

NOISE ASSESSMENT

PROPOSED RESIDENTIAL DEVELOPMENT ON LAND TO THE EAST OF SPITFIRE ROAD, CALNE

ROBERT HITCHINS LIMITED

JUNE 2025

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Revision	Prepared By	Date
1.1	L Jephson BEng (Hons) MIOA	26/6/25
1.0	L Jephson BEng (Hons) MIOA	12/2/24

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.

CONTENTS

1. Introduction	1
2. Applicable Standards and Guidance	2
3. Surrounding Land Uses	6
4. Noise Monitoring	8
5. Calculations and Assessment	10
6. Summary	13

References

Figures

Appendices

1. Introduction

LF Acoustics Ltd have been appointed to undertake an assessment of the noise levels within a proposed residential development to be located on land to the east of Spitfire Road, Calne.

The Application site is bounded to the west by Spitfire Road and a proposed residential development to the north.

The development is located close to a number of industrial / commercial land uses, in particular the Hills Materials Recycling Facility (MRF), at the Sands Farm Facility (SFF) located to the east, and the operation of RF Wood & Waste Recycling Ltd (RF Wood) facility located to the north-east, further along Spitfire Road.

This report presents an updated assessment of the noise levels within the proposed residential development, based upon an updated site layout plan (Rev G). The assessment is based upon a noise monitoring exercise carried out to establish current levels of noise along the site boundaries and calculations of noise levels attributable to the surrounding land uses based upon the publicly available information which has been submitted to accompany the planning applications for both the Hills MRF and the RF Wood site.

2. Applicable Standards and Guidance

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

2.1. National Planning Policy Framework

The National Planning Policy Framework (NPPF), revised in December 2024 [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.

Planning policies and decisions should ensure that developments:

- f) create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion and resilience.*

Planning policies and decisions should contribute to and enhance the natural and local environment by:

- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.*

Planning policies and decisions should also 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. In doing so they should: 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 (Para 185).

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

The NPPF advises that development should seek to ensure that noise from proposed developments does not give rise to significant impacts, i.e. a level identified as a Significant Observed Adverse Effect (SOAEL), which is at a level where the noise would cause a material change in behaviour.

The National Planning Policy for Waste was published in October 2014 [3]. The Policy requires local planning authorities to consider potential impacts of proposed waste facilities, to include noise and advises that intermittent and sustained working may be a problem if not properly managed.

2.2. British Standard BS 4142

BS 4142 [4] is the British Standard for rating and assessing noise of a commercial or industrial nature. The Standard has been recently updated to reflect the guidance within the National Planning Policy Framework to consider the significance of potential adverse impacts upon surrounding noise sensitive receptors.

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

BS 4142 primarily assesses to the difference between the Rating Level of the noise being assessed and the background noise level to identify the likelihood of potential adverse impacts, taking the context of the location into consideration.

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.

During the daytime, the specified noise levels are determined over a reference time interval of 1 hour, with a 15 minute reference period adopted when assessing night-time noise.

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 Standard advises that where background noise levels are low, absolute noise levels may be as, or more, relevant than the margin by which the Rating Level exceeds the background.

2.3. British Standard BS 8233

British Standard BS 8233 [5] recommends design aims for noise levels to be achieved in new buildings and is the most appropriate guidance in defining applicable noise levels within the proposed development. The Standard was updated in 2014 to better reflect the requirements of the NPPF in terms of impact classifications and achieving the recommended guidance values, seeks to ensure that the occupants would not be subject to any significant adverse impacts, to ensure compliance with the requirements of the NPPF.

For residential properties, the guidance recommends the following design aims for the daytime (07:00 – 23:00) and night-time (23:00 – 07:00) periods:

- 35 dB $L_{Aeq,T}$ within living rooms and bedrooms during the daytime period;
- 40 dB $L_{Aeq,T}$ within dining areas / rooms during the daytime period;
- 30 dB $L_{Aeq,T}$ within bedrooms at night; and
- 50 – 55 dB $L_{Aeq,T}$ within gardens and patios during the daytime.

With regards internal noise levels, the Standard advises:

“Where development is considered necessary or desirable, external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.”

Where the above limits require windows to be closed to maintain the standard of noise, there needs to be appropriate alternative ventilation provided that does not compromise the façade insulation or resulting noise level.

For outdoor amenity spaces, it is recognised in the Standard that these guideline values may not be achievable in all circumstances. Where development might be desirable, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, the development should be designed to achieve the lowest practicable levels, but should not be prohibited. Given that there is a need for the development, it is considered in this situation, that this relaxation could be applied, providing the lowest practicable levels have been achieved.

2.4. World Health Organisation Guidelines

The World Health Organisation guidance [6] provides additional guidance upon potential effects in relation to noise.

The guidance advises that few people are moderately annoyed by external noise levels of below 50 dB L_{Aeq} during the daytime.

2.5. ProPG: Planning and Noise

Professional planning guidance on planning and noise was published in May 2017 [7]. The guidance seeks to provide a recommended approach to the management of noise within the planning system in England. The guidance has been prepared jointly between the Association of Noise Consultants, The Institute of Acoustics and the Chartered Institute of Environmental Health with the aim of providing a coherent approach to achieving the requirements of the NPPF.

At present, the guidance principally relates developments where noise is principally influenced by transportation sources, although it does include consideration of commercial where it is audible but not the dominant noise source.

The guidance advocates a systematic, proportionate, risk based, 2-stage approach, encouraging early consideration of noise within the design process for new residential developments:

- Stage 1 provides an initial noise risk assessment of the development site;
- Stage 2 provides systematic consideration of four key elements: demonstrating a good acoustic design process; observing internal noise level guidelines; undertaking an external amenity area noise assessment; and consideration of other relevant issues.

The initial risk assessment should identify the risk of adverse effects from noise and identifying whether the site poses a negligible, low, medium or high risk. The level of risk does not determine whether a site may be unsuitable for development, but highlights an increasing requirement for noise to be considered within the design of the development and the likelihood of a need for specific noise mitigation measures.

For a Stage 2 assessment, the guidance refers to BS 8233 with respect of achieving an acceptable internal noise environment and within gardens.

3. Surrounding Land Uses

3.1. Hills MRF

The Hills MRF is located within the Sands Farm Facility (SFF), which became operational in 2020.

The main building is used to process co-mingled household recycled material through an automated plant. The site is also used for vehicle maintenance and parking of vehicles. The location of the MRF is indicated on Figure 1.

Internally within the main building, the main source of noise is associated with the operation of the sorting facility, with external noise levels principally associated with vehicle movements and loading activities.

Hills have upgraded the internal roads within their land ownership to provide a new relief road between the SFF and their existing site at Lower Compton. The new southern access is used for vehicles accessing from the south of Calne, thus having reduced vehicle movements along Sand Pit Road, which is now used for vehicles from the north of the town.

Based upon the information provided to accompany the planning application for the MRF, there are up to 47 movements along the relief road during a typical daytime hourly period.

A review of the noise assessment prepared to accompany the planning applications for the MRF in 2018 has been undertaken [8] (Application Ref. 17/10550/WCM).

The report assesses the potential noise effects upon existing and permitted residential receptors associated with the operation of the SFF and vehicles travelling along the relief road and Sandpit Road. It is noted that the closest properties assessed would be over 330 metres from the SFF and 250 metres from the relief road.

The report specifies typical daytime background noise levels in the area of 38 dB L_{A90} upon which the assessment for the MRF was based.

For normal daytime operation, the report concluded noise levels associated with the operation of the SFF and vehicles travelling along the relief road would generate a noise level of 43 dB $L_{Aeq, 1 \text{ hour}}$, 5 dB(A) above the prevailing background noise levels at the closest property, Abberd House Farm to the north of Abberd Lane (incorrectly referred to as Abberd Fields Farm within the report). No penalties were applied to determine the Rating Level of noise at surrounding properties as it was considered, at the distances involved, the noise would be unlikely to be characteristic or tonal in nature. No assessment was made at Abberd Fields Farm, as there is no residential property located within the farm complex.

Planning permission has recently been granted to extend the operational hours of the MRF to between 06:00 – 22:00 hours Mondays to Fridays and between 07:00 – 13:00 hours on Saturdays (Application Ref. 20/06202/WCM), with a further application having recently been made to enable the vehicle maintenance activities to operate the same hours (Application Ref. 21/01717/WCM).

3.2. RF Wood & Waste Recycling Ltd

RF Wood & Recycling Ltd operate the recycling facility to the north-east of the Proposed Development further along Spitfire Road. The location of their site is indicated on Figure 1.

The site was originally granted planning permission for a waste processing and recycling facility in 1998, with a number of variations to the planning permission since that time. In 2017, planning permission was also granted for 2 chimneys in association with on-site biomass boilers with a building.

The main conditions relating to noise imposed on these approvals are summarised as follows:

- Working hours (including vehicles entering and leaving the site) of between 7:00 – 17:00 hours Mondays to Fridays, between 7:00 – 12:00 Saturday, with no working on Sundays, Bank or Public Holidays;
- Plant and machinery to be maintained and fitted with appropriate silencers etc;
- A noise limit of 55dB(A) at any nearby dwelling.

The noise limit specified above relates to existing residential properties, the closest of which is Penn Hill Farm, located approximately 300 metres from the site and thus considerably closer than the proposed development.

At present, their main operations are within two parts of the site:

- They have recently installed a new picking line within the main building at the front of the site. Noise within this area is associated with an excavator loading the line, the operation of the line and loading shovel. The building is open on the northern and western sides facing towards the Proposed Development;
- The rear of the site is used as an external recycling area. An excavator and loading shovel operate within this area. They also operate a crusher within this part of the site.

A further planning permission was granted for the biomass boilers, with two buildings for the boilers in 2018 (Application Ref. 18/11133/WCM). Whilst no noise assessment was carried out to accompany the planning application, consideration to noise was provided by the EHO during consultation. It is understood that the boilers have a certified noise limit of 65.5 dB(A), resulting in a noise level of 16 dB(A) at a distance of 300 metres, equivalent to the closest residential receptor. On this basis, noise was not considered to be a material consideration when granting permission.

Given the distance between the Proposed Development and RF Wood, noise attributable to the operation of their site would be unlikely to result in adverse impacts and thus has not been considered further in this assessment.

Vehicles accessing RF Wood use Sand Pit Road and Spitfire Road, with regular movements observed throughout the day. Given that the vehicles pass directly to the north of the Proposed Development, noise associated with the vehicle movements has been assessed in this report.

4. Noise Monitoring

4.1. Noise Monitoring Exercise

To establish the existing noise levels within the Proposed Development areas and inform the development of the Indicative Masterplan, a noise monitoring survey was carried out between 31 January and 6 February 2024.

The survey comprised unattended noise monitoring carried out at two positions, one at the western development boundary and a second along the eastern boundary, closest to the Hills MRF, as indicated on Figure 2.

Weather conditions for the surveys were good, remaining generally dry with calm conditions or light winds. There was a spell of rain during the early hours of Monday morning, which was noted to influence the overnight noise levels during Sunday night.

Two Rion NL-52 Class 1 Sound Level Meters were used for the exercise, which were calibrated before and after the exercise using a Rion NC-75 Class 1 Acoustic Calibrator, with the instruments reading 94.0 dB on each occasion. All the instrumentation used had been laboratory calibrated within the past 24 months in accordance with national standards, copies of the calibration certificates can be provided upon request.

At each position, the microphones were set freefield and at a height of 1.3 metres from the ground and fitted with Rion WS-15 outdoor microphone protection, to ensure Class 1 performance was maintained under a wide range of weather conditions. The instruments were configured to monitor over 15-minute periods throughout the duration of the survey, in accordance with the requirements of BS 4142.

The instruments also had an audio recording option card installed, which enabled periodic audio snapshots of the noise environment to be captured, along with any particular activities giving rise to high noise levels, thus enabling particular sources to be identified.

4.2. Results of Noise Monitoring

The noise monitoring results are presented graphically in Appendices B and C.

The monitoring results obtained at each position have been subsequently analysed to derive the typical day and night-time noise levels. Typical ambient $L_{Aeq,T}$ noise levels have been evaluated based upon the noise levels monitored over the 16 hour daytime and 8 hour night-time periods, with the background (L_{A90}) noise levels derived from a statistical modal analysis of the day and night-time noise levels.

Table 4.1 below presents a summary of the period noise levels evaluated from each position.

Monitoring Position	Period Weekday Noise Levels [dB]			
	Daytime (07:00 – 23:00)		Night-time (23:00 – 07:00)	
	L _{Aeq,T}	L _{A90}	L _{Aeq,T}	L _{A90}
1 – Eastern Boundary	45	39	38	28
2 – Western Development Boundary	45	39	38	28

Table 4.1 Summary Results Evaluated from Noise Monitoring Exercise

Noise attributable to the operation of the Hills MRF was noted to be low during the daytime period and not generally clearly audible within the site and along the eastern site boundary.

Noise levels monitored during the daytime periods were noted to be low and principally associated with vehicle movements in the surrounding area and travelling into the Hills MRF. As indicated previously, noise levels associated with the operation of Hills MRF was audible within the site, although noted to be of low level.

During the evening periods and overnight, noise levels were noted to be lower and principally influenced by distant road traffic on the surrounding main road network.

5. Calculations and Assessment

5.1. Preamble

Noise levels within the Proposed Development were noted to be low and influenced by noise from the operation of the Hills MRF and RF Wood during the early morning (after 06:00 hours) and daytime periods, with road traffic noise on the surrounding road network also clearly audible throughout the daytime period.

At other times, noise levels were noted to be low and principally attributable to distant road traffic. Noise during these periods is considered to be acceptable and would not lead to the potential for adverse impacts upon future occupants of the proposed dwellings, when assessed against the guidance within BS 8233 and ProPG.

Consideration and an assessment of the noise levels has therefore been prepared for the following periods:

- early morning, between 06:00 – 07:00 hours, when the Hills MRF would be operational with HGV movements, noting that operations are restricted to within the MRF during this period (i.e. to the wider site area);
- daytime, when both Hills and RF Wood would be operating; and
- during the evening period after 20:00 when the Hills MRF would continue to operate (although no HGVs are permitted after 20:00 hours) and noting that operations are restricted to within the MRF during this period.

5.2. Proposed Development Layout

At this stage, outline planning permission is being sought for the proposed development. An indicative layout has been included within the application upon which this assessment has been based.

The indicative layout, which has been used as the basis of this noise assessment, is presented on Figure 3.

The dwellings would be of standard brick / blockwork construction, with thermal double glazing and standard trickle vents installed as standard, to provide appropriate background ventilation.

5.3. Calculation of Noise Levels from Hills and RF Wood & Waste Recycling

Noise levels associated with the operation of the Hills MRF have been calculated associated with the on-site operations and vehicle movements along the relief road, to ensure consistency with the reports prepared to accompany the recent planning applications for the MRF, and have utilised the modelling assumptions within those reports to derive a more detailed noise model utilising the SoundPlan computer modelling package.

For verification purposes the same assumptions used within the AECOM noise assessment report have been modelled [8].

The modelling for Hills MRF has been made on the basis of operations from 06:00 hours during which time the MRF is operational and after 07:00 hours, when vehicles are permitted to access the site.

For RF Woods vehicle movements, the assessment has been based upon observations of the vehicle movements during the survey period, which indicated up to 15 HGV movements per hour after 07:00 hours during the weekdays.

The modelling results for the early morning, daytime and evening periods are presented on Figures 4 to 6.

The results of the modelling have been compared against the results of the noise surveys, which show good agreement between the measured and modelled noise levels and provides confidence in the noise models that have been prepared and upon which this assessment has been based.

5.4. Assessment of Noise Levels from Early Morning Operation at Hills MRF

Figure 4 presents the results of the calculations of the noise levels associated with the early morning operations at Hills MRF, including the vehicle movements and operation of the plant within the MRF building.

The calculations indicate low levels of noise within the Proposed Development, with noise levels of up to 39 dB $L_{Aeq,1\text{ hr}}$ calculated at the façades of the properties along the eastern boundary closest to the MRF.

Undertaking an initial assessment of the noise levels attributable to the operation of the MRF at this time, against the requirements of BS 4142, would indicate that the operation would have the potential to result in adverse noise impacts at the dwellings, as the prevailing background noise levels would be low at this time.

To fully assess the noise levels against the requirements of BS 4142, the context of the noise needs to be taken into account.

At these properties, the noise levels predicted are equivalent to those experienced at existing properties within the surrounding area. When noise levels at those properties were assessed for the planning application for the MRF, noise levels were considered to be acceptable.

The overall noise levels attributable to the operation are low and below the typical ambient noise levels at the properties, which were noted to be clearly influenced by more distant road traffic noise, thus reducing any potential impacts.

Internally, with windows closed, noise levels would be at least 10 dB(A) below the guideline values recommended within BS 8233 and assuming windows open (which typically provide a sound reduction of between 10 – 15 dB(A)), a good standard of noise would be maintained internally, with regards to the requirements of BS 8233.

On this basis, the operation of the MRF would be unlikely to result in any adverse noise impacts at the dwellings during the early morning periods, with standard constructions.

5.5. Assessment of Noise Levels from Daytime Operations

Figure 5 presents the results of the modelling for the daytime period, between 07:00 – 18:00 hours, when the MRF would be fully operational, and vehicles would be using Abberd Lane to access both the MRF and RF Woods.

Noise levels at the dwellings along the eastern boundary closest to the MRF have been calculated to be between 42 - 45 dB $L_{Aeq,T}$, principally attributable to the activities carried out outside of the MRF. Given the prevailing background noise levels during the daytime periods are of the order of 39 dB L_{A90} , this level of noise would have the potential to result in adverse noise impacts within the proposed dwellings, when assessed against the requirements of BS 4142.

It is noted from the noise monitoring results, that the noise levels attributable to the MRF are of a similar order of magnitude to the surrounding general noise environment, principally attributable to the distant road traffic. On this basis, potential impacts associated with the operation of the MRF would be reduced, when the overall context of the noise is taken into account.

To reduce any potential adverse effects at the easternmost property, which is the property potentially most affected and would have a garden closest to the MRF, a close boarded fence to a height of 1.8 metres would be constructed along the rear garden boundary of the property. The provision of this mitigation would provide a 2 – 3 dB(A) reduction in noise levels at ground floor and gardens of the properties, reducing the levels to 42 dB $L_{Aeq,T}$.

With the additional boundary mitigation along the eastern boundary, noise levels within the garden of this property would be 8 dB(A) below the lower limit recommended within BS 8233 and would ensure noise levels within the properties remained below the recommended daytime level of 35 dB $L_{Aeq,T}$ assuming the windows were open. The mitigation would therefore seek to ensure an acceptable standard of noise was achieved within the properties.

5.6. Assessment of Noise Levels from Evening Operation at Hills MRF

Figure 6 presents the results of the calculations of the noise levels associated with the evening operations at Hills MRF after 20:00 hours. During this period, only activities within the MRF are permitted, with no HGV movements to / from the site.

Noise levels attributable to the operation of the MRF at the façades of the properties along the eastern site boundary would be between 39 – 40 dB $L_{Aeq,T}$. Again, based upon an evaluation of the noise monitoring results, this level of noise is equivalent to or below the ambient noise in the surrounding area. The operation of the MRF during this period would therefore be unlikely to result in any adverse noise impacts at the properties with standard constructions.

On the basis of worst-case conditions internally, assuming windows open, noise levels would remain below the recommended limit of 35 dB $L_{Aeq,T}$, thus ensuring a good standard of noise was maintained.

6. Summary

LF Acoustics Ltd were appointed to prepare an updated assessment of the noise levels within a proposed residential development to be located on land to the east of Spitfire Road, Calne.

The Application site is bounded to the west by Spitfire Road and a proposed residential development to the north.

The development is located close to a number of industrial / commercial land uses, in particular the Hills Materials Recycling Facility (MRF), at the Sands Farm Facility (SFF) located to the east, and the operation of RF Wood & Waste Recycling Ltd (RF Wood) facility located to the north-east, further along Spitfire Road.

A noise measurement exercise was carried out to establish the current noise levels along the site boundaries. The results of the measurements have been used to validate noise models prepared to calculate the noise levels attributable to the operation of the two neighbouring sites within the proposed development.

An assessment of the noise levels has been carried out within the proposed development, based upon an indicative layout. The modelling indicated that the noise levels at the proposed dwellings would be low throughout the day and night-time periods.

The assessment of internal noise levels within the proposed dwellings indicated an acceptable noise environment, with no specific noise mitigation measures identified.

Externally, noise levels would also be acceptable within the gardens of the dwellings, with low overall daytime noise levels measured / calculated. To provide further noise reduction and thus further reduce the potential for adverse impacts, it has been recommended that a close-boarded fence to a height of 1.8 metres is provided around the easternmost property, where marginally higher noise levels were predicted, which would have a garden facing towards the MRF.

References

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8. AECOM. Hills Waste Solutions Ltd. Sands Farm Facility. Noise and Vibration. 20 October 2017. Report Ref. 60543515_02.

Figures



Figure 1:
Site Location and
Surrounding Land Uses

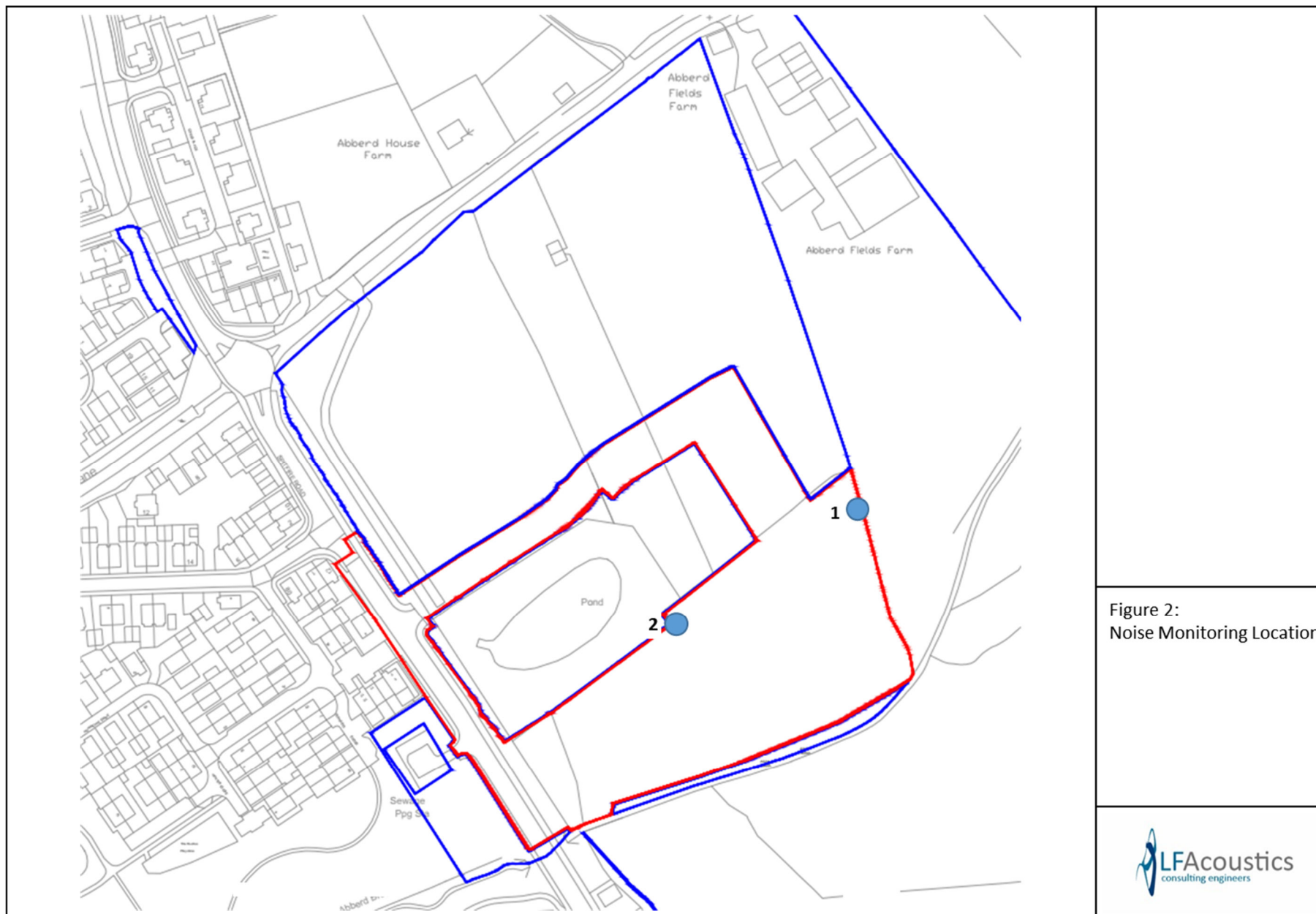
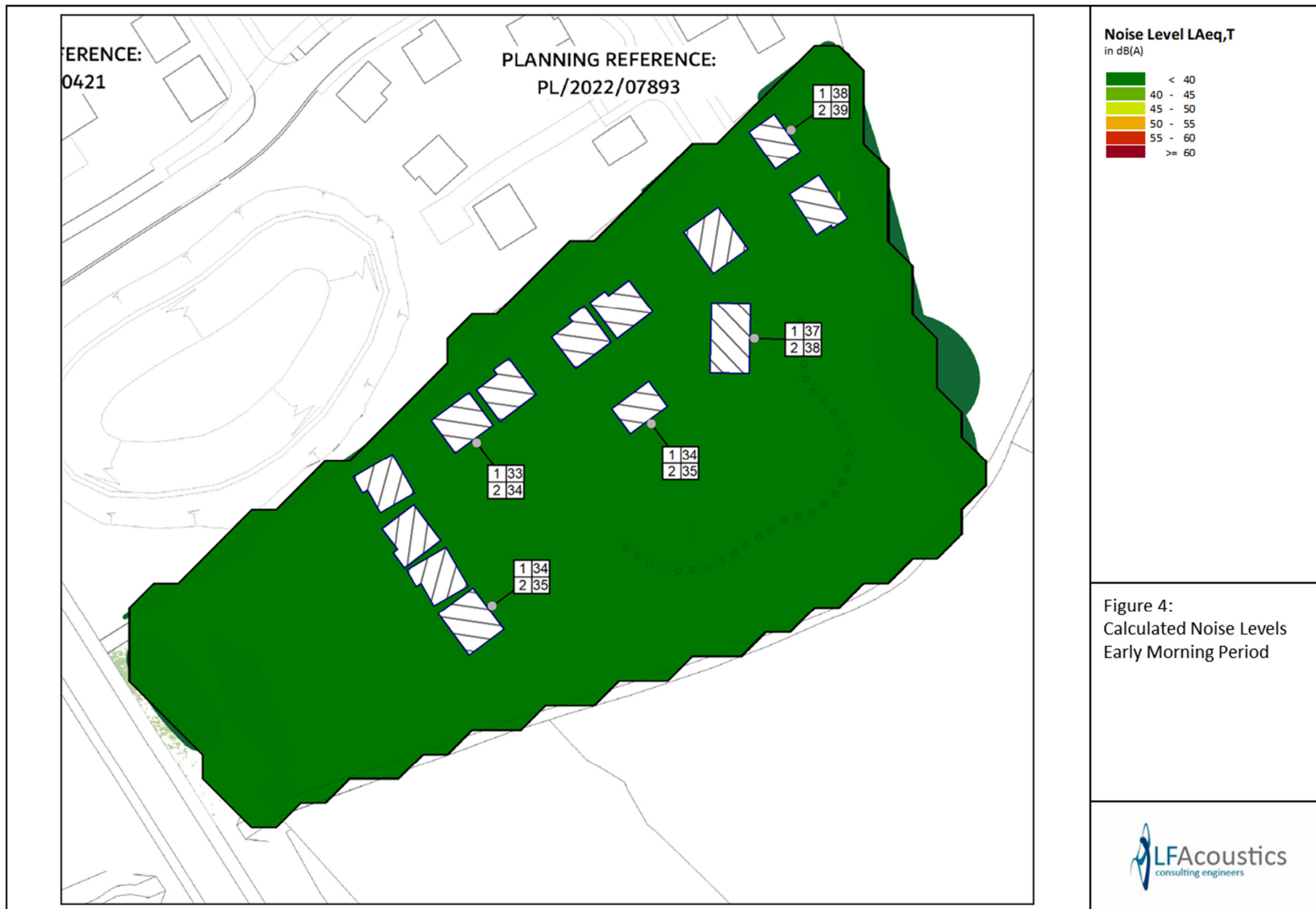
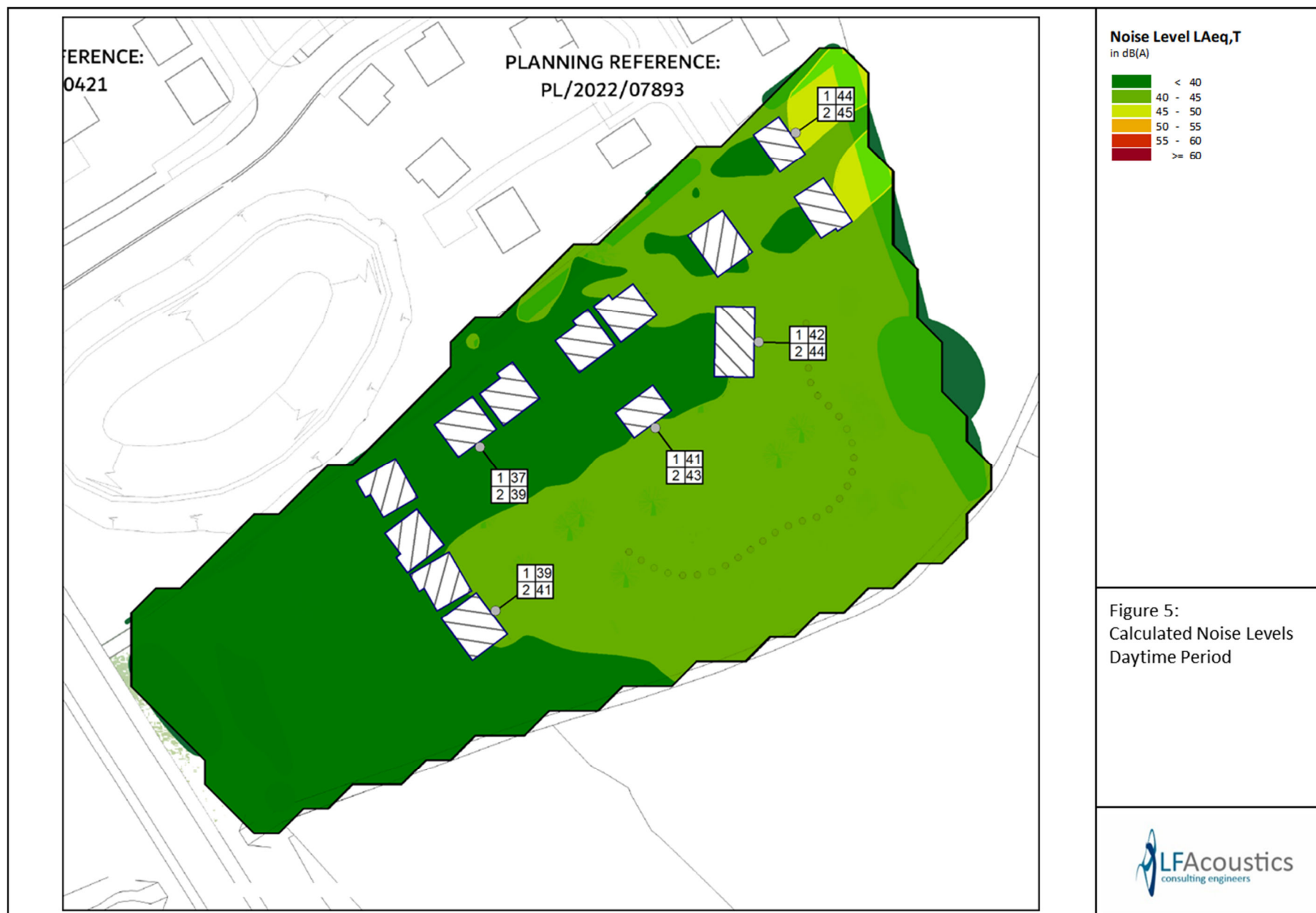


Figure 2:
Noise Monitoring Locations







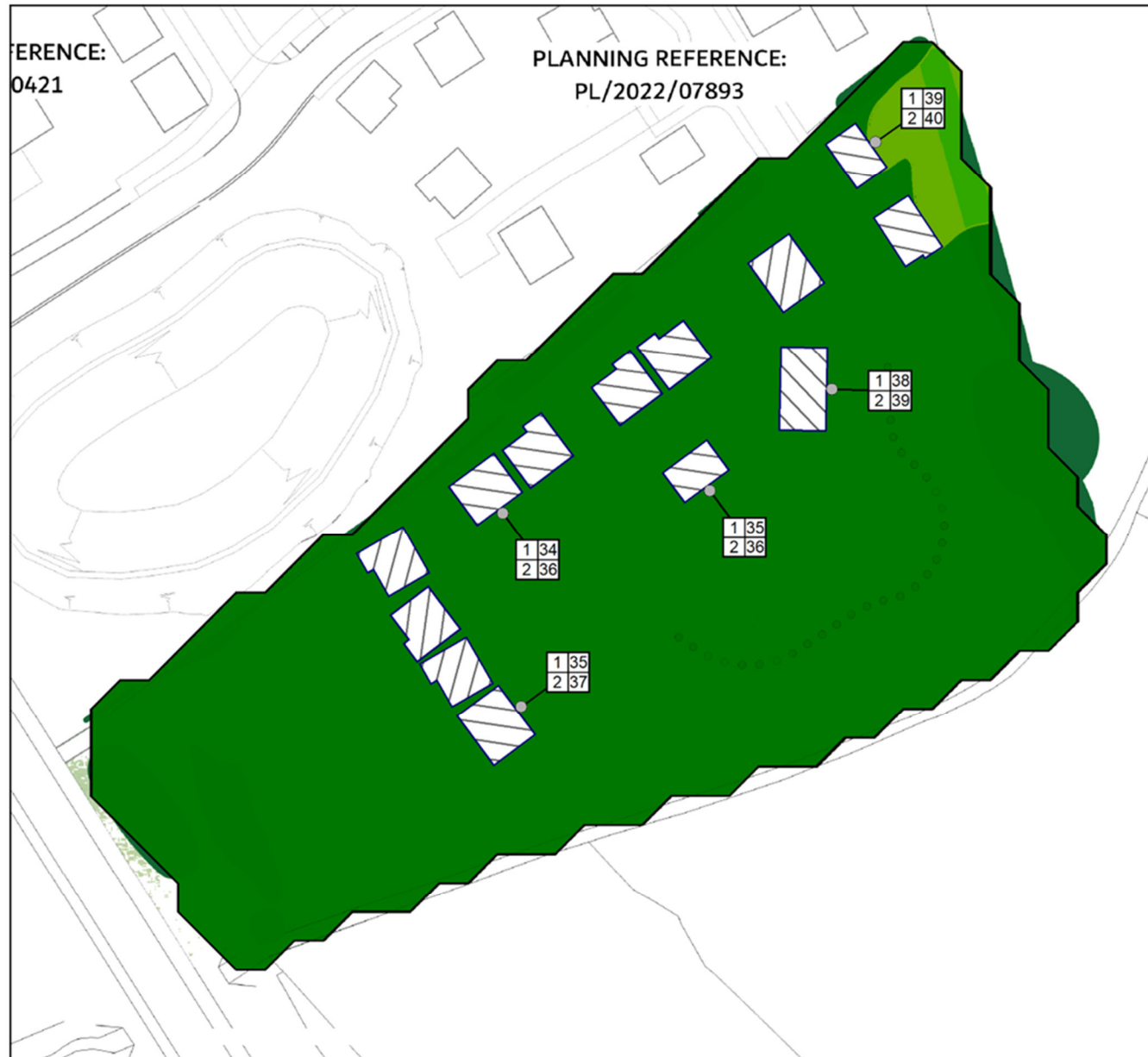


Figure 6:
Calculated Noise Levels
Evening Period

Appendix A

Noise Units

Decibels (dB)

Noise can be considered 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, a 5 dB change is generally considered to be clearly discernible and a 10 dB change is generally accepted as leading to the subjective impression of a doubling or halving of loudness.

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 that has a frequency response similar to the human auditory system. All the measurement results referred to in this report are A-weighted.

Units Used to Describe Time-Varying Noise Sources (L_{Aeq} , L_{Amax} , L_{A10} , and L_{A90})

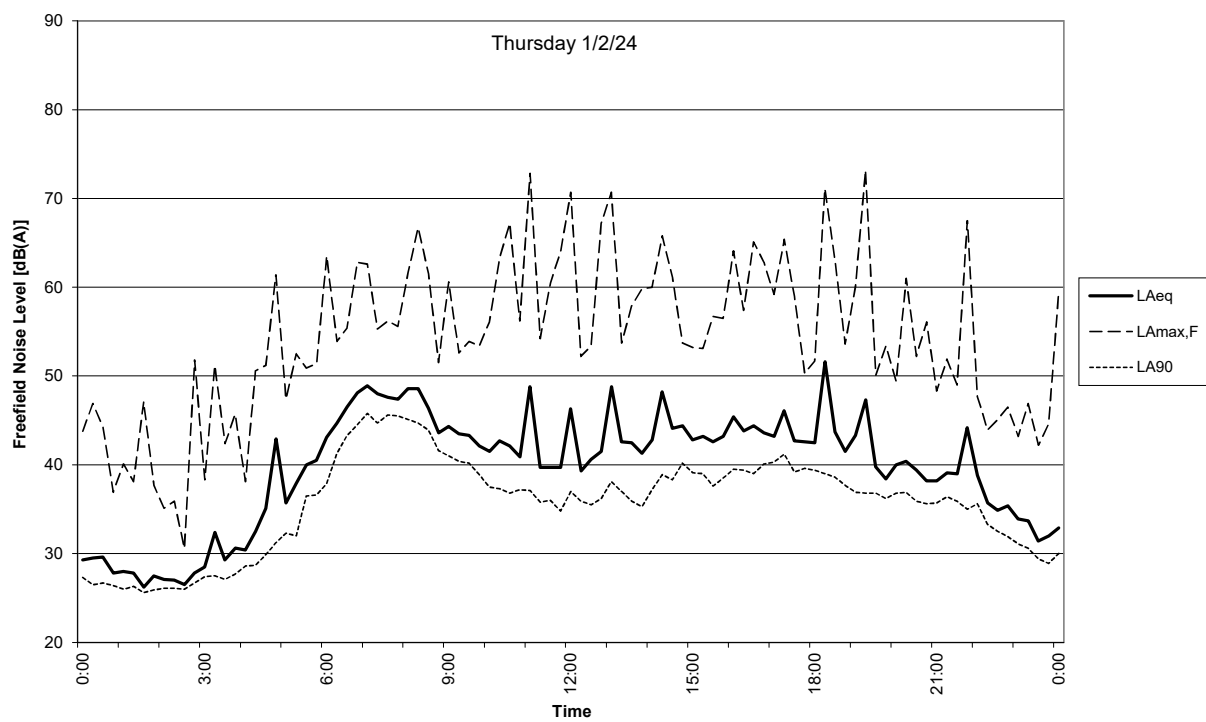
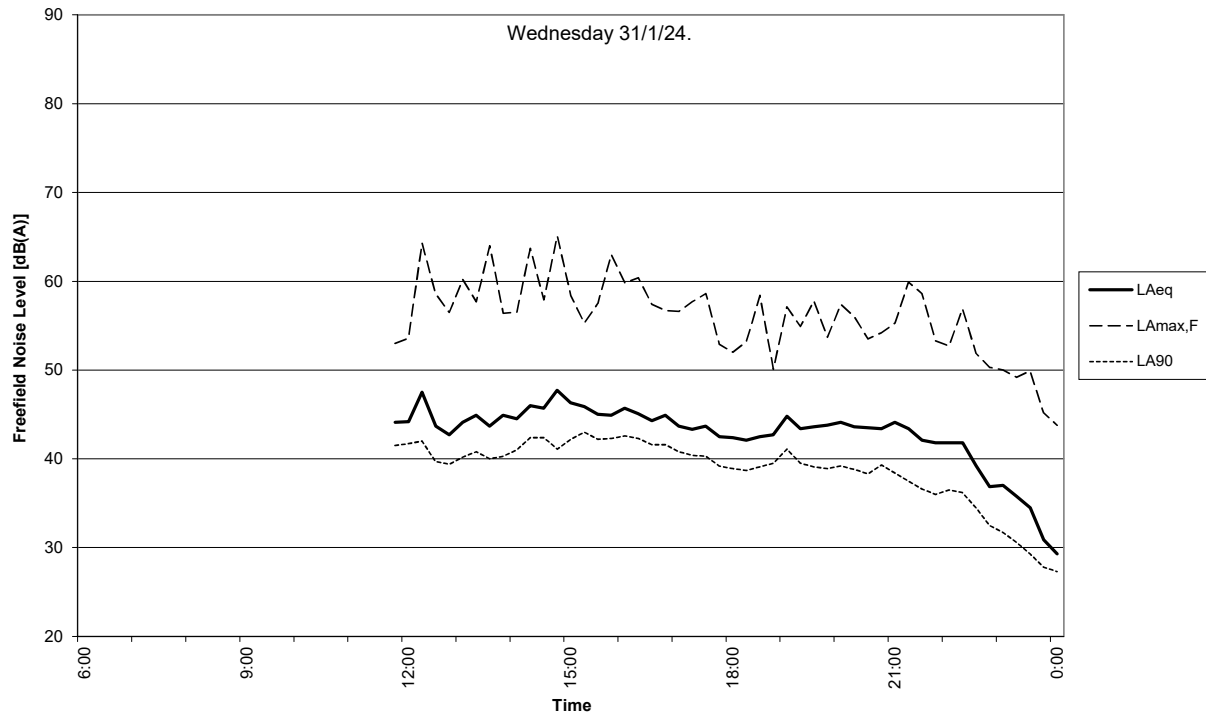
Instantaneous A-weighted sound pressure level is not generally considered as an adequate indicator of subjective response to noise because levels of noise usually vary with time.

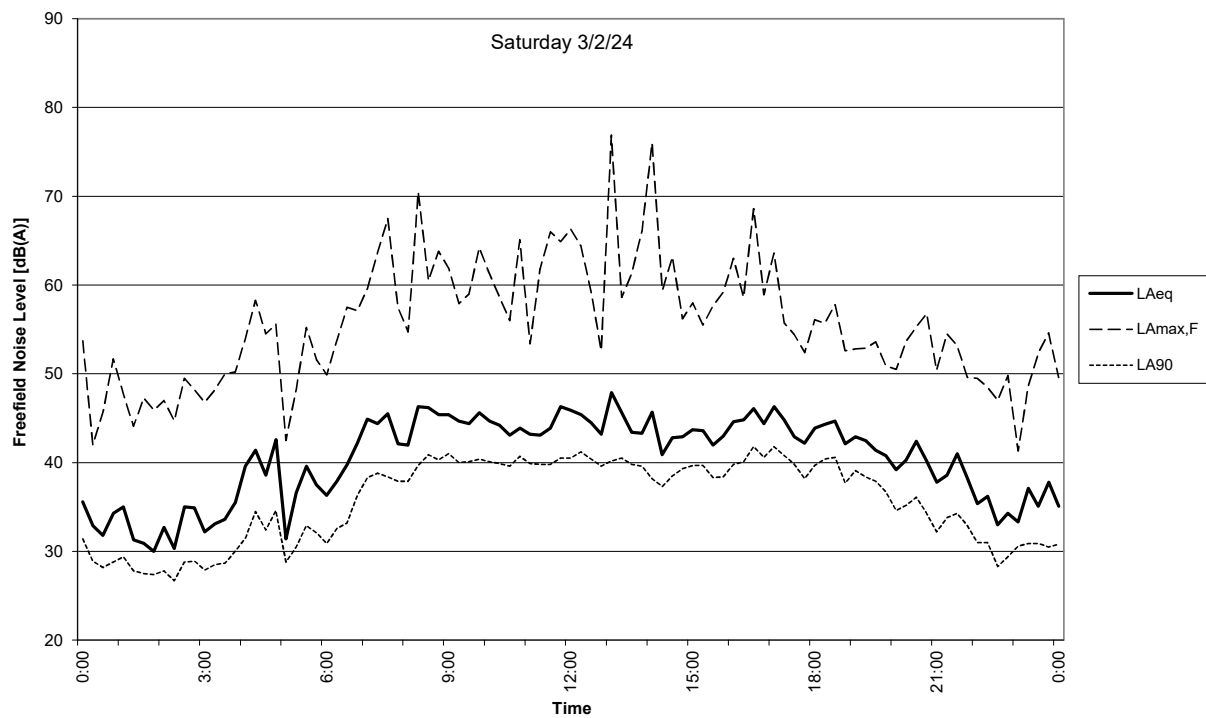
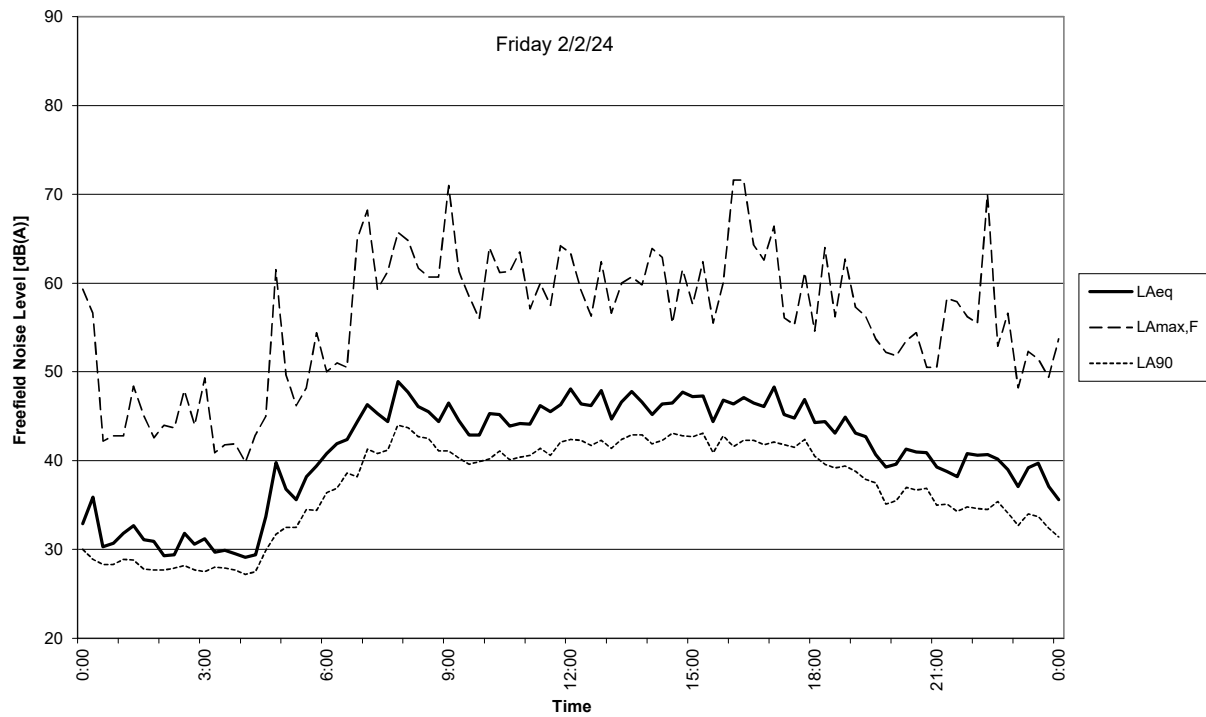
For many types of noise the Equivalent Continuous A-Weighted Sound Pressure Level ($L_{Aeq,T}$) is used as the basis of determining community response. The $L_{Aeq,T}$ is defined as the A-weighted sound pressure level of the steady sound which contains the same acoustic energy as the noise being assessed over a specific time period, T.

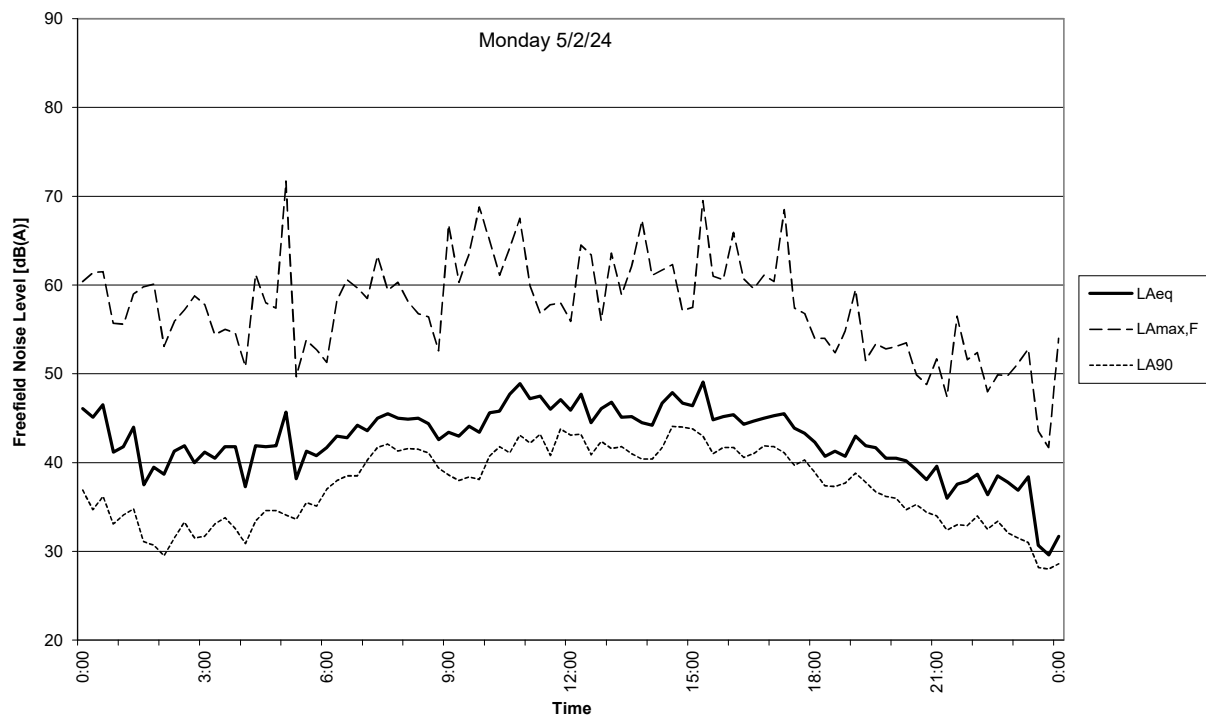
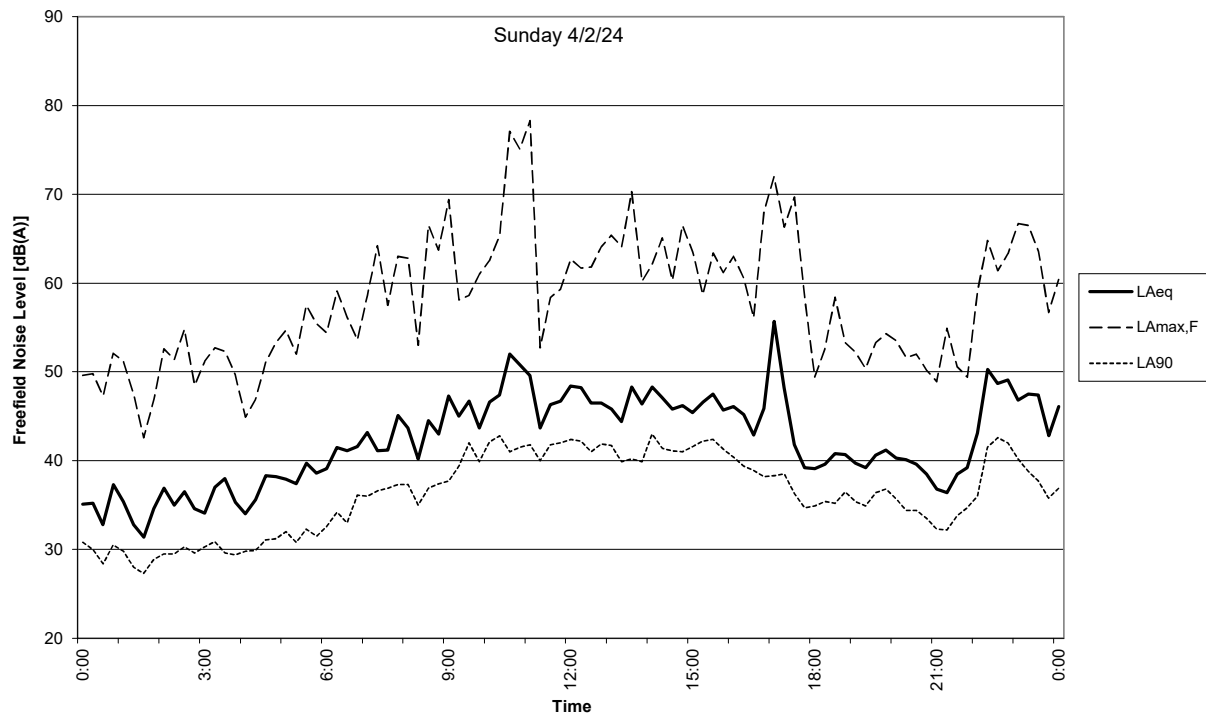
The L_{Amax} is the maximum value that the A-weighted sound pressure level reaches during a measurement period. $L_{Amax F}$, or Fast, is averaged over 0.125 of a second and $L_{Amax S}$, or Slow, is averaged over 1 second. All L_{Amax} values referred to in this report are Fast.

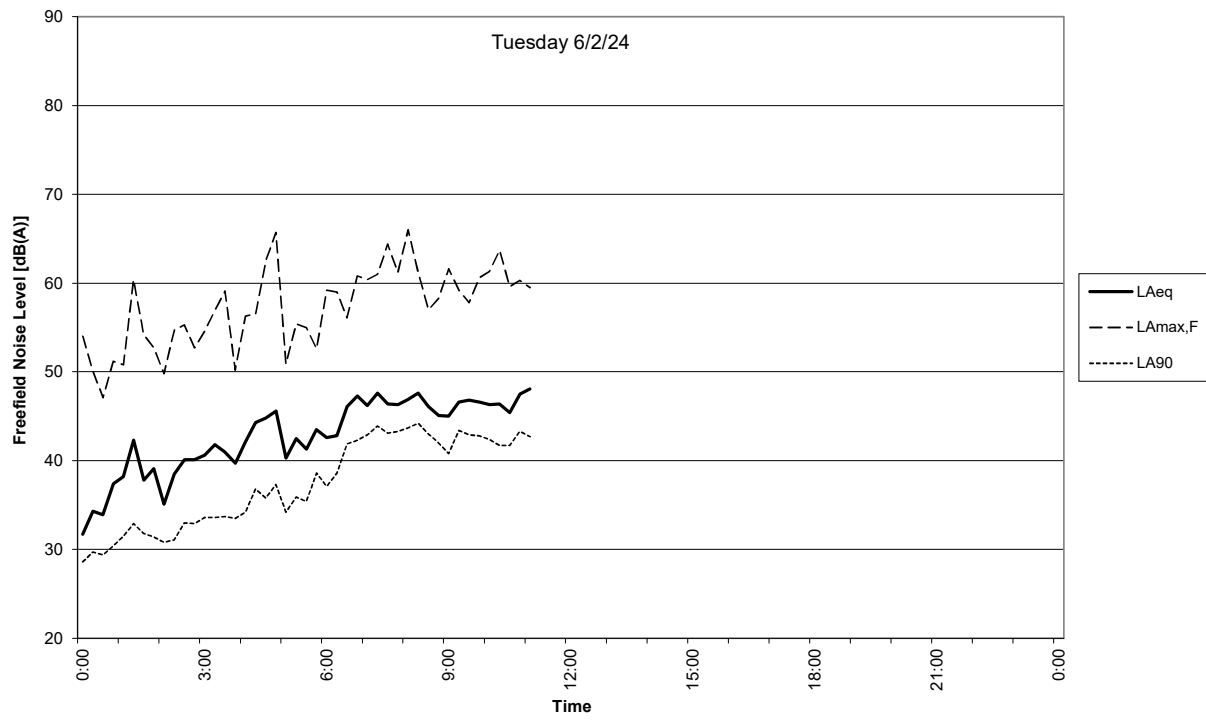
The L_{A90} is the noise level exceeded for 90% of the measurement period. It is generally used to quantify the background noise level, the underlying level of noise that is present even during the quieter parts of measurement period.

Appendix B
Results of Unattended Noise Survey
Position 1 - Eastern Site Boundary









Appendix C
Results of Unattended Noise Survey
Position 2 – Western Development Boundary

