revision	Prepared By	Date
1.2	L Jephson BEng (Hons) MIOA	7/2/23

This report has been prepared using all reasonable skill and care within the resources and brief agreed with the client. LF Acoustics Ltd accept no responsibility for matters outside the terms of the brief or for use of this report, wholly or in part, by third parties.

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1. Introduction

LF Acoustics Ltd have been appointed by West London Composting Limited to carry out an assessment of the noise levels attributable to a proposed extension to the existing West London Composting facility, located to the north of Newyears Green Lane, Harefield, Uxbridge.

The site has been operational for a number of years. West London Composting have recently obtained planning permission to regularise the development and obtain permanent planning permission for the northern part of the site, where the composting operations are undertaken (Hillingdon Application Ref. 12579/APP/2021/2010).

The Company now need to extend their composting maturation pad due to Environment Agency rule changes (Appropriate Measures) and a northern extension to the existing operational area is proposed. The proposal will not increase the amount of green waste composting, nor would there be any changes to the existing permitted vehicle movements into and out of the site.

The main changes in relation to noise, would be to relocate the current shredding and screening operations, which are undertaken within the central area of the current site, to a new area, located at the northern end of the site.

There are a small number of properties located along Newyears Green Lane, which have been considered in this assessment.

The following section of this report presents an overview of the relevant standards and guidelines applicable when assessing noise from this type of facility. Section 3 provides a description of the site, its surroundings and the proposed operation. A baseline noise assessment is provided within Section 4, with details of the calculation and assessment of noise levels associated with the operation of the facility provided in Section 5. Finally, Section 6 provides a summary of the assessment.

2. Standards and Guidelines

A description of the noise units referred to in this report is provided in Appendix A.

2.1. National Planning Policy Framework

The National Planning Policy Framework (NPPF) revised in July 2021 [1], sets out the Government's planning policies for England and how these should be applied. It provides a framework upon which locally prepared plans for housing and other development can be produced.

The purpose of the planning system is to contribute to the achievement of sustainable development and at the heart of the Framework is a presumption in favour of sustainable development.

With regards noise, local planning policies and decisions should contribute to and enhance the natural and local environment by:

- preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels noise pollution.
- mitigate and reduce to a minimum, potential adverse impacts resulting from noise from new development (including cumulative effects) – and avoid noise giving rise to significant adverse impacts on health and the quality of life;
- identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

Reference is made within the NPPF to the Noise Policy Statement for England [2] (NPSE), which sets out the long term vision of the Government noise policy. Further information has been provided on the assessment of noise within recent Planning Practice Guidance, updated in July 2019 and available on the Government planning web site. Whilst this guidance does not provide any objective criteria upon which to base noise assessments, the guidance provides a description of the relevant Effects Levels identified within the NPPF and NPSE and this is reproduced in Table 2.1.

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect (NOEL)	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
		Lowest Observed Adverse Effect Level (LOAEL)	
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, 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 perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
		Significant Observed Adverse Effect Level (SOAEL)	
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, 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
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

Table 2.1 Significance Criteria

2.2. British Standard BS 4142

BS 4142 [3] is the British Standard for rating and assessing noise of a commercial or industrial nature.

BS 4142 is a comparative standard in which the estimated noise levels from the proposed development are compared to the representative / typical background noise level from existing uses.

BS 4142 relates the likelihood of adverse impact to the difference between the Rating Level of the noise being assessed and the background noise level.

The background noise level is the L_{A90} noise level, usually measured in the absence of noise from the source being assessed, but may include other existing industrial or commercial sounds. The background noise levels should generally be obtained from a series of measurements each of not less than 15 minute duration.

The Rating Level of the noise being assessed is defined as its L_{Aeq} noise level (the 'specific noise level'), with the addition of appropriate corrections should the noise exhibit a marked impulsive and/or tonal component or should the noise be irregular enough in character to attract attention. The extent of the correction is dependent upon the degree of tonality or character in the noise and is determined either by professional judgement, where the plant is not operational at present, or by measurement.

During the daytime, the specified noise levels are determined over a reference time interval of 1 hour.

If the Rating Level of the noise being assessed exceeds the background level by 10 dB or more BS 4142 advises that there is likely to be an indication of a significant adverse impact, depending upon context. A difference between background level and Rating Level of around 5 dB is likely to be an indication of an adverse impact, depending upon context. The lower the Rating Level is, relative to the background noise level, the less likely the specific source will have an adverse or significant adverse impact. Where the Rating Level does not exceed the background noise level is an indication of a low impact, depending upon context.

The assessment method outlined above is intended for the assessment of external noise levels and is not intended to assess the extent of impact at internal locations.

Where the initial assessment of impact, based upon an assessment of the external noise levels, needs to be modified due to the context, all pertinent factors should be taken into account, including:

- The absolute level of sound;
- Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night; and
- The sensitivity of the receptor and whether the premises will already incorporate measures to ensure good internal and/or external acoustic conditions.

3. Current and Proposed Operations

The current site location and its surroundings are indicated on Figure 1.

3.1. Noise Sensitive Receptors

There are a small number of residential properties along Newyears Green Lane, which have the potential to be affected by noise from the operation of the site, located to the west, east and south of the current operational area, as indicated on Figure 1.

3.2. Current Planning Permission

Planning permission to regularise the site operations was granted by Hillingdon Council in July 2021 (Application Ref. 12579/APP/2021/2010).

Given that the site had been operational for a number of years, the noise assessment prepared to accompany the planning application only considered the noise levels associated with a small increase in the vehicle movements to the site, which concluded that there would be no change in noise levels at the properties along Newyears Green Lane. No assessment of the on-site noise levels was undertaken, as no changes to the operational conditions were proposed.

Conditions were imposed which restrict the annual throughput to 75,000 tonnes and the number of vehicle movements to 100 per day into the site, with no more than 41 HGV with a weight of more than 7.5 tonnes. Operational hours are also restricted to the following:

- Between 07:30 – 18:00 hours Mondays to Fridays;
- Between 07:30 – 13:00 hours Saturdays; and
- No working on Sundays and Public Holidays.

There would be no changes to these conditions, should planning permission for the extension be granted.

3.3. Present Site Operations

At present, the site is operational within the area indicated on Figure 1.

Green waste is brought into the site by HGV, with compost transported out by HGV.

The material is processed through a shredder and subsequently through a screening plant, located within the central area of the existing site. The plant is serviced using an excavator and loading shovels.

The windrows are turned regularly using an excavator, which operates on top of the material.

In addition, there are two silenced generators, located adjacent to the tanks at the northern end of the site, which operate during the working hours. Overnight, one generator may automatically start periodically (less than 10% of the time), to run a sump pump, which operates when the sump fills with water.

3.4. Proposed Site Operations

The proposed site layout is indicated on Figure 2.

As advised previously, a northern extension to the site is proposed to accommodate Environment Agency rule changes.

The extension will allow the maturation areas to be increased, with two areas proposed either side of the main access road.

It is proposed to relocate the shredding and screening operations into a dedicated area at the northern end of the site, furthest from the neighbouring properties, as indicated on Figure 2.

The method of turning the windrows will also change. Rather than use an excavator as at present, it is proposed to use a specific self-propelled straddle windrow turner, to more efficiently turn the material as it composts.

4. Baseline Noise Assessment

To evaluate the baseline noise conditions within the surrounding area, an unattended noise survey was carried out between Friday 28th October and Tuesday 1st November 2022.

A Rion NL-52 Class 1 Sound level Meter was used for the survey. The microphone was fitted with Rion WS-15 Outdoor Microphone Protection, which maintains Class 1 performance. The instrument was field calibrated before and after the exercise using a Rion NC-74 Class 1, reading 94.0 dB on both occasions. Both instruments had been laboratory calibrated within the past 12 / 24 months in accordance with national standards. A summary of the calibration dates is provided below (full calibration certificates can be provided on request).

Instrument	Serial No.	Calibration Date	Laboratory / Certificate No.
Rion NL-52 Class 1 SLM	00231657	30/4/21	dBH – 1500289-1
Rion NC-74 Class 1 Acoustic Calibrator	35125830	3/8/22	dBH – 1503064-4

Table 4.1 Calibration Details

To minimise the effect of the plant operating on site and to provide measurements of representative conditions at the neighbouring properties, the meter was located along the southern site boundary, as indicated on Figure 1. The monitoring position was approximately 10 metres back from the lane at an equivalent distance to the properties to the west.

The instrument was configured to record over 15 minute periods during the survey, in accordance with the requirements of BS 4142.

Weather conditions during the survey period were suitable for undertaking an environmental noise survey. The weather conditions noted from local weather stations during the survey period were as follows.

Date		Conditions	Wind Strength [m/s]	Wind Direction
Friday	28/10/22	Fine & dry	1-3	WSW
Saturday	29/10/22	Fine & dry	0-1	ESE
Sunday	30/10/22	Fine & dry	0-1	SW
Monday	31/10/22	Fine & dry	1-2	SE
Tuesday	1/11/22	Fine & dry	0-1	SW

Table 4.2 Summary of Weather Conditions

The results of the noise monitoring are presented within Appendix B.

The plant operating on the site, which was located centrally at the time, was effectively screened from the monitoring position by the adjacent windrows. The plant operating was just audible at the noise monitoring position and would have influenced the background (L_{A90}) noise levels whilst operational.

The other main influence on the background noise levels during the periods whilst the site was not operational was noted to be principally attributable to distant road traffic on the main road network.

The main influence on ambient (L_{Aeq}) noise levels throughout the survey period was noted to be attributable to vehicles travelling along the lane.

Given that the present site operations influenced the noise levels whilst operational, it has not been possible to derive the typical background noise levels, upon which to base this assessment, simply from a statistical analysis of the measured data.

Consequently, the typical background noise levels have been derived by an analysis of the noise measurement results during the early morning period before the plant started operating (typically between 07:00 – 07:30) and during the evening periods, typically between 18:00 – 19:00 hours. In addition, the results obtained during Saturday afternoon and Sunday have also been considered. Utilising these times is likely to result in marginally lower noise levels than during the operating periods, as traffic on surrounding roads may be lighter at these times. This therefore provides a worst case approach.

Based upon an evaluation of these periods, the typical background noise levels were as follows:

- Friday evening – 42 dB L_{A90} ;
- Saturday morning 44-46 dB L_{A90} and afternoon 42-43 dB L_{A90} ;
- Sunday 43-44 dB L_{A90} ;
- Monday morning 44-46 dB L_{A90} and evening 43 dB L_{A90} ;
- Tuesday morning 46-47 dB L_{A90} .

The above data indicates that the typical background noise levels during the daytime period are between 42 - 47 dB L_{A90} and upon this basis it is reasonable to assume a typical level of 44 – 45 dB L_{A90} for the main daytime periods.

5. Calculation and Assessment of Noise from the Operation of the Site

5.1. Plant and Equipment

With the proposed extension, the main screening and shredding plant which is presently operational on site would remain and be relocated to the northern area, thus increasing the separation to the neighbouring properties.

The turning of the windrows would be carried out using a specific straddle turner, rather than the excavator which presently undertakes this operation.

Source term noise measurements were taken adjacent to the plant presently operational on the site. Measurements of the straddle turner have been obtained previously at an Envar Composting site within Cambridgeshire.

The measured noise levels have been converted into equivalent Sound Power Levels (SWL) for use within the modelling software. The source term noise levels utilised within this assessment are as follows.

Plant	Octave Band Sound Power Level [dB SWL]							Overall SWL [dB(A)]
	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	
Dopptstadt Green Waste Shredder	104	102	100	99	95	95	94	102.3
McCloskey Screen	103	103	100	95	94	93	86	99.4
Loader	101	100	91	89	93	86	84	95.5
Small Excavator (loading shredder)	101	100	91	89	93	86	84	95.5
Excavator turning windrows	99	99	100	95	92	89	84	97.5
Straddle Turner	115	114	95	100	96	98	92	104.2
Generator	100	96	98	90	90	83	82	95.0
HGV Movements	106	109	105	101	101	97	93	105.5

Table 5.1 Source Term Noise Levels

5.2. Calculation of Noise Levels

Calculations of the noise levels at the surrounding properties to the south and east have been made using the SoundPlan computer modelling package, which implements the calculation methodology from ISO 9613-2. The calculations have taken account of the land formation around the site and surrounding area, based upon LiDAR mapping data.

To provide an indication of the present noise levels at the surrounding properties, an initial model was prepared, based upon the plant presently operating on the site.

A second model has been prepared, based upon the proposed layout of the site. Whilst there would be only one straddle turner, the calculations have been based upon one working within both windrow areas to provide worst case conditions.

Both models have assumed 10 vehicle movements per hour using the access to the screening plant for loading / unloading purposes. As discussed earlier, there would be no change to the vehicle movements associated with the current proposals.

The noise modelling results are presented in Figures 3 and 4, which indicate the noise levels attributable to the present and proposed operations. The main data presented on the figures shows the main daytime noise levels with the plant fully operational.

The calculated daytime noise levels at the properties are summarised in Table 5.2 below.

Location	Calculated Noise Levels [dB L _{Aeq,T}]	
	Present Operations	Proposed Operations
1-2 Newyears Green Lane	54	42
St Leonards Farm	53	49
Pylon Farm	51	47

Table 5.2 Noise Levels Generated by Current and Proposed Operation of the Site

The figures additionally present the night-time noise levels attributable to the periodic operation of one of the generator sets, which is required to operate the sump pump. The calculations indicate very low noise levels attributable to this operation, with noise levels of less than 20 dB L_{Aeq,T} predicted at the facades of the neighbouring properties.

5.3. Assessment

An initial assessment of the potential impacts associated with the future operation of the site has been made in accordance with the requirements of BS 4142 at the locations identified above.

The noise monitoring indicated that operation of the plant is not tonal or impulsive in nature, however the operation of the plant has other sound characteristics and thus a penalty of 3 dB(A) has been applied to determine the rating noise level, when considering the noise levels whilst the site is operational.

Overnight, the occasional operation of the one of the generator sets to operate the sump pump, would result in very low noise levels at the neighbouring properties. The level of noise associated with this operation would remain substantially below the prevailing background noise levels and thus would not result in adverse noise impacts. Given that this presently operates without any disturbance to the occupants of neighbouring properties provides further reassurance that the noise levels are very low. Consequently, this operation is not considered further within this report.

As indicated previously, there would be no changes to the vehicle movements into and out of the site and along Newyears Green Lane. The previous noise assessment prepared to accompany the recent planning application considered noise from the vehicle movements along the lane and concluded that the traffic movements would not result in any adverse noise impacts. Consequently, this assessment has only considered noise from the vehicle movements whilst on site.

The assessment at each location is provided below.

1-2 Newyears Green Lane

These properties are located to the south-west of the site. At present, whilst the plant is generally screened from the properties by the windrows, the plant is operating relatively closely to the dwellings.

The calculations indicate that by relocating the shredding screening plant into the northern area of the site, there would be a substantial reduction in noise levels at these properties, providing a clear benefit to the occupants.

The assessment of the proposed operations is provided in Table 5.3.

Description	Noise Level [dB]
Calculated Noise Level at Dwelling [dB $L_{Aeq, T}$]	42
Character Correction	3
Rating Level [dB $L_{Aeq, 1 \text{ hour}}$]	45
Background Level [dB L_{A90}]	44
Excess Over Background	+1
Likelihood of Impact	Indication of Low Impact

Table 5.3 Initial BS 4142 Assessment – 1-2 Newyears Green Lane

The initial assessment of the noise levels attributable to the proposed operations at this location indicates that the noise levels attributable to the operation would generally remain in the order of or below the prevailing background noise levels, with the initial assessment indicating a low potential for adverse impact.

Given that the proposals would result in a substantial reduction in noise levels at these properties, the proposals would result in an acceptable noise environment at this location.

St Leonards Farm

This property is located to the south-east of the site. There is commercial use associated with the residence, with storage and vehicle movements on the land to the side and rear of the property. Given this associated land use, it is considered that this property is less noise sensitive.

As with the neighbouring properties, the relocation of the plant would result in a reduction in noise attributable to the green waste operations at this dwelling.

The initial BS 4142 assessment of the proposed operations is provided below.

Description	Noise Level [dB]
Calculated Noise Level at Dwelling [dB $L_{Aeq, T}$]	49
Character Correction	3
Rating Level [dB $L_{Aeq, 1 \text{ hour}}$]	52
Background Level [dB L_{A90}]	44
Excess Over Background	+8
Likelihood of Impact	Indication of Adverse Impact Depending Upon Context

Table 5.4 Initial BS 4142 Assessment – St Leonards Farm

The initial assessment of the future noise levels at this property indicates the potential for adverse noise impacts, depending upon context.

Context is important at this location. The property has commercial use, with vehicles, plant and storage operations carried out within the land directly adjacent to the dwelling. Given that these operations will generate relatively high levels of noise during the same times as the site is operational, it is considered that the dwelling is less likely to be affected by noise.

It is also clear that the proposals would result in a reduction in noise levels compared to the presently permitted operations, thus providing a benefit in noise terms to the occupants.

On the basis of the land use associated with this property and the fact that the proposals would result in a reduction in noise levels, it is concluded that the proposed operations would be unlikely to result in adverse noise impacts when the context is considered.

Pylon Farm

This property is located to the south of the site and is situated on ground elevated above Newyears Green Lane.

As with the other properties, by relocating the processing operations into the northern part of the site, there would be a reduction in noise levels at this property, with the calculations indicating a reduction of 4 dB(A), which would be a noticeable change.

The initial BS 4142 assessment of the proposed operations is provided below.

Description	Noise Level [dB]
Calculated Noise Level at Dwelling [dB $L_{Aeq,T}$]	47
Character Correction	3
Rating Level [dB $L_{Aeq,1\text{ hour}}$]	50
Background Level [dB L_{A90}]	44
Excess Over Background	+6
Likelihood of Impact	Indication of Adverse Impact Depending Upon Context

Table 5.5 Initial BS 4142 Assessment – Pylon Farm

The initial assessment of the future noise levels at this property indicates the potential for an adverse noise impact, depending upon context.

Given that the present operations are considered to be acceptable at this location, the context of the assessment is important. The reduction in noise levels will provide a clear benefit to the occupants.

It is also noted that the noise levels attributable to the traffic travelling along Newyears Green Lane are considerably higher than those associated with the operation of the plant.

Taking account of the reduction in noise levels and the general noise environment in the surrounding area, the proposals would result in a benefit to the occupants of this property.

6. Summary

LF Acoustics Ltd were appointed by West London Composting Limited to carry out an assessment of the noise levels attributable to a proposed extension to the existing West London Composting composting facility, located to the north of Newyears Green Lane, Harefield, Uxbridge.

The site has been operational for a number of years. West London Composting have recently obtained planning permission to regularise the development and obtain permanent planning permission for the northern part of the site, where the composting operations are undertaken (Hillingdon Application Ref. 12579/APP/2021/2010).

The Company now need to extend their composting maturation pad due to Environment Agency rule changes (Appropriate Measures) and a northern extension to the existing operational area is proposed. The proposal will not increase the amount of green waste composting, nor would there be any changes to the existing permitted vehicle movements into and out of the site.

The main changes in relation to noise, would be to relocate the current shredding and screening operations, which are undertaken within the central area of the current site, to a new area, located at the northern end of the site.

Calculations and an assessment of the noise levels generated by the operation of the presently permitted and proposed operations have been made at the surrounding dwellings along Newyears Green Lane.

The assessment indicates that the proposals would result in a noticeable reduction in noise levels at the properties, compared to the presently permitted operations. An assessment of the proposed operations made in accordance with the requirements of BS 4142, taking the context of the surrounding area into account, indicated that the operational noise levels would result in the potential for a low impact, with no adverse impacts identified.

References

1. Ministry of Housing, Communities and Local Government. National Planning Policy Framework. July 2021.
2. Department for Communities and Local Government. Noise Policy Statement for England. 2010.
3. British Standards Institute. Methods for Rating and Assessing Industrial and Commercial Sound. BS 4142:2014 +A1:2019.

Figures

**Figure 1:
Current Site Location and
Noise Monitoring
Position**

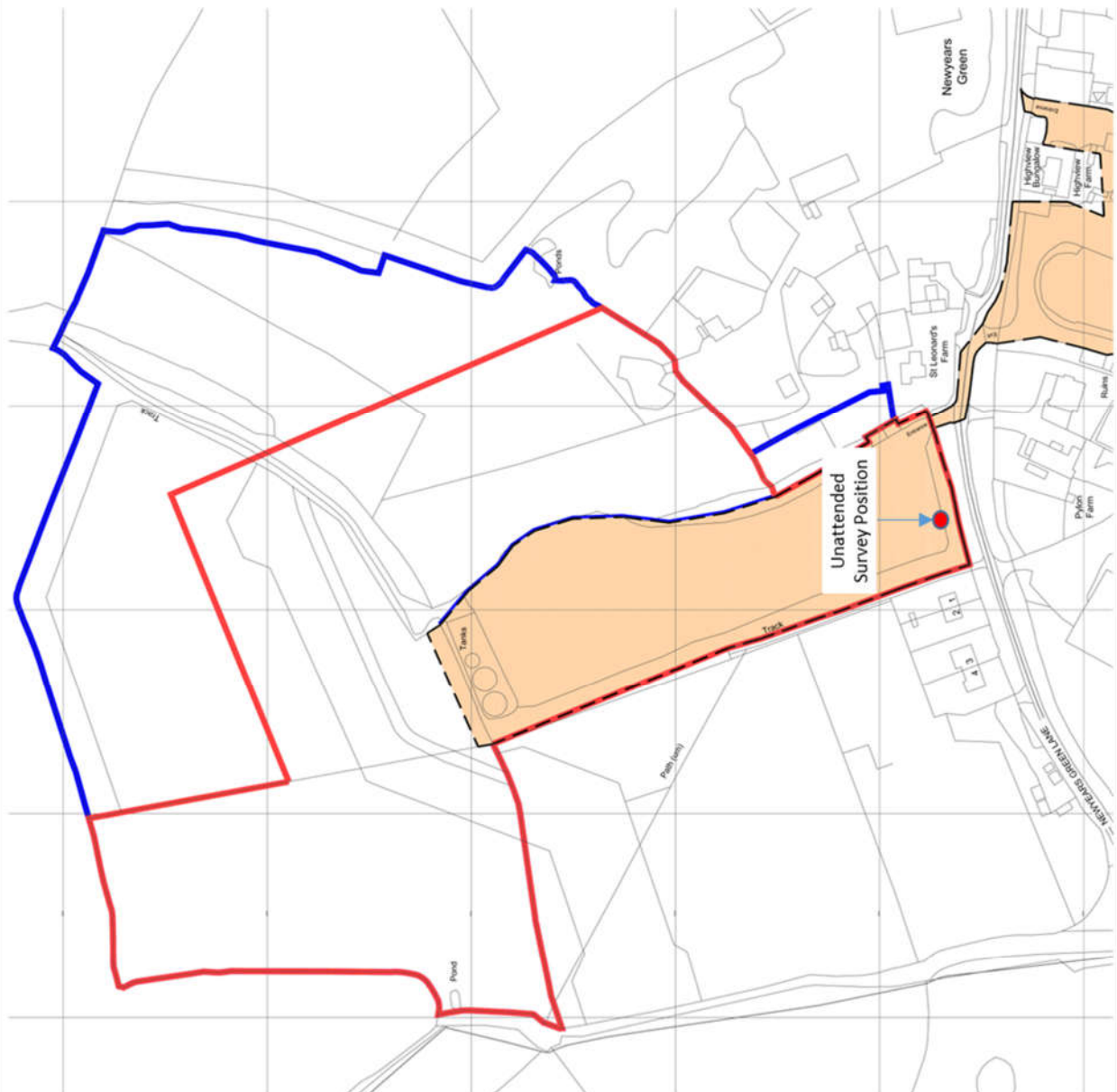
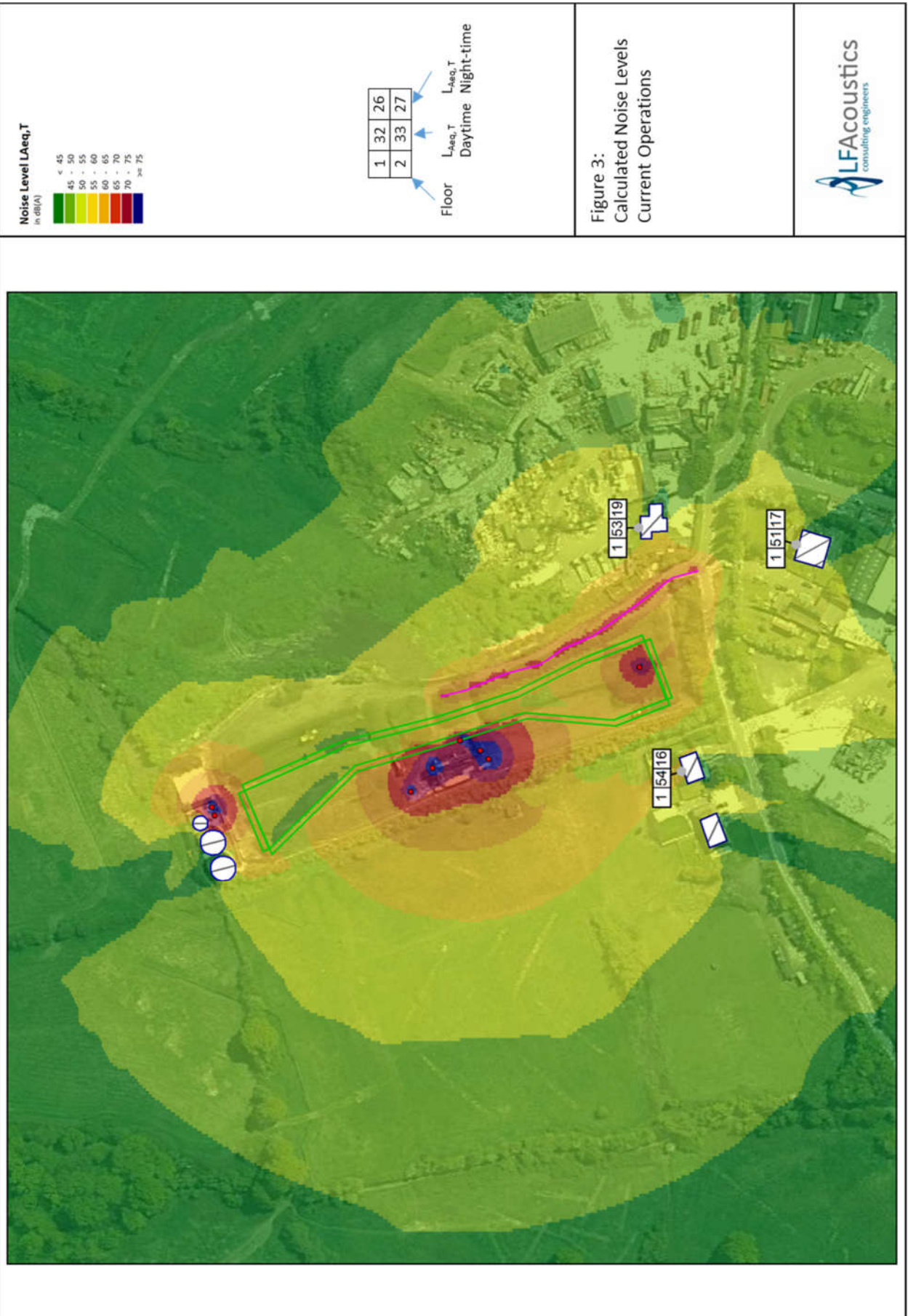
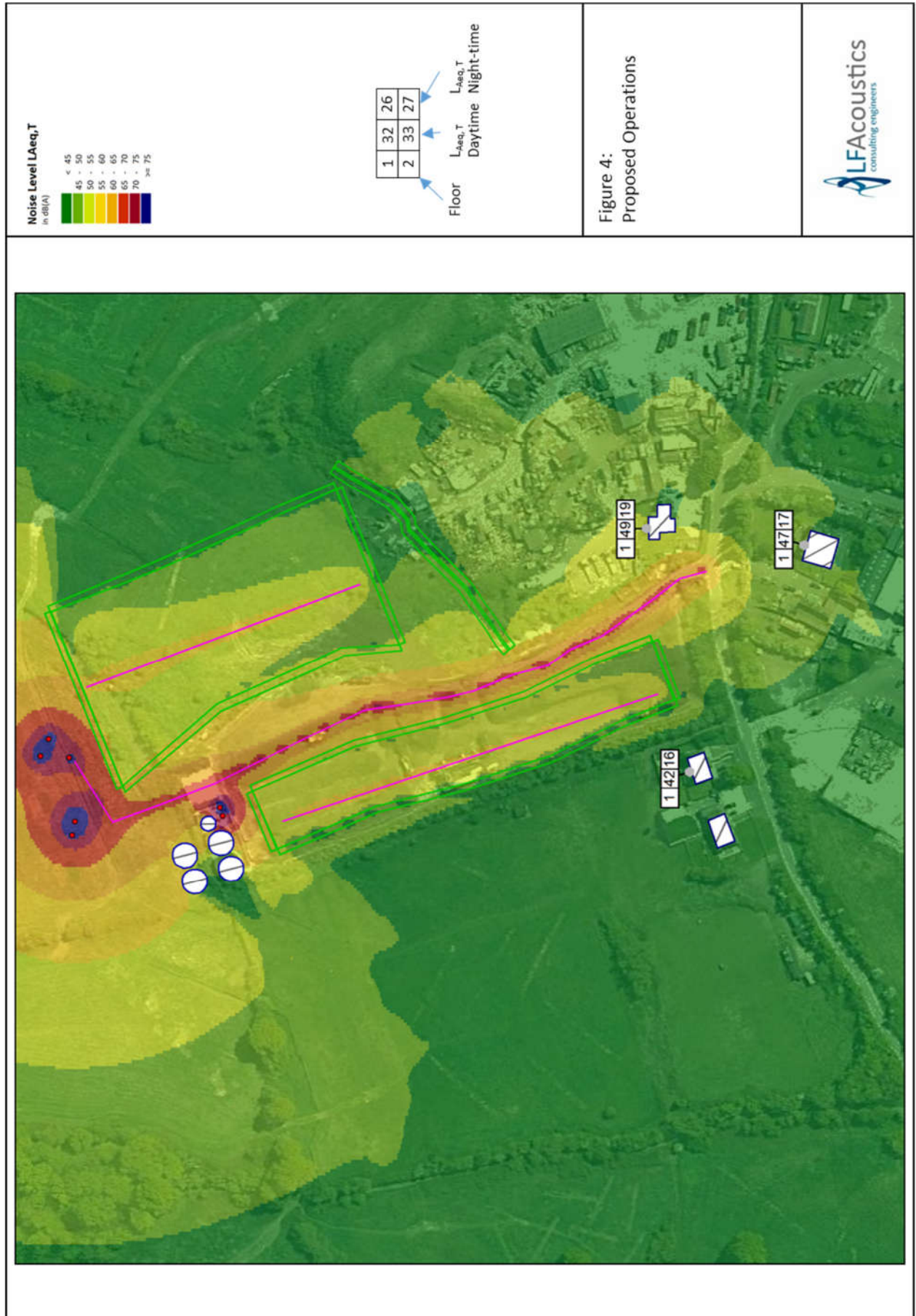


Figure 2:
Proposed Site Layout







Appendix A

Noise Units

Decibels (dB)

Noise can be defined as unwanted sound. Sound in air can be considered as the propagation of energy through the air in the form of oscillatory changes in pressure. The size of the pressure changes in acoustic waves is quantified on a logarithmic decibel (dB) scale firstly because the range of audible sound pressures is very great, and secondly because the loudness function of the human auditory system is approximately logarithmic.

The dynamic range of the auditory system is generally taken to be 0 dB to 140 dB. Generally, the addition of noise from two sources producing the same sound pressure level, will lead to an increase in sound pressure level of 3 dB. A 3 dB noise change is generally considered to be just noticeable and a 10 dB change is generally accepted as leading to the subjective impression of a doubling or halving of loudness. A 5 dB change is generally considered to be clearly discernible.

A-weighting

The bandwidth of the frequency response of the ear is usually taken to be from about 18 Hz to 18,000 Hz. The auditory system is not equally sensitive throughout this frequency range. This is taken into account when making acoustic measurements by the use of A-weighting, a filter circuit which has a frequency response similar to the human auditory system.

Units Used to Describe Noises Which Change Their Level with Time

The Equivalent Continuous A-Weighted Sound Pressure Level ($L_{Aeq,T}$) is the principal measurement index for environmental noise. The $L_{Aeq,T}$ is defined as the A-weighted sound pressure level of the steady sound which contains the same acoustic energy as the noise being assessed over a specific time period, T.

The L_{A90} is the noise level exceeded for 90% of the measurement period. It is generally used to quantify the background noise level, the underlying level of noise which is present even during the quieter parts of the measurement period.

The L_{Amax} is the single maximum value that the A-weighted sound pressure level reaches during a measurement period. $L_{Amax F}$, or Fast, is averaged over 0.125 of a second and $L_{Amax S}$, or Slow, is averaged over 1 second. The measured L_{Amax} noise levels in this assessment are Fast.

Appendix B
Unattended Noise Monitoring Results

