

**RYECROFT MEADOW DOG WALKING FIELDS
NOISE IMPACT ASSESSMENT**

**On behalf of:
Ryecroft Meadow**

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NOISE IMPACT ASSESSMENT**

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1.0 INTRODUCTION

- 1.1 Hepworth Acoustics was commissioned to carry out a noise assessment relating to a planning application for Ryecroft Meadow, who provide enclosed dog walking and activity, to use two fields at Caia Farm in Gresford near Wrexham. Currently three fields are open to the public: "The Meadow", "Hillside" and "Agility". The Meadow field has extant planning permission for use as a dog walking field and a retrospective permission is sought for Hillside and Agility as well an application to relocate the Meadow to a new field to the east.
- 1.2 The location of the existing and proposed fields is shown in Figure 1.
- 1.3 Ryecroft Meadow offers enclosed fields which provides a range of facilities to owners in a safe environment. The Hillside and Agility fields are fully enclosed on all sides, such that dogs can run freely and are unable to escape the enclosure. The fields are predominately available for private hire for a limited number of dogs and owners to meet socially. Ryecroft Meadow also offer larger organised breed meetings for owners to meet up with owners of the same breed. A maximum 15 dogs attend the breed meetings, but the numbers are often lower. Private bookings and breed meetings tend to be around 60 minutes long with a 10-minute crossover, this allows for owners to leave the field and new arrival to access with no interaction between the dogs.
- 1.4 The Hillside field is to the northern part of the farm and slopes downwards to the north and is surrounded by hedgerows. The Agility field, which is adjacent to Hillside to the south, is a large flat field and offers an agility course for dogs. To the western boundary of Agility is a large earth bund which runs the length of the boundary. The existing Meadow field is to be moved approximately 150m to the east into a new field adjacent to Hillside and Agility, we understand the move is sought to simplify management of the fields and thus control access.
- 1.5 The nearest residences are to the west off Old Wrexham Lane, the closest of which is approximately 80m from the Hillside field, 110m from the Agility field and 150m at the closest point from the new Meadow Field there are dwellings to the east of the new Meadow field, but these are at least 200m away thus the assessment will focus on the residences off Old Wrexham Lane. The entrance to the new Meadow field will be at the southern end via the existing farm path.

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- 1.6 Due to the topography of the site the closest dwelling does have a line of sight to the Hillside field, but not to Agility. There are dwellings directly adjacent to the existing permitted Meadow field and we understand that no noise related complaints have been made in respect to the existing operation of the fields.
- 1.7 The operators do not offer day care or kennelling and all dogs at the facility are always with their owners, thus behaviour of the dog is monitored and controlled by the owners themselves. Ryecroft Meadow discourage vocal dogs and nervous dogs from attending group meetings to facilitate a calm environment. To support nervous dogs and promote a safe calm atmosphere there is green netting to create a visual barrier between the two fields such that animals in the Agility and Hillside fields cannot see each other.
- 1.8 The operational hours of the fields are 07:00-21:00 on Monday to Sunday although there will be seasonal variations to the operating times as light allows. The fields are generally not in constant use over these hours continuously; activity is more sporadic.
- 1.9 The various noise indices referred to in this report are described in Appendix I. All noise levels mentioned in the text have been rounded to the nearest decibel, as fractions of decibels are imperceptible.

2.0 GUIDANCE AND ACOUSTIC DESIGN CRITERIA

NPPF:2021

2.1 Paragraph 185 of the National Planning Policy Framework (NPPF) 2021 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;”

NPSE:2010

- 2.2 The Noise Policy Statement for England (NPSE) 2010, which is referred to the in NPPF, includes three aims:
- i. Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
 - ii. Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
 - iii. Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

BS 4142:2014+A1:2019

2.3 British Standard 4142:2014+A1:2019, *‘Methods for rating and assessing industrial and commercial sound’* (referred to hereafter as BS 4142) is the appropriate guidance for assessing the potential noise impact at residential locations from commercial and industrial sources.

2.4 In broad terms, assessment to BS 4142 involves the following:

- i. The ‘rating’ sound level for the operation to be compared with the L_{A90} background sound level in the absence of the operational noise.

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- ii. The rating level is derived based on the 'specific' L_{Aeq} sound level attributable to the operation with an 'acoustic feature' penalty added for the characteristics of the sound.
- iii. Daytime impacts should be assessed over a reference time interval of 1-hour
- iv. Initial estimate of the impact is determined by subtracting the background level from the rating level.
- v. Initial estimate of the impact potentially needs to be modified due to the relevant contextual factors of the noise impact

2.5 However, BS 4142 states in its scope that:

"The standard is not intended to be applied to the rating and assessment of sound from:...
e) domestic animals."

2.6 As such, direct use of BS 4142 is not considered appropriate in this case. However, it is considered that the principle of comparison of dog barking noise and prevailing noise is useful. Accordingly, the potential impact of noise from barking dogs outside the nearest residences has been assessed by comparing the L_{Aeq} noise levels from the dogs with the ambient noise levels in the absence of the dogs.

2.7 This is a widely used method for assessing the significance of noise impact, which Hepworth Acoustics has adopted for many other noise assessments relating to dog barking noise.

3.0 NOISE SURVEYS

- 3.1 A noise survey was carried out at the site between 12:30 Friday 12th November and 11:30 Monday 15th November 2021, at the boundary of the nearest dwelling, as identified in Figure 1.
- 3.2 Noise monitoring was undertaken in sequential 15-minute sample periods over the survey period, and 1 second sampling periods were also used. Audio was also recorded during the noise measurements.
- 3.3 The noise measurements were undertaken using a Rion NL-52 Type 1 Integrating Sound Level Meter (serial no. 1143558). Calibration checks were carried out before and after the survey and no variation in the calibration levels was noted.
- 3.4 The measurement microphone was mounted at 1.5m above local ground height in free-field conditions, and fitted with a windshield. The weather during the noise survey was generally dry and calm with a light westerly wind (typically <4m/s)., however wind speeds were higher on Friday 12th November, and we have therefore excluded the noise measurements from our assessment, to ensure a robust assessment.
- 3.5 We have reviewed the audio recorded during the Saturday and Sunday of the measurement survey. From these audio recordings we have been able to identify periods that the Agility and Hillside fields are unoccupied by any dogs. We have therefore adopted these periods as representative of the noise climate in the absence of dogs in the fields.
- 3.6 The full noise monitoring results are presented in Appendix II. The data has been averaged over each 60-minute period to provide a summary, as set out in Table 1.

Table 1: Summary of Averaged Noise Levels

Day	Location 1	
	L_{Aeq}	L_{Amax} (Range)
Saturday 13 th November 10:30-11:30	46	62-72
Saturday 13 th November 15:00-16:00	48	60-75
Sunday 14 th November 12:00-13:00	46	64-69

- 3.7 A supplementary visit was made to the Hillside Field on Saturday 22nd January 2022 to measure noise from a breed meeting at the same location. This meeting was attended by 14 dogs of varying size and temperament, playing under supervision from the owners in Hillside for a typical session. The dogs were located across the full field during this time. This type of event is considered representative of a worst-case scenario in terms of numbers of guests and animals on site and has therefore been adopted for the purposes of the assessment.

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The meeting lasted the standard 60 minutes; the majority of guests remained for the entire session, however as a small number departed early, we have used measured noise levels during periods when all dogs and guests were on site. The results of the noise measurements are shown in Table 2.

Table 2: Summary of Noise Levels During Breed Meeting

Day	Location 1	
	L_{Aeq}	L_{Amax} (Range)
Saturday 22 nd January (breed meeting)	49	54-62

4.0 NOISE ASSESSMENT & RECOMMENDATIONS

- 4.1 It can be seen from the data in Tables 1 & 2 that noise levels are broadly comparable between an empty field and a fully occupied breed meeting. The noise is 1dB higher during the breed meeting than those measured in the absence of the meeting.
- 4.2 Distant road traffic was just about audible at the site as well as sporadic vehicles passing the site on Old Wrexham Road.
- 4.3 Very little barking occurred during the breed meeting. The barking that did occur was noted to be at a number of locations across Hillside and hence at varying distances from the noise measurement locations. This is hence considered representative of the likely corresponding levels at the nearest dwellings. It was found that instances of barking were uncommon and that mostly the dogs play and run without barking. Owners' voices and commands were the main source of noise.
- 4.4 The above would hence indicate that, noise from the use of the fields was no more than 4 dB L_{Aeq} above the prevailing noise level. It should be noted that under normal circumstances a 3 dB change is the minimum perceptible change in noise level. As such, the proposals will result in only a slight perceptible change in noise level outside the nearest dwellings. This indicates a low noise impact.
- 4.5 However, although this was considered representative based on experience of similar scenarios, it is recognised that this is simply one relatively short sample period and that more barking may occur on occasions.
- 4.6 Therefore, a calculation model has been undertaken based on a set of parameters to represent a possible worst-case scenario. Hence, an overall 60-minute noise level has been estimated by considering the following:
- 8 dogs equally spaced throughout the dog park (i.e. two dogs at 80m distance to reference point, two at 100m distance, two at 120m, two at 140m), hence acknowledging that some, but unlikely all, dogs may bark close to the boundary nearest to residences
 - 8 dogs equally spaced throughout the new Meadow Field (i.e. two dogs at 260m distance to reference point, two at 240m distance, two at 220m, two at 180m), hence acknowledging that some, but unlikely all, dogs may bark close to the boundary nearest to residences.

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- Each dog barks for a cumulative period of 1 minutes in each hour, i.e. this could be a single continuous 1 minute period, or more likely a number of shorter bursts of barking totalling 1 minutes overall
- A robust reference noise level of 92dB $L_{Aeq,T}$ at 1m for a single forward-facing dog barking incessantly; this has been derived based on numerous previous measurements of dog barking noise
- A correction of -3dB applied to account for variation in noise levels that will occur depending upon which way dogs are facing
- For cautious assessment no allowance for air/ground absorption or acoustic screening provided by any intervening structure or topographical feature

4.7 Based on the above, an overall worst-case dog barking noise level of 51 dB $L_{Aeq,1hr}$ would be anticipated at the nearest residences. This worst-case scenario hence gives rise to a predicted dog barking noise level that is typically between 3-5 dB higher the prevailing daytime ambient L_{Aeq} noise level. This would usually equate to a low noise impact and reflects the subjective impressions of the likely situation formed during the noise survey. This is of course a worst-case scenario, and the vast majority of the fields are occupied by private hire owners with one or two dogs, the dogs are not presented with unfamiliar animals which can give rise to barking. Indeed, the review of our audio recordings noted very few barks during any of the session due to good handling by the owners and the enforcement of good practise by Ryecroft Meadow.

4.8 It is considered that the above represents a fair set of assumptions for the purposes of robust assessment of worst-case potential impact. It is stressed that this is reflective of a single set of circumstances only, and it is anticipated that usually the overall barking noise levels, and hence the noise impact at residences, will be lower.

4.9 Nonetheless, given the characteristics of dog barking noise, which are readily distinguishable against the ambient/background road traffic noise climate, it is still the case dog barking will be audible at the frontages of nearby residences at times.

4.10 Taking all of the above into account, as well as the daytime-only operational hours, it is concluded that use of the site does not pose a significant risk to amenity of nearby residences by reason of noise. The usual tendency of dogs using the park is to run and play, but not to bark to any significant extent.

4.11 To this extent it would not be appropriate to limit the number of attending on the basis of controlling noise, the barking of dogs is likely to be more sporadic than our assessment and under the direct control of the owners who have agreed to keep barking to a minimum. To address this, and hence minimise the likelihood

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that this would occur, it is recommended that a Noise Management Plan is required to be prepared by the operators, setting out the general measures to be adopted in the control and supervision of the dogs to ensure that barking is minimised. This requirement may be readily enforced by way of a suitably worded planning condition.

5.0 SUMMARY

- 5.1 Hepworth Acoustics was commissioned to carry out a noise assessment relating to a planning application for use of two fields at Caia Farm as a dog walking and agility field and the relocation of the an existing field to a new location on the farm.
- 5.2 A noise survey has been undertaken to determine the prevailing noise climate at the site and a summary of the results has been provided.
- 5.3 Further predictions of potential dog barking noise have been undertaken.
- 5.4 It has been concluded that use of the site in this manner does not pose a significant risk to amenity of nearby residences by reason of noise. The usual tendency of dogs using the park is to run and play, but not to bark to any significant extent.
- 5.5 However, there is potential for some barking noise to be audible. To address this, and hence minimise the likelihood that this would occur, it is recommended that a Noise Management Plan is required to be prepared by the operators of the dog park, setting out the general measures to be adopted in the control and supervision of the dogs to ensure that barking is minimised, particularly in areas close to residences. This requirement may be readily enforced by way of a suitably worded planning condition.

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Appendix I: Noise Units & Indices

Sound and the decibel

A sound wave is a small fluctuation of atmospheric pressure. The human ear responds to these variations in pressure, producing the sensation of hearing. The ear can detect a very wide range of pressure variations. In order to cope with this wide range of pressure variations, a logarithmic scale is used to convert the values into manageable numbers. Although it might seem unusual to use a logarithmic scale to measure a physical phenomenon, it has been found that human hearing also responds to sound in an approximately logarithmic fashion. The dB (decibel) is the logarithmic unit used to describe sound (or noise) levels. The usual range of sound pressure levels is from 0 dB (threshold of hearing) to 120dB (threshold of pain).

Due to the logarithmic nature of decibels, when two noises of the same level are combined together, the total noise level is (under normal circumstances) 3 dB(A) higher than each of the individual noise levels e.g. 60 dB(A) plus 60 dB(A) = 63 dB(A). In terms of perceived 'loudness', a 3 dB(A) variation in noise level is a relatively small (but nevertheless just noticeable) change. An increase in noise level of 10 dB(A) generally corresponds to a doubling of perceived loudness. Likewise, a reduction in noise level of 10 dB(A) generally corresponds to a halving of perceived loudness.

The ear is not equally sensitive to sound at all frequencies. It is less sensitive to sound at low and very high frequencies, compared with the frequencies in between. Therefore, when measuring a sound made up of different frequencies, it is often useful to 'weight' each frequency appropriately, so that the measurement correlates better with what a person would actually hear. This is usually achieved by using an electronic filter called the 'A' weighting, which is built into sound level meters. Noise levels measured using the 'A' weighting are denoted dB(A) or dBA.

Frequency and Hertz (Hz)

As well as the loudness of a sound, the frequency content of a sound is also very important. Frequency is a measure of the rate of fluctuation of a sound wave. The unit used is cycles per second, or hertz (Hz). Sometimes large frequency values are written as kiloHertz (kHz), where 1 kHz = 1000 Hz.

Young people with normal hearing can hear frequencies in the range 20 Hz to 20 kHz. However, the upper frequency limit gradually reduces as a person gets older.

Glossary of Terms

When a noise level is constant and does not fluctuate, it can be described adequately by measuring the dB(A) level. However, when the noise level varies with time, the measured dB(A) level will vary as well. In this case it is therefore not possible to represent the noise climate with a simple dB(A) value. In order to describe noise where the level is continuously varying, a number of other indices can be used. The indices used in this report are described below.

$L_{Aeq,T}$ This is the A-weighted 'equivalent continuous noise level' which is an average of the total sound energy measured over a specified time period. In other words, $L_{Aeq,T}$ is the level of a continuous noise which has the same total (A-weighted) energy as the real fluctuating noise, measured over the same time period. It is increasingly being used as the preferred parameter for all forms of environmental noise.

L_{AFmax} This is the maximum A-weighted noise level that was recorded during the measurement period in terms of 'Fast' time weighting.

$L_{A90,T}$ This is the A-weighted noise level exceeded for 90% of the time period. $L_{A90,T}$ is used as a measure of background noise.

Appendix II: Noise Survey Results

Date(s):	12:30 Friday 12 th November and 11:30 Monday 15 th November 2021 Saturday 22 nd January 2022
Equipment	Rion NL-52 'Class 1' sound level meter (serial no:1143558) with associated calibrator and environmental outdoor monitoring kit NTi Audio XL2 'Class 1' sound level meter (serial no: A2A-08116-E0)
Weather	12 th November 2021- Showery, ~14°C, cloudy and breezy 9 m/s 13 th November 2021- Dry, ~13°C, partly cloudy and light breeze 3 m/s 14 th November 2021- Dry, ~5-13°C, clear skies and calm <1 m/s 15 th November 2021- Dry, ~7-12°C, partly cloudy and light breeze <2 m/s

Location 1:

